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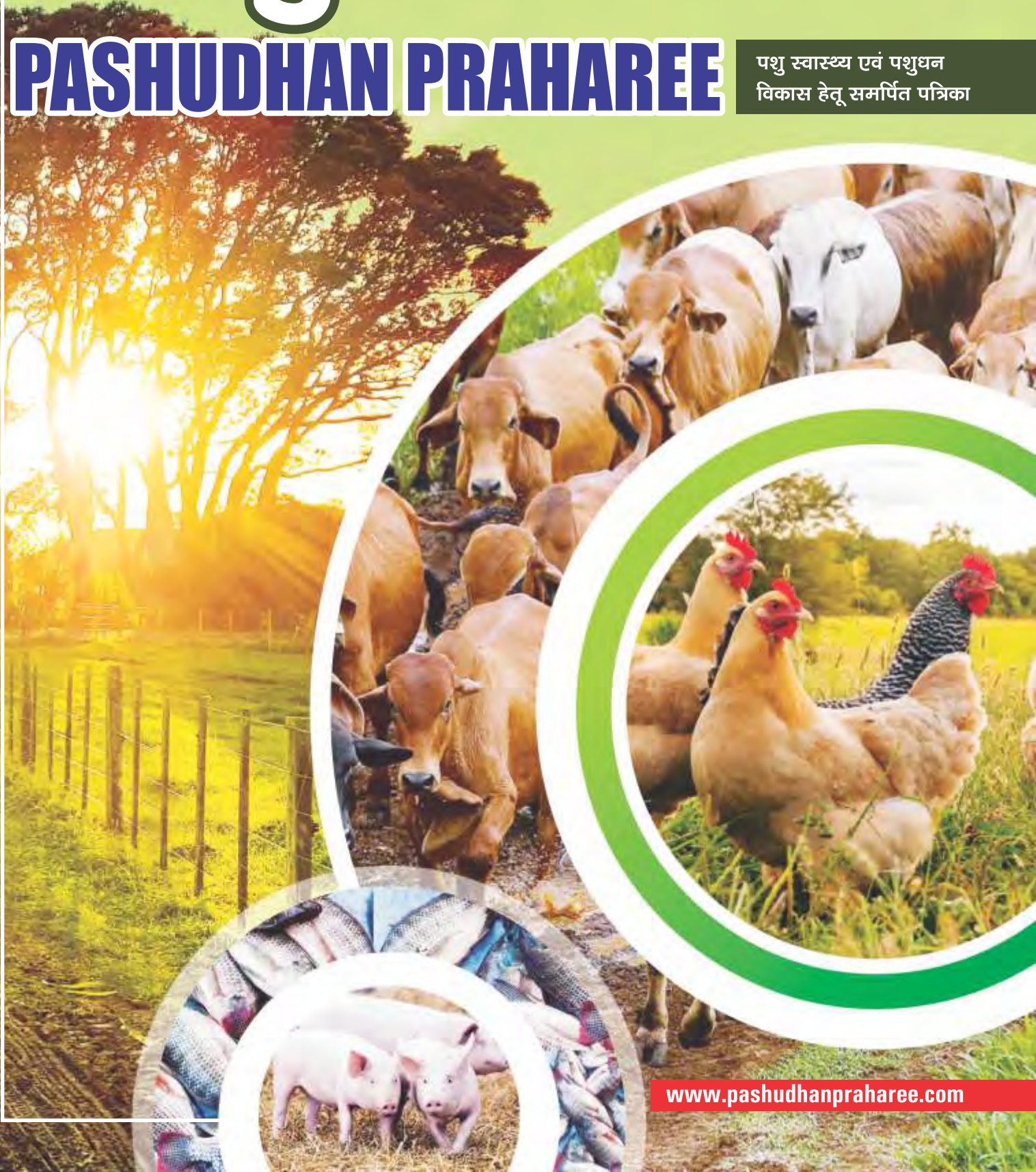


पशुधन विज्ञान संशोधन पत्रिका

पशुधन प्रहरी

PASHUDHAN PRAHAREE

पशु स्वास्थ्य एवं पशुधन
विकास हेतु समर्पित पत्रिका



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Editor's Quote...



Dr. Rajesh Kumar Singh

I am happy to note that Pashudhan Praharee is able to publish our PDF version of the Magazine again after a gap of about one year. This has become possible due to the untiring efforts by the Editorial team. My congratulation to the Editorial team. Magazine of any association is a window into the activities of the association and reflects the quality of the work being carried out by the members of the association. While good quality research is being carried out by our readers, unfortunately most of it gets published in other Magazine. There are any number of reasons for this and irregular publication certainly is the most important one I believe. Therefore it would be our endeavour from now on to publish the Magazine. This is in fact is a relatively simple task if all our readers resolve to publish one paper every year in our own Magazine.

An attempt has been made here to revive the Pashudhan Praharee that has not seen any publication after 2022. Financial constraints and lack of enough number of articles of acceptable standards have been the reasons. Not being able to continuously publish may have subsequently discouraged researchers from submitting their articles to Pashudhan Praharee. This issue is being brought out as an Pdf Version-publication linked to the Pashudhan Praharee website. It is hoped that this fills confidence in you all, that the Magazine is capable of bringing out the pdf version in future and thus encourages you to submit articles for future issues. With more articles and improved funds situation, it is hoped to bring out the future issues in print form and work towards getting NAAS rating. The editorial committee thanks all the contributors and acknowledges all the referees who have reviewed and communicated their comments in time, the manuscripts published in this issue.

All the readers are requested to provide valuable feedback, helping us to make our 'Pashudhan Praharee', the 'e-Magazine', a tool for realizing the vision of vets & Livestock Entrepreneurs. We are eager and looking forward to your suggestions.

Let us all work towards that goal in the coming years!

With best wishes
Humbly yours

A handwritten signature in blue ink, which appears to be 'Rajesh'.

Rajesh.

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Dr Prakashkumar Rathod

Assistant Professor
Department of Veterinary and A.H Extension
Education
Veterinary College, Nandinagar, Bidar-585226
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द्वारा प्रकाशित एवं झारखण्ड प्रिंटिंग प्रेस, जमशेदपुर, झारखण्ड से मुद्रित ।

नोट : जमशेदपुर से पशुधन प्रहरी का प्रकाशन पूर्णता अव्यवसायिक तथा अवैतनिक है। पशुधन प्रहरी के प्रकाशित सामग्री से सम्पादक/प्रकाशक की सहमति अनिवार्य नहीं है। कुछ फोटो अन्य सामग्री साभार, पशुधन प्रहरी के सभी मामलों का न्याय क्षेत्र जमशेदपुर (झारखण्ड) होगा।

पशुधन प्रहरी में प्रकाशित लेख में व्यक्त किये गए विचार लेखक के हैं, यह पत्रिका उसका अनुमोदन नहीं करती – सम्पादक

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THERAPEUTIC MANAGEMENT OF KETOSIS IN CROSS BREED COW



Author1 – Kavita Jaidiya,
Department of Veterinary
Medicine, CVAS, Bikaner

Author 2 – Chitra Jaidiya
Department of Veterinary Public
Health and Epidemiology, CVAS,
Bikaner

ABSTRACT

A post parturient cross breed cow was presented at CVAS, Bikaner, with history of disease appetite and drop in milk yield. Cow scrined for ketosis by examination of urine (Rothera's test). Urine examination revealed positive for ketosis. Cow was treated with 25% to 50 % Dextrose solution @ 500-1000 ml by intravenous route repeatedly, Vetalog injection @ 3 ml i/m, this stimulates gluconeogenesis but utilisation of glucose for milk production is suppressed and there is complete suppression of milk production, Xenz liquid @ 100 ml twice a day and Ketonex bolus 2 boli orally twice a day and Injection Liver Extract with B-complex. Advised feeding of crushed maize 2 kg and 250 gram of molasses per day a readily available source of carbohydrates

MATERIAL AND METHOD

A post parturient cross breed cow was presented at CVAS, Bikaner, with history of disease appetite and drop in milk yield. Cow scrined for ketosis by examination of urine (Rothera 's test). Urine examination revealed positive for ketosis. Cow was treated with 25% to 50 % Dextrose solution @ 500-1000 ml by intravenous route repeatedly, Vetalog

One of the most important disorders in veterinary science and particularly dairy cattle in higher producing herds is production or metabolic diseases. Ketosis is a phenomenon associated with negative energy balance (NEB), is classified into three types: type I (spontaneous or underfeeding ketosis), type II (fatty liver) and butyric acid silage ketosis. Type II ketosis occurs in the postpartum transition period. All dairy cows experience NEB, since in early lactation there is a higher energy requirement for milk production than the energy intake by feed. Ketosis cause economic and animal welfare consuns in the dairy farm industry. (Seungin Ha and Seogjin kang, 2022). After 15 days of treatment improvement was observed in cow.

injection @ 3 ml i/m, this stimulates gluconeogenesis but utilisation of glucose for milk production is suppressed and there is complete suppression of milk production, Xenz liquid @ 100 ml twice a day and Ketonex bolus 2 boli orally twice a day and Injection Liver Extract with B-complex. Advised feeding of crushed maize 2 kg and 250 gram of molasses per day a readily available source of carbohydrates.

RESULT AND DISCUSSION

After 15 days of treatment improvement was observed in cow . Cow was started to feed. Rothra 's test revealed negative for ketosis after few days of treatment. Primary ketosis occurs usually within 6-8 weeks after parturition commonly during peak yield. This is due to

impaired carbohydrate metabolism. Blood glucose level falls down considerably with simultaneous rise in blood ketones. Synthesis of glucose is less as compared drain in milk. Sometimes occurs concurrently with hypocalcemia. Sudden drop in milk yield. Signs of nervous excitement and mania, no recumbency. Temperature, pulse, respiration within normal range. Rapid wasting and loss of subcutaneous fat (Gluconeogenesis). Sweet smell to breath and urine. Selective appetite (feeding on hay but refusal of conc. mixture). Confirmation by examination of urine by Rothra' test. Also by estimation of blood glucose.



THERAPEUTIC MANAGEMENT OF RICKETS IN DOGS

Author 1 – Kavita Jaidiya

Department of Veterinary Medicine, CVAS, Bikaner

Author 2 – Sulochana dariya

Department of Veterinary Pathology, PGIVER, Jaipur

Author 3 – Chitra Jaidiya,

Department of Veterinary Public Health and Epidemiology, CVAS, Bikaner



ABSTRACT

Rickets is classical metabolic bone disease of young rapidly growing animals characterized by defective calcification of growing bones. Two dogs were presented for treatment in the CVAs, Bikaner with history of having lameness, abnormal gait, nodular growth of long bones, mainly radius and ulna in forelimb, joint pain and reluctant to move. Treatment was done with ostopet syrup 5ml twice daily, syrup zivit (multivitamin) were given @ 2ml orally daily. Along with this owner was suggested for exposure of pup in the sun light atleast for 20-30 minute daily.

MATERIAL AND METHODS

A Two dogs were presented for treatment in the CVAs, Bikaner with history of having lameness, abnormal gait, nodular growth of long bones, mainly radius and ulna in forelimb, joint pain and reluctant to move.

Rickets is a disease of the developing, skeleton, where defective mineralization occurs not only in bone, but also at the cartilaginous pollution of the growth plate (Karane & Holick 1980).

It is characterized by a defective calcification of epiphyseal cartilage, delay in maturation and arrangement, and of cartilage cells & failure to remodel freshly deposited bone together these derangement result in enlargement of metaphyses and weakening of bone shafts that in turn lead to bending deformity, with bowing of the limb (Krane & Holick, 1980).

It is commonly occurs in young canine especially growing pups and commonly occur in dogs when they are not receiving correct allocation of nutrients such as vitamin A, D, E, or Calcium.

Most of the cases are caused by dietary deficiency of either Vitamin D or Calcium.

During clinical examination beaded structure (rachitis rosary), Bow like posture and limping in gait was observed. Radiographic examination of both forelimb was performed.

On the basis of history, clinical signs and radiographic examination, the presumptive diagnosis was determined to rickets.

Treatment was done with ostopet syrup 5ml twice daily, syrup zivit (multivitamin) were given @ 2ml orally daily. Along with this owner was suggested for exposure of dogs in the sun light atleast for 20-30 minute daily.

RESULT AND DISCUSSION

After treating for one month the both dog started showing improvement in his gait and posture and showed the sign of recovery.

As in young one with rickets, muscle weakness was a promine feature in these pups and coupled with loss of

ligamentous support, gave rise to hyper extension of limb. Characteristic radiological changes were present also with marked widening of the growth plates in axial and radial directions resulting in mushroomed metaphyses. The easiet way to prevent the development of nutritionally complete food properly for growth.



INTRODUCTION

It was identified as a fat-soluble component in 1922 by Evans Mattill, and Bishop. It was isolated as alpha tocopherol later in 1936. Tocopherol is a Greek word that means alcohol that bears children. Alpha tocopherol is more active than beta, gamma,

VITAMIN E

ITS FUNCTION AND DEFICIENCY SYMPTOMS

Author 1 - A. SHIRISHA

Ph.D scholar, Department of Veterinary Public Health and Epidemiology, Kamdhenu University, Gujarat.

Author 2 - RAJASHEKAR KAMALLA

Ph.D scholar, Division of Veterinary Medicine, ICAR-IVRI, Izatnagar, Bareilly, UP.

and delta.

FUNCTIONS

- 1) At the cellular level, it functions as a natural antioxidant and is crucial for biological oxidation-reduction reactions. The animal defends itself against oxidative damage via two major mechanisms. First, vitamin E neutralises free radicals produced during cellular metabolism and then glutathione peroxidase eliminates any generated peroxides before they





may harm the cells. As a result, glutathione peroxidase and vitamin E work well together.

It guards against oxidation of carotenoids and vitamin A in the gastrointestinal system as well as in the cells.

- 2) In addition to extending the time that vitamin A is stored in the liver, adequate dietary vitamin E appears to help in the absorption and utilisation of vitamin A, carotene and xanthophylls. Extra vitamin E tends to impede optimal vitamin A storage and expedite the loss of vitamin A reserves.
- 3) Additionally, the metabolism of selenium and vitamin A, the creation of ubiquinone, the metabolism of sulphur amino acids and phosphorylation processes are all directly related to vitamin E.
- 4) Vitamin E is important for the growth and operation of the immune system.

DEFICIENCY SYMPTOMS

- 1) In male rats, vitamin E insufficiency causes immobility of spermatozoa and degradation of the germinal epithelium, while in female rats, infertility is the classic indication of deficiency.
- 2) The disorder known as nutritional myopathy, commonly referred to as nutritional muscular dystrophy, mostly affects the skeletal muscles of chickens, pigs and lambs. Mulberry heart disease in pigs is another name for it.
- 3) There are various types of nutritional myopathy, including stiff

lamb illness in suckling lambs and white muscle disease in calves. A vitamin E deficiency or a vitamin E and selenium deficiency may be the cause of enzootic illness in sheep and cattle.

- 4) Nutritional encephalomalacia, often known as crazy chick illness or chicken cerebellum degeneration sickness: In the cerebellum, purkinje cell production, oedema and bleeding are all visible. The chick is incapable of walking or standing. Vitamin E and selenium both seem to have a role in exudative diathesis and nutritional muscular dystrophy, while selenium does not seem to be significant in nutritional encephalomalacia.
- 5) Due to vitamin E deficiency enlarged hock condition in turkeys is seen.
- 6) Exudative diathesis (an edema caused by excessive capillary permeability), a haemorrhagic disease in chicks and turkeys.
- 7) Generally, vitamin E deficiency is characterized by increased haemolysis of RBCs.
- 8) It's lack also results in pansteatitis, popularly known as "yellow fat disease," in cats. This happens when high PUFA levels are fed with low vitamin E levels, causing ceroid pigment to develop in adipose tissue along with fat cell death and subsequent inflammation.

A Review of HOMEOPATHY in VETERINARY MEDICINE

ABSTRACT

Although homoeopathy has been practised as an alternative form of treatment for the past 200 years, scientific research has not yet supported its efficacy. Contrary to the scientific ideas of traditional medicine, the use of extremely diluted natural substances based on the tenet that "similar heals similarly" is not recommended. Homoeopathic treatments are most frequently employed in veterinary care to treat small animals with chronic illnesses, but they are also being used in organic farming. There isn't much clinical research about the application of homoeopathy in veterinary medicine that have been published in academic journals.

Author 1- Rajashekar Kamalla

Ph.D. Scholar, Division of Medicine, ICAR-IVRI, Izzatnagar, Bareilly, Uttar Pradesh, India.

Author 2- Dadimi Bhargavi

Ph.D. Scholar, Division of Public Health and Epidemiology, ICAR-IVRI, Izzatnagar, Bareilly, Uttar Pradesh, India.

Contradictory effectiveness outcomes are evident, which can be attributed to disparate research approaches. The results that support the use of homoeopathy, however, are significantly inversely correlated with the quality of the research. Scientific methodology is essential in evidence-based veterinary medicine for objective diagnosis and treatment prescription, and homoeopathy is a great teaching tool for potential methodological blunders in scientific research.

INTRODUCTION

Homoeopathy is a unique medical theory that originated in Germany in the eighteenth century and later spread to other parts of the world, including Europe, India, Australia, South America, the United States, and Canada. It is based on the ideas presented by German physician Samuel Hahnemann, who invented homoeopathy in the late 18th century. The basic therapeutic tenet of homeopathy's 200-year-old therapeutic system is the law of similars, sometimes known as "Similia similibus curentur" or "let like be cured by like." According to this belief, patients with a specific pattern of symptoms may be treated if a medicine is given to them that also causes a pattern of symptoms in healthy people (Schmidt et al., 2021).

The use of very diluted medications to address a variety of health issues in animals is known as homoeopathy in the field of veterinary medicine. Even though it was initially created to treat human patients, Samuel Hahnemann, the creator of homoeopathy, predicted in 1815 that animals would likely benefit from it as well. However, veterinary homoeopathy research has had a less transparent existence than that of human homoeopathy, and very few papers have been published since then.



WHAT IS HOMEOPATHY?

Homeopathy is a system of medicine based on the principle of similars; that is, the symptoms or syndromes that a substance causes experimentally (at pharmacologic or toxic doses) are those that it may resolve in individuals experiencing similar symptoms and syndromes when it is given in specially prepared, exceedingly small doses. The word "homeopathy" is derived from the Greek words "homios" meaning "similar," and "pathos" meaning "disease or suffering" (Fisher et al., 2012). In practising homeopathy, the symptoms that an animal exhibits are all-important in choosing the appropriate remedy to stimulate a healing response. Whereas, in conventional medicine, the thinking may assume that symptoms or signs represent the disease itself and need to be controlled or eliminated, in homeopathy, a symptom or sign is seen, not as the disease itself, but as a signal of it. Removing or suppressing a symptom or sign does not necessarily affect or remove the cause of the symptom or sign, in the same way that unplugging a car's low oil warning light does not resolve the actual problem with the car. Therefore, homeopathy can be looked on a same method of individualizing a medicine for a patient; it is a system of finding a medicine that fits the totality of physical and psychological signs seen in a patient, in order to effect a cure in a deep and lasting way.

HISTORY OF HOMEOPATHY:

The history of homeopathy dates back to the late 18th century and is closely associated with the work of Samuel Hahnemann, a German physician. Hahnemann became dissatisfied with the prevailing medical practices of his time, which often involved harsh treatments like bloodletting and the use of toxic substances. While translating a medical treatise, he encountered a passage about the use of cinchona bark (a traditional remedy for malaria) and questioned its



effectiveness. To test the effects of cinchona bark, Hahnemann ingested it himself and observed that it caused symptoms similar to those of malaria. This led him to propose the principle of "like cures like," which forms the basis of homeopathy. In 1810, Hahnemann published his seminal work, "Organon of the Rational Art of Healing." This book outlined the fundamental principles of homeopathy, including the law of similars, the law of infinitesimals, and individualization. Hahnemann and his followers conducted extensive experiments with various substances, noting their effects on healthy individuals. The results of these provings were compiled into the *Materia Medica Pura*, a collection of symptoms associated with different homeopathic remedies. The first homeopathic school, the Allgemeine Homöopathische Kranken-Anstalt, was founded in Leipzig, Germany, in 1828. This institution provided education and training in homeopathy and played a crucial role in spreading the practice. Homeopathy was introduced to the United States by Hans Burch Gram, a student of Hahnemann, who immigrated to New York City in 1825. The first homeopathic medical college, the North American Academy of the Homeopathic Healing Art (later renamed the Homoeopathic Medical College of Pennsylvania), was established in 1835. Hahnemann released the revised and expanded sixth edition of his "Organon of the Healing Art," which became the standard reference for homeopathic practice. Throughout the 19th century, homeopathy gained popularity in Europe, the United States, and other parts of the world. Many homeopathic hospitals, clinics, and pharmacies were established to provide homeopathic treatment. Towards the end of the 19th century, homeopathy faced challenges from the development of modern medicine and the rise of scientific scepticism. Conventional medicine began to dominate the healthcare landscape, leading to a decline in homeopathy's popularity in some regions. Despite facing setbacks in the 20th century, homeopathy continued to be practiced and gained a dedicated following. In recent decades, there has been a renewed interest in alternative medicine, leading to a resurgence of interest in homeopathy.

MECHANISMS AND THEORY OF HOMEOPATHY?

The theory of homeopathy is based on several core principles that guide its practice. These principles were developed by Samuel Hahnemann, a German physician, in the late 18th century. The fundamental concepts of homeopathy include (Aversa et al., 2016)

1. Like Cures Like

(Similia Similibus Curentur):

The principle of "like cures like" is the foundation of homeopathy. It suggests that a substance that can produce specific symptoms in a healthy individual can also treat similar symptoms in a sick person when administered in a highly diluted form. In other words, a substance that causes certain symptoms in a healthy person will stimulate the body's healing response to those same symptoms in a sick person.

2. The Law of Infinitesimals

(Law of Minimum Dose):

Homeopathic remedies are prepared through a process of potentization, which involves serial dilution and succussion (shaking). The more a substance is diluted, the more potent and effective it is believed to become. This process continues until the active ingredient is diluted to the point where it may no longer be detectable by conventional chemical analysis. The idea is that the vital energy or essence of the substance is retained even in high dilutions.

3. Individualization:

Homeopathy treats each person as a unique individual. The focus is not solely on the disease but on the entire person, including their physical, mental, and emotional characteristics. Homeopathic practitioners conduct a detailed assessment of the patient's symptoms, personality traits, and overall constitution to identify the most suitable remedy for them.

4. Vital Force:

Homeopathy acknowledges the presence of a vital force or life force that maintains balance and health in the body. When this vital force is

disturbed or imbalanced, it is believed to result in illness. Homeopathic remedies are thought to stimulate the vital force, encouraging the body's innate healing abilities.

5. Potentization and Succession:

As mentioned earlier, potentization is the process of dilution and succussion to prepare homeopathic remedies. Each dilution step is typically denoted by a number followed by a letter (e.g., 30C or 200X). The more diluted a substance, the higher the potency. The idea is that the potency enhances the remedy's healing effects while reducing any potential toxic side effects.

6. Totality of Symptoms:

Homeopathy considers all the symptoms experienced by the patient, whether physical, emotional, or mental, as part of a holistic approach. The totality of symptoms helps in matching the individual with the most appropriate remedy.

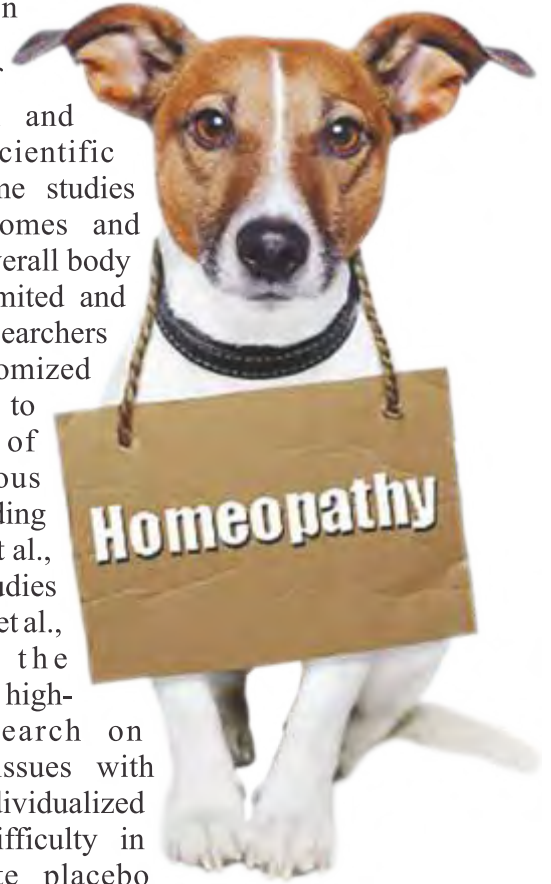
APPLICATIONS IN VETERINARY MEDICINE

A surprisingly wide range of ailments in both large and small animals can be treated using homeopathy. It can be used as therapy for traumatic and recent injuries, such as sprains, concussions, and bug stings (Vockeroth et al., 1999). In these situations, the right homeopathic treatment can lessen or even completely eliminate discomfort and swelling while also speeding up the healing process. It can be used to treat a variety of inflammatory diseases, including acute and chronic diarrhoea, chronic gingivitis, acute and chronic respiratory diseases, and other disorders that may or may not respond to standard treatments (Madrewar et al., 2003). All sorts of acute and chronic skin diseases,

including infections and allergies, can be treated with homeopathy. If administered properly, it may even be successful in treating immune-mediated disorders. Homeopathy can be highly beneficial in the treatment of many chronic disorders, including arthritis and spondylosis, even though it may be most successful in the treatment of conditions in which substantial pathology has not yet developed in the patient's system (Mathie et al., 2003). Homeopathy can also be beneficial in relieving cancer-related discomfort. The symptoms are largely the same in large animals. Many acute and chronic medical disorders that affect cattle and horses can be treated with homeopathy. In several common illnesses including mastitis and colic in horses and cows, it might be a helpful therapeutic. The administration of remedies is typically relatively simple because they typically come in the shape of tiny tablets or liquid that are intended to be absorbed through the tongue or gums rather than down the throat. The usage of homeopathic medicines is extremely safe. If the treatment is administered properly, there are typically no side effects. However, in the hands of those who are unfamiliar with homeopathy or have little awareness of it, remedies may be misused or, far more frequently, the incorrect remedy may be taken, with no benefit at all. This is one of the reasons why, in the recent past, homeopathy was viewed as a treatment with little to no effectiveness. It is clear that it does not damage the patient, but it also does it no help. The right treatment can be just as effective as conventional medicine in potentially fatal conditions like epilepsy or bloat, but since it's crucial to pick the right remedy and comprehend how quickly the body responds, these kinds of conditions should only be handled under the close supervision of a licenced and experienced homeopath.

CLINICAL RESEARCH ON HOMEOPATHIC TREATMENT

Clinical research on homeopathic treatment has been a subject of ongoing investigation and debate within the scientific community. While some studies suggest positive outcomes and potential benefits, the overall body of evidence remains limited and often inconclusive. Researchers have conducted randomized controlled trials (RCTs) to assess the efficacy of homeopathy in various health conditions, including both human (Peckham et al., 2014) and animal studies (Keller et al., 2018; Soto et al., 2009). However, the challenges in conducting high-quality clinical research on homeopathy include issues with blinding, the use of individualized treatments, and the difficulty in identifying appropriate placebo controls for highly diluted remedies (Jonas et al., 2001). Despite these challenges, some studies have reported favourable results, particularly in the management of certain acute conditions and chronic illnesses. However, more rigorous, well-designed studies are needed to establish a clearer understanding of homeopathy's effectiveness beyond placebo effects and its potential role in integrative healthcare.



CONCLUSION:

In conclusion, homeopathy in veterinary medicine represents an intriguing and debated alternative treatment option for animals. With its roots in the principles of "like cures like" and potentization, homeopathy seeks to address a wide range of health conditions in a holistic manner, focusing on the individualized needs of each animal. While some pet owners and practitioners report positive outcomes, the scientific evidence supporting its efficacy remains inconclusive, leading to scepticism within the medical community. Despite this, homeopathy continues to garner interest and use as a complementary or adjunctive therapy in veterinary care. As with any alternative approach, pet owners are advised to seek guidance from qualified veterinarians trained in homeopathy to ensure safe and appropriate treatment for their animal companions, while also prioritizing evidence-based conventional medicine when necessary.

LUMPY SKIN DISEASE

Author 1 – Kavita Jaidiya, Department of Veterinary Medicine, CVAS, Bikaner

Author 2 – Chitra Jaidiya

Department of Veterinary Public Health and Epidemiology, CVAS, Bikaner

ETIOLOGY

It is caused by capripox virus, Which is double stranded DNA virus, it is belong to poxviridae family. This virus is antigenically similar to sheep pox virus.

TRANSMISION

It is transmitted through-

- Vectors like mosquito, ticks, stable flies (stomoxys calcitrans)
- Contact with saliva, nasal discharge, ocular discharge, semen

This virus is host specific causes natural infection in cattle and buffaloes.

- Morbidity rate -10-20%
- Mortality rate- 1- 5 %

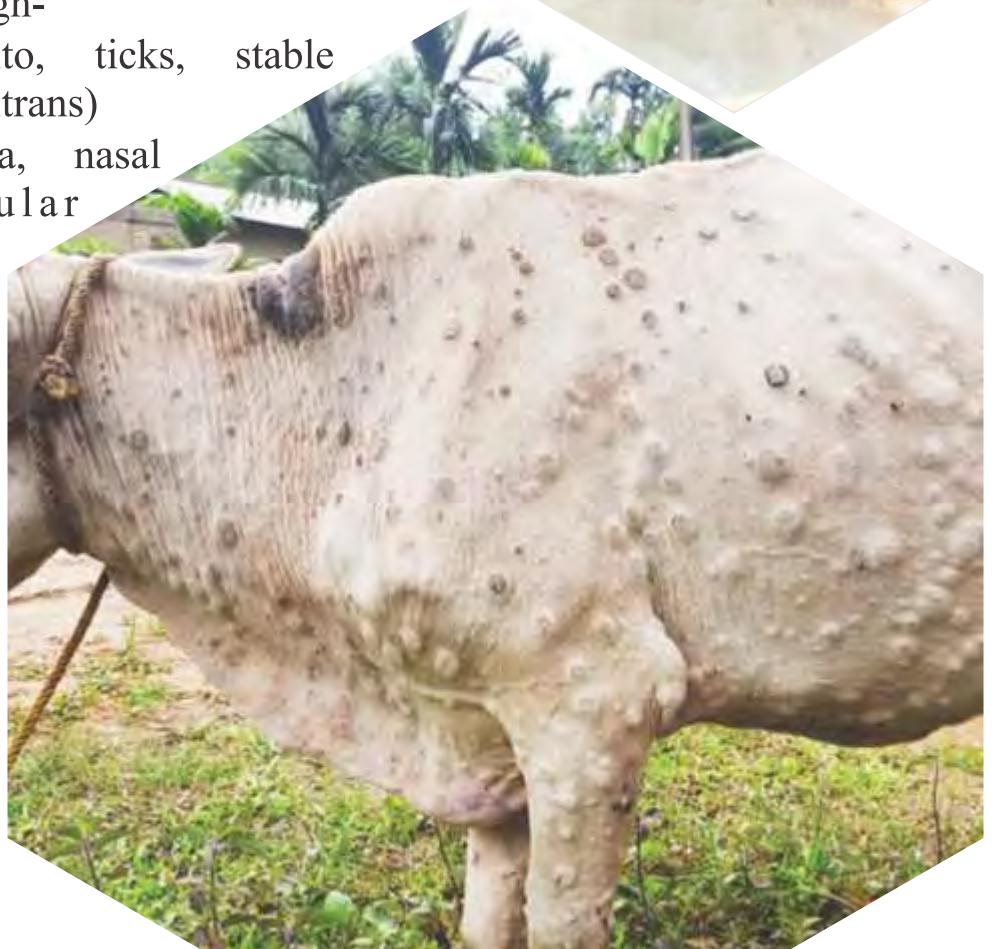
CLINICAL SIGNS

Incubation period- 4-7 days

- 1) High fever

Lumpy skin disease is a contagious viral disease of domestic cattle and buffaloes, characterized by high fever, eruption of nodules on whole body, swelling of joints.

- This disease was first recorded in 1929 in Zambia.
- This disease is not zoonotic means it is not transmitted from animal to human.



- 2) Hyperlacrimation
 - 3) HYpersalivation
 - 4) Nodules formed in whole body, nodules are well circumscribed, painful and slightly raised and they involve the entire cutis and mucosa of GIT, Respiratory and Genital tract.
 - 5) Nodules may be developed on muzzles and within nasal discharge and buccal mucous membrane.
 - 6) Skin nodules contain a firm creamy–gray or yellowish mass of tissue.
 - 7) Regional lymph nodes are swollen
 - 8) Oedema developed in the udder, brisket region and legs.
 - 9) Secondary bacterial infection causes extensive suppuration and sloughing as a result, animal may become extremely emaciated.
 - 10) Lameness and due to secondary bacterial infection Mastitis also occur.
- Greatest economical losses due to reduce milk yield, reduce hide value.



DIAGNOSIS

By history and clinical sign

- Histopathology
- PCR
- Virus isolation

DIFFERENTIAL DIAGNOSIS

- Pseudolumpy skin disease - It is caused by bovine herpes virus.
- In this disease nodules confined to teats and udder.

TREATMENT

- There is not specific treatment of Lumpy virus infection
- Antibiotic controls the secondary infection, symptomatic and supportive treatment is may be effective.

PREVENTION AND CONTROL

- Attenuated virus vaccine is effective to control the disease.
- Separate the affected animal to healthy animal
- Proper carcass disposal should be done
- Proper hygiene should be maintained
- Control ticks, mosquitos, fly.

SORE MOUTH INFECTION IN GOATS



Author 1 – Kavita Jaidiya, Department of Veterinary Medicine, CVAS, Bikaner

Author 2 – Chitra Jaidiya

Department of Veterinary Public Health and Epidemiology, CVAS, Bikaner

It is an acute contagious disease of small ruminants. Five goats were presented at TVCC, CVAs, Bikaner with history of papules and pustules at oral commissures, skin of lips and nose. Goats were treated with ceftriaxone (15 mg/kg body weight) for five days, injection Meloxicam (0.5 mg/kg body weight), injection Avil 3 ml I/M, the owners were guided to a regular application of boric acid with glycerine on skin lesions.

Drastic improvement in the clinical condition with complete recovery from lesions after 30 days.

INTRODUCTION

Contagious ecthyma, also known as orf or sore mouth, is a zoonotic disease which means that it is transmitted from animal to humans.

This disease results from infection by orf virus, a member of the genus parapox virus in subfamily chordo virinae and family pox viridae.

Contagious ecthyma mainly occurs in sheep and goats. Rare cases of orf has been reported in dogs and cats. It has been reported in people who handled infected animals or their tissues.

Orf virus occurs in skin lesions and scabs. It can be transmitted by direct contact or on fomites and is thought to enter. The signs of contagious ecthyma vary in severity from hyperemia and small pustules around the mouth and muzzle. Slightly rise of temperature, the affected lesions and scabs are fragile and bleed easily and leads to anorexia. Some lesions may moist and dirty leads to foul smelling.

CLINICAL OBSERVATION

Five goats were presented at TVCC, CVAs, Bikaner with the history of pustules at oral commixture and lips, anorectic, dull and inappetance.

On clinical examination it was observed that goats were dehydrated, skin lesions were dry and had an offensive odour. Fver ranges from 104-105 degree farenhight, the pluse and respiration rate were normal in rate.

Lesions and physical examination reveals the Skin lesions on moth, lips and nose of goats contagious ecthyma.

TREATMENT

It is a self limiting disease hence symptomatic treatment was given. Goats were treated with ceftriaxone (15 mg/kg body weight) for five days, injection Meloxicam (0.5 mg/kg body weight), injection Avil 3 ml I/M, the owners were guided to a regular application of boric acid with glycerine on skin lesions.

Drastic improvement in the clinical condition with complete recovery from lesions after 30 days.



DISCUSSION

The orf virus belonging to poxviridae family, parapox virus genus. The disease is a zoonotic, may be transmitted to human by direct contact. This virus producing skin lesions on lips, around mouth and nose.

It is a self limiting disease. Sick animals should be separated, fed and treated often after feeding the herd.



RABIES

A FATAL ZOOONOTIC DISEASE

Author 1- Punam

Veterinary Officer, Veterinary Hospital Jakheda, Nagaur (Rajasthan)

Author 2 - Kapil Kumar Godara

M.V.Sc Scholar, Livestock Products Technology, College of Veterinary and Animal Science, Bikaner (RAJUVAS, Bikaner) Rajasthan

Author 3 - Rohit Juneja

Veterinary Officer, Veterinary Hospital Pundlota, Nagaur (Rajasthan)



INTRODUCTION

Rabies is a highly fatal viral disease. It is also a zoonotic disease that means it can transmit from animals to human. The type of zoonosis is direct anthroozoonosis. Most often it seen in stray dogs and some wild animals like bats, raccoons, skunks, and foxes. It usually transmitted in humans by biting or scratching of these infected animals. Dogs are the source of the huge majority of human rabies deaths, contributing up to 99% of all rabies transmissions to humans. In india rabies is endemic and contribute 36% of total world rabies deaths. The rabies virus affects central nervous system. It cause encephalitis in brain and death may occur in severe case. World Rabies Day is celebrated every year on 28 September.

ETIOLOGY

Causative agent of rabies is Lyssa virus of rhabdoviridae Family. It is bullet shaped virus and neurotropic in nature. Rabies viruses are extremely fragile viruses



TRANSMISSION

- Saliva of infected dog is most common source of rabies transmission because very high concentration of rabies virus liberated from the salivary gland discharges before the onset of clinical signs of rabies.

CLINICAL SIGNS

- The progressive sign of rabies mainly divided into two forms such as Furious form and dump form or paralytic form

IN DOG AND CAT

The incubation period in natural outbreak of dog rabies averages from 3-8 weeks. But it can be from 10 days to years. In cat, furious form is more common.

1. Furious form (changes in behaviour and stage of excitement)

- Dog become very furious and have tendency to bite either inanimate or animate objects till death
- Dog may move to long distance
- They will Shows imaginary catching stance
- Dog will try to lick water but unable to drink water due to the paralysis of pharyngeal and laryngeal muscles
- Drooling of saliva.
- Photophobia (fear of light)
- Changes in barking due to paralysis of vocal cards
- Finally, the jaw is dropped and tongue will protrude and head will drop down

2. Dump form or paralytic form

- Isolated themselves in dark places due to photophobia
- Paralysis of lower jaw ("dropped jaw"), tongue, larynx and hindquarters
- Not capable to bite due to dropped
- In terminal phase death due to respiratory paralysis

IN CATTLE

1. Furious form

- Aggressively attack other animals or inanimate objects
- Loud bellowing
- Incoordination of gait
- Excessive salivation
- Behavioral changes
- Tremor in Muzzle
- Aggression in behaviour
- Sexual excitement
- Hyperexcitability
- Pharyngeal paralysis

2. Paralytic form

- Knuckling of hind fetlock
- Sagging and swaying of hind quarter while walking
- Deviation of tail to one side
- Drooling of saliva
- Yawing movement
- In horse
- Muscle tremors are frequent and common
- Pharyngeal paralysis, ataxia and lethargy
- Sudden onset of lameness in one limb followed by recumbency
- Violent head tossing

IN MAN

There is usually a history of animal bite.

- Pain appears at the site of the bite, followed by paresthesias (burning sensation).
- Pain and irritation at the site of bite which is travelling towards the central nervous system.
- The rabies virus travels from the peripheral nerves to the brain by following bite by a rabid animal.
- The incubation period of the disease is usually a few months in humans (usually 30 to 60 days), depending on the distance of bite, severity of bite, amount of virus inoculated at the site of bite and aggressive status of the rabid animal.
- Once the rabies virus reaches the central nervous system, it cause encephalitis in brain and show

centrifugal transmission and symptoms begin to show.

- The infection is effectively untreatable and usually fatal within days.
- Death almost invariably results two to ten days after first symptoms.
- Attempts at drinking cause extremely painful laryngeal spasm, so that the patient refuses to drink ("hydrophobia" - fear of water).
- The patient is restless and behaves in a peculiar manner.
- Muscle spasm, laryngospasm and extreme excitability are present.
- Convulsions occur.
- Large amounts of thick tenacious saliva are present.
- There will be increased lacrimation,
- Frequent micturition and
- Increased perspiration.

DIAGNOSIS

- Consider rabies as a possible problem in any animal of unknown vaccination history showing central nervous system signs or symptoms.
- Fluorescent antibody test (FAT) with corneal impression smear, as well as brain. FAT is highly specific and rapid test (99.9%).
- Identification of Negribodies (intracytoplasmic inclusion bodies) in the brain impression smear by Seller's staining technique.

TREATMENT AFTER EXPOSURE

Clean the wound and do immunizations, as soon as possible after suspect contact with an animal, can prevent the onset of rabies in virtually 100% of exposures.

Post-exposure care to prevent rabies includes Washing and scrubbing the wound with phenolic soap and/or plenty of running tap water

Application of antiseptics

Avoiding bandaging or suturing of wound, or point of contact

Administering anti-rabies vaccine as soon as possible.

POST EXPOSURE SCHEDULE

- If the animal is not previously immunized, post exposure vaccination on 0-day (the day starts within 24 hours after bite), 3rd, 7th, 14th, 28th and if necessary, on 90th day (Essen's schedule).

दुधारू पशुओं में दुग्ध ज्वर का अवलोकन (दूध का बुखार)

मिल्क फीवर (पार्ट्यूरेट पैरेसिस) एक ज्वर की बीमारी है जो आमतौर पर प्रसव और शुरुआती स्तनपान से जुड़ी होती है। मिल्क फीवर एक ऐसी बीमारी है जो डेयरी मवेशियों को प्रभावित करती है, लेकिन यह बीफ मवेशियों, बकरियों या कुत्तों में भी हो सकती है। यह तब होता है जब ब्याने से कुछ दिन पहले या बाद में गायों में रक्त में कैल्शियम का स्तर (हाइपोकैल्सीमिया) कम हो जाता है।

मिल्क फीवर तब होता है जब रक्त में कैल्शियम का स्तर 8.5mg/dl (आठ. पांच मिलीग्राम प्रति सौ मिली लीटर) से नीचे चला जाता है।

यह अचानक पक्षाघात, चेतना के क्रमिक नुकसान की विशेषता है और, अगर इलाज नहीं किया जाता है, तो आमतौर पर मृत्यु में समाप्त हो जाता है। दूध बुखार का मूल शारीरिक कारण अभी तक सिद्ध नहीं हुआ है। डायरे और ग्रेग (54) का पैराथाइरॉइड की कमी (हाइपोकैल्सीमिया) सिद्धांत उन कई सिद्धांतों के सबसे निकट आता है, जिन्हें तत्काल कारण के लिए लेखांकन के लिए उन्नत किया गया है, लेकिन कई मूलभूत प्रश्न अनुत्तरित हैं।



कारण और पूर्वगामी कारक

उच्च उत्पादकों में हाइपोकैल्सीमिया का खतरा अधिक होता है क्योंकि उनके रक्त में कैल्शियम का स्तर अधिक गिर जाता है। वे दूध में बहने वाले कैल्शियम भंडार की बड़ी मात्रा को फिर से भरने में सक्षम नहीं हो सकते हैं।

बछिया शायद ही कभी दूध के बुखार से प्रभावित होती है क्योंकि उन्होंने अपनी उत्पादन क्षमता को पूरी तरह से महसूस नहीं किया है। पुराने बांध जो कई बार छोटे हो चुके हैं, उनकी उत्पादकता अधिक है, इसलिए दूध के बुखार के लिए उच्च संवेदनशीलता है।

निकट शुष्क अवधि के दौरान दूध पिलाने की व्यवस्था का इस बात पर बहुत प्रभाव पड़ता है कि गाय दूध के बुखार से पीड़ित होगी या नहीं। इस दौरान कैल्शियम की मांग बढ़ जाती है, जिसे गाय को चारे से बदल देना चाहिए।

अत्यधिक क्षारीय वातावरण हड्डियों से कैल्शियम के एकत्रीकरण और आंतों में कैल्शियम के अवशोषण में बाधा डालता है। असंतुलन से गाय के दूध के बुखार का खतरा बढ़ जाता है।

लेखक - डॉ. विवेक कुमार

एमवीएससी (पशु चिकित्सा विद्वान)

डा. श्री वासुदेव चंद्राकर कामधेनु
विश्वविद्यालय, दुर्ग, छत्तीसगढ़



लक्षण

पशु डगमगाते हैं और प्लैठनेस की स्थिति में चले जाते हैं, अक्सर उसकी गर्दन में एक शिकंका होता है, और अंत में संचार पतन, कोमा और मृत्यु से पहले अपनी तरफ सपाट लेट जाता है। नीचे जाने के बाद सूखी थूथन, घूरती आंखें, ठंडे पैर और कान, कब्ज और उनींदापन दिखाई देता है। दिल की धड़कन कमजोर और तेज हो जाती है। शरीर का तापमान सामान्य से नीचे चला जाता है, खासकर ठंड, गीले, हवा वाले मौसम में। सभी क्लासिक संकेत, सिर नीचे, स्पर्श करने पर ठंडा शरीर, पशु अपने आप उठने में असमर्थ।

इलाज

उपचार जल्द से जल्द दिया जाना चाहिए। कैल्शियम बोरोग्लुकोनेट के 40 प्रतिशत घोल के 300 मिलीलीटर या अधिक का उपयोग करें या, अधिमानतः एक संयुक्त खनिज समाधान जैसे प्लिन-में-एक या चार-में-एक अक्सर 600 मिलीलीटर (छह सौ मिली लीटर) की आवश्यकता हो सकती है।

संयुक्त समाधान में मैग्नीशियम, फास्फोरस और डेक्सट्रोस (ऊर्जा के लिए) जैसे अतिरिक्त तत्व होते हैं, जो रक्त में निम्न स्तर पर भी हो सकते हैं जबकि गायों को दूध का बुखार होता है।

उपचार के दौरान सावधानियां

पलैट आउट - गायों को सूजन से राहत के लिए सामान्य आराम की स्थिति में ले जाना चाहिए।

यदि नाक के आसपास सूजन की सामग्री है तो किसी को संदेह होना चाहिए कि ऐसा हो सकता है और गहन एंटीबायोटिक उपचार जल्द से जल्द शुरू किया जाना चाहिए क्योंकि सांस लेने में कठिनाई व निमोनिया अक्सर घातक होता है।

बचाई गई गायों को 24 घंटे तक दूध नहीं निकालना चाहिए या फिर अगले 2-3 दिनों में दूध की मात्रा धीरे-धीरे बढ़ानी चाहिए।

निवारण

दूध के बुखार को रोकने के लिए आहार का प्रबंधन एक मूल्यवान सहायता हो सकता है।

गायों को स्तनपान (सूखी) के दौरान कम कैल्शियम वाले आहार पर रखा जाना चाहिए। यह उनके कैल्शियम नियामक प्रणाली को उत्तेजित करता है ताकि हड्डी से कैल्शियम के शरीर के भंडार को जुटाकर रक्त के स्तर को सामान्य बनाए रखा जा सके।

जब कैल्सिंग के रूप में कैल्शियम की मांग बढ़ जाती है, तो कैल्शियम को फीड की तुलना में हड्डी से अधिक तेजी से जुटाया जा सकता है, इसलिए दूध के बुखार को रोका जा सकता है।

हैं। जैसे-जैसे नए वैज्ञानिक ज्ञान और तकनीकों का विकास हुआ है, झूठी परिकल्पनाओं को धीरे-धीरे समाप्त कर दिया गया है ताकि दूध बुखार के मूल आधार की पूरी समझ अब वर्तमान अवधारणा में कुछ बिंदुओं के प्रमाण की प्रतीक्षा कर रही है जो अब परिस्थितिजन्य साक्ष्य पर आधारित हैं। सबूत इंगित करते हैं कि दूध के बुखार में कम रक्त



कैल्शियम रक्त के कैल्शियम नियामक तंत्र की विफलता के कारण ऊतक भंडार से कैल्शियम को तेजी से निकालने के लिए पर्याप्त है जो रक्त से कैल्शियम को धन स्राव में निकालने के बराबर है। यदि यह मान लिया जाए, जैसा कि साक्ष्य इंगित करता है, कि पैराथाइरॉइड हार्मोन रक्त कैल्शियम का प्राथमिक नियामक है, दूध के बुखार में इसकी विफलता या तो पैराथाइरॉइड अपर्याप्तता के कारण हो सकती है जिसके परिणामस्वरूप पर्याप्त हार्मोन स्राव की कमी या कुछ चयापचय स्थिति की उपस्थिति हो सकती है। प्रसव के समय ऊतकों में जो पैराथाइरॉइड हार्मोन को अस्थायी रूप से निष्क्रिय कर देता है। इसलिए, ऐसा प्रतीत होता है कि प्रसव के समय पैराथायरायड ग्रंथियों के

सारांश और निष्कर्ष

दूध बुखार का इतिहास उस समय से पता चला है जब पहली बार साहित्य (लगभग 1793) में रिपोर्ट दिखाई देने लगी थी, यह इंगित करता है कि यह चयापचय गड़बड़ी उच्च दूध उत्पादन के लिए डेयरी गाय के विकास से जुड़ी हुई है। गोधन को दुग्ध ज्वर के कारण खतरा है। दूध बुखार के मुख्य कारणों के कुछ तीस सिद्धांतों को वर्षों से उन्नत किया गया

कार्य पर आगे काम करना चाहिए, इससे पहले कि दूध के बुखार का मूल आधार सिद्ध हो सके। किसी भी निवारक उपाय का उद्देश्य प्रसव के समय रक्त कैल्शियम में भारी गिरावट को समाप्त करना होना चाहिए। प्रसव से ठीक पहले बड़ी मात्रा में विटामिन डी रोकथाम के लिए सबसे उत्साहजनक संभावनाएं प्रदान करता है। हालांकि, यह अभी तक ज्ञात नहीं है कि विटामिन डी रक्त में कैल्शियम को बढ़ाने के लिए कार्य करता है या पैराथायरायड ग्रंथियों के माध्यम से।

SUCCESSFUL SURGICAL EXCISION

& MANAGEMENT OF CARPAL HYGROMA IN A BULLOCK

The report describes a case of unilateral carpal hygroma of right forelimb in a 3 years old HF CB bullock, successfully managed by surgical excision of fibrous mass without exposing the joint capsule under IVRA followed by pressure bandaging and the animal recovered uneventfully within 15 days.

INTRODUCTION

Carpal hygroma is a fluid-filled localized swelling that develop over the dorsal aspect of carpal joint involving the skin, a small subcutaneous precarpal bursa and loose subcutaneous connective tissue. The main predisposing factors are repeated trauma due to lack of bedding on hard floors, poorly designed manger and narrow or short stalls, which restrict free movement of the animal (Tyagi and Singh, 2006). Some hygromas are congenital while others are develop over time, usually in response to trauma (Venugopalan, 2009). The most common cause of bursitis is direct trauma. Severe trauma leads to acute bursitis, whereas continuous and repeated trauma leads to chronic bursitis. Sometimes, the bacterial infection and toxemia also results in development of bursitis (Fathy and Radad 2006). The present paper reports successful surgical excision and management of carpal hygroma in a bullock.

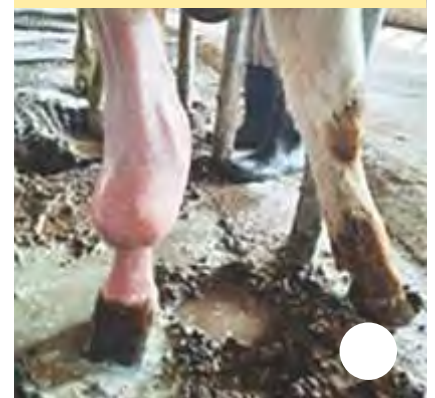
Author - Dr. Ashwani Kumar Bassan

Veterinary Assistant Surgeon, Veterinary Dispensary
Rathana, Department of Animal Husbandry,
Distt. Jammu. 181111(UT, J&K)

CASE HISTORY AND OBSERVATIONS

A three year old HF cross-bred bullock was presented with the history of non-painful, soft swelling over the dorsal aspect of carpal joint since last 2 months. It was previously treated by paravet, but animal doesn't respond to the treatment and it grows steadily over a period of time (Fig. 1). On physical examination, it was found that the swelling was hard cranially and soft caudally i.e. towards carpal joint. On clinical examination mucous membrane was found to be slightly pale and temperature and other physical parameters were within normal range. Aspiration is done at most distal end of swelling revealed straw color fluid. The case was diagnosed as hygroma.

Fig 1: Hard swelling on right carpal joint.



TREATMENT

Animal was sedated by giving inj. Xylazine @ 0.025mg/kg b.wt intravenously. After that animal was restrained in left lateral recumbency. Pre-operative inj. Intacef Tazo 333.75mg and inj. maxxtol @0.4mg/kg was given intravenously. Under mild sedation tourniquet was applied proximal to the carpal joint and distal to the elbow joint and intravenous regional anaesthesia (IVRA) was achieved by giving 20 ml of the 2% lignocaine intravenously after removing 20 ml of blood from the cephalic vein. Surgical site was scrubbed for aseptic excision. Under local infiltration of 2% lignocaine, 3 cm long stab incision was given at anterior-lateral part of the swelling with sufficient allowance for skin closure without any tension. Skin was reflected by blunt dissection and the whole fibrous

soft tissue mass (bursa) (Fig. 2) was surgically excised without exposing the joint (Fig. 3). The entire cavity was separated from the knee joint without opening the knee joint. The cavity was then packed with sterile gauze for preventing contamination during surgery and flushed with aqueous solution of normal saline mixed with betadine. Subcutaneous tissue was apposed using chromic catgut No. 2 in simple continuous pattern to favour adhesion formation and to obliterate the dead space. Skin was sutured with Silk No. 2 using horizontal mattress suture pattern and loosening the tourniquet in the meantime. Firstly the entire carpal joint (suture line) was cleaned with betadine then immobilized with thick layer of cotton and primary bandage and finally compression bandage (Nawar) to avoid the pressure on the suture line (Fig.4).

Fig 2: Exposed bursa



Fig 3: Fibrous mass removed from the swelling, without exposing the carpal joint cavity

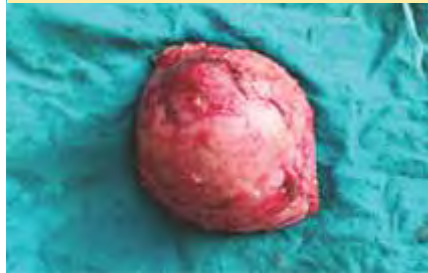


Fig 4: Compression bandage (Nawar) applied after surgical excision



POST – OPERATIVE CARE AND MANAGEMENT

Post-operative care was done with antibiotics inj. Intacef tazo 3375mg iv daily for 5 days and analgesic inj. Maxxtol @ 0.4mg/kg Once Daily for 3days and tablet Melonex Zplus 2tab bid x 5 days. Owner was advised to keep the animal in stall confinement and applied compression bandage for 15 days.

Second bandaging was done on 7th day with 0.1% Povidone iodine solution revealed no complications with stable suture line and animal started bearing weight completely on the operated limb within a week. The skin sutures were removed after 15 days showed uneventful recovery without any post-operative complication (Fig. 5). Animal was follow up upto 45 days postoperatively.

The IVRA technique for local anaesthesia in patients undergoing surgical excision of carpal hygroma is very rewarding and easy to apply. The immobilization of the carpal joint with compression bandaging is very beneficial for the stability of suture line and animal start weight bearing completely on the operated limb within a week with no post-operative complication (Shukla et al., 2020).The recovery in such cases has been reported to be successful (Lemay, et al., 2000; Chhatpar, et al., 2012; Piguet, et al., 1997).

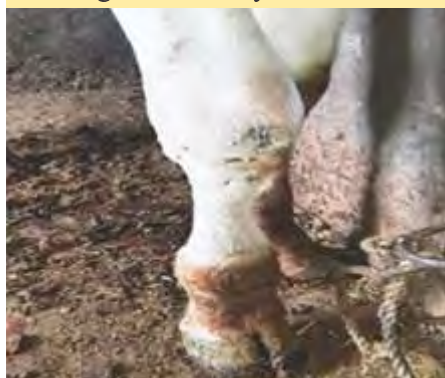
CONCLUSION

Surgical excision is useful to treat the carpal hygroma in chronic cases (Chhatpar, et al., 2013). Proper post-operative care, good management and maximum rest provides uneventful recovery within 20 days without any post-operative complication.

DISCUSSION

In the present case hygroma was develop due to maintainance of the animal on hard floor and due to repeated trauma over the knee, skin gets thickened and a mass of thickened fibrous tissue developed beneath the skin (Chhatpar et al., 2012). So due to chronic nature of hygroma, surgical excision resulted in uneventfull recovery. The surgical excision was successful in 16 out of 17 cases of precarpal bursitis in cattle (Piguet et al., 1997).

Fig 5: Complete wound healing after 20 days.



THE DOWNER COW SYNDROME

Author
Dr Anita Kumari and
Dr Kavipriya Jayswal



Downer cow syndrome refers to cows that become recumbent and fail to rise; this is a major concern in dairy farms worldwide. The syndrome occurs mainly in the early postparturient period and is caused by several diseases. The most common cause of downer cow syndrome is hypocalcemia (milk fever) but it is also caused by injuries, muscle damage, macromineral deficiencies, toxic mastitis or metritis. Fatty liver may also contribute to cows becoming downers. Almost all high producing dairy cows are in negative energy balance in early lactation because energy requirements exceed feed consumption capacity.

ETIOLOGY

The etiology is not clear but the available evidence and clinical experience suggest that the disease is complication of hypocalcemic parturient paresis. Traumatic injuries of the medial thigh muscles and of the tissues around the hip joint and of the obturator muscles are common in cows which do not recover. The traumatic injuries may be the result of cows "Spread-eagling" their hindlegs if they are unsteady during parturition or if they are forced to get up or walk on a slippery floor immediately before or following parturition. A difficult parturition due to an oversized calf may result in peripelvic traumatic injury with extensive edema of the pelvic (Oedema) and vulva, and failure of the cow to get up following parturition. If these cows develop hypocalcemic parturition paresis, it is unlikely they will get up following treatment with calcium.

EPIDEMIOLOGY

The incidence of the downer cow syndrome is distressingly high, particularly because so many of the affected animals are heavy produces and of great value. It is impossible to give accurate figures on incidence because of variations in nomenclature and in the accuracy of diagnoses. For example, some find that all cases are

caused by nerve injury. Cases included in this classification by some veterinarians are classified by others as maternal obstetric paralysis, as obturator paralysis or as hypophosphatemia. Based on clinical experience and our interpretation of the literature we conclude that the downer cow syndrome is a complication of hypocalcemic parturient paresis. Traumatic injury to leg muscle at the time of parturition or when the cow is unsteady and falls during the first stage of milk fever will result in the inability of the cow to get up quickly following treatment for milk fever. Another plausible complication is an overlong delay (4 hours or more) in the treatment of cows with milk fever which result in ischemic necrosis of the muscles of both the hind legs and forelegs. There is now experimental evidence to support the clinical and epidemiological observation.

PATHOGENESIS

Several different primary factors or diseases like parturient hypocalcemia initially cause recumbency. The recumbency results in pressure damage which occurs secondarily and is a factor common to all cases. Traumatic injury to limb muscles and nerves immediately prior to parturition or at the time of parturition can result in prolonged recumbency and subsequent pressure damage. An overlong delay in the treatment for hypocalcemic parturient paresis can result in pressure damage and the subsequent inability to rise after treatment for the primary disease.



CLINICAL FINDING

The “Downer Cow” syndrome may occur independently, or follow apparent recovery after treatment for parturient paresis, except for the continued recumbency which, in effect, constitutes the disease. In the typical case, affected cow either

make no effort or are unable to rise following treatment for parturient paresis. About 30% of cows treated for parturient paresis will not rise for up to 24 hours. Those which are unable to rise after 24 hours and after two treatments can be classified as downers. They are usually bright and alert and although the appetite is reduced, the cow eats and drinks moderately well.

The temperature is normal and the heart rate may be normal or elevated to 80-100/min. Tachycardia and arrhythmia occur in some cows especially

TREATMENT

Many treatments including the injections of magnesium salts, phosphates, corticosteroids, stimulant tonics and vitamin E and selenium have been used without consistent success. Attempts at slinging are usually unsuccessful unless the cow is partially able to get up on her own.

The use of solutions containing potassium, calcium, magnesium and phosphorus has been recommended but there is no scientific evidence that these electrolytes, in addition to what was probably given to the cow already, are indicated of any beneficial value. Fluid therapy by the oral or parenteral route is indicated for cows which may not be drinking a normal amount of water.

There is a need to develop a field technique for the provision of physiotherapy in the form of muscle massage to restore the normal muscle activity in the affected limbs. With conscientious care and the provision of good bedding, most cows will attempt to rise in a few days and can stand normally a day or two later. Sand is an ideal form of bedding which facilitates standing when downer cows attempt to stand.

If affected cows are left on a slippery ground surface, they will not make an effort to rise and will become progressively worse.



One World, One Health PREVENTING ZOOZOSES

Author - Charu Singh
4th year B.V.Sc&A.H
ANDUAT, Kumarganj,
Ayodhya (U.P.)



ABSTRACT

Zoonoses, diseases transmitted from animals to humans, pose significant threats to global public health. The concept of "One World, One Health" emphasizes the interconnectedness of human, animal, and environmental health, highlighting the need for collaborative efforts to prevent and control zoonotic diseases. This article explores the importance of preventing zoonoses, identifies contributing factors to their emergence, and outlines strategies to protect the health of humans and animals. By adopting a One Health approach and implementing surveillance systems, wildlife conservation measures, improved hygiene and food safety practices, and cross-sector

collaboration, we can strive to create a world where the risks of zoonotic diseases are minimized, fostering a healthier and more sustainable future.

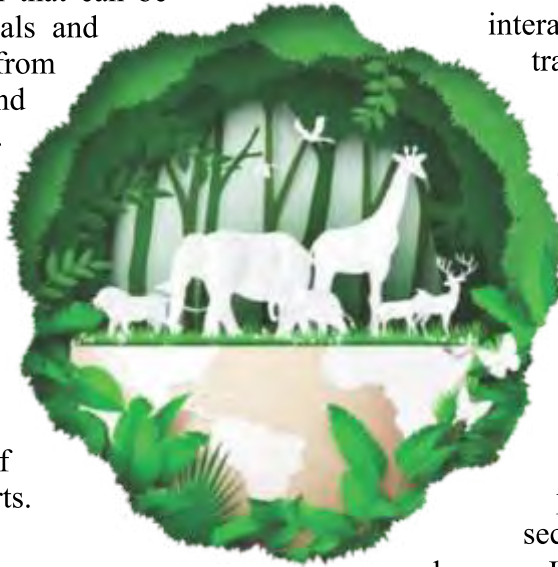
INTRODUCTION

In an interconnected world, the health of humans, animals, and the environment is intricately linked. Zoonoses, diseases that can be transmitted from animals to humans, have emerged as a significant global concern. The concept of "One World, One Health" recognizes the interdependence of human, animal, and environmental health, emphasizing the need for a collaborative approach to prevent and control zoonotic diseases. In this article, we will explore the importance of preventing zoonoses, the factors contributing to their emergence, and the strategies to protect the health of both humans

and animals.

1. UNDERSTANDING ZONOSSES:

Zoonoses are infectious diseases caused by bacteria, viruses, parasites, or fungi that can be transmitted between animals and humans. They can range from mild illnesses to severe and potentially fatal conditions. Examples of well-known zoonotic diseases include rabies, Ebola, influenza, and COVID-19. Understanding the nature of zoonoses is crucial to appreciate their impact on public health and the importance of prevention and control efforts.



2. FACTORS

CONTRIBUTING TO

ZOONOTIC DISEASE EMERGENCE:

The emergence and spread of zoonotic diseases are influenced by various factors. We will delve into the factors contributing to their emergence, including habitat destruction, wildlife trade, intensification of agriculture, climate change, and increased human-animal interactions. Exploring each of these factors will help us understand the complex dynamics that facilitate the transmission of zoonoses from animals to humans.

3. THE IMPORTANCE OF ONE HEALTH APPROACH:

The One Health approach recognizes that the health of humans, animals, and ecosystems are interconnected. By adopting a holistic perspective, One Health advocates for collaboration and integration across disciplines, including human medicine, veterinary medicine, environmental science, and public health. This section will emphasize the significance of adopting a comprehensive and interdisciplinary approach to prevent and control zoonotic diseases.

4. STRATEGIES FOR PREVENTING ZONOSSES:

This section will discuss various strategies for preventing zoonotic diseases and safeguarding public health. Each strategy will be examined in detail:

- a. **Surveillance and Early Detection:** Timely surveillance systems that monitor animal and human populations for disease outbreaks are crucial for early detection. We will explore the importance of surveillance and how it can aid in

rapid response efforts.

- b. **Wildlife Conservation and Habitat Preservation:** Protecting natural habitats and biodiversity is essential in reducing human-wildlife interactions and the potential for disease transmission. We will discuss the role of wildlife conservation in preventing zoonoses.
- c. **Strengthening Animal Health Systems:** Robust veterinary services are pivotal in preventing and controlling zoonotic diseases. Ensuring access to quality veterinary care, promoting vaccination programs, and implementing proper livestock management practices will be examined in this section.
- d. **Improved Hygiene and Food Safety:** Promoting good hygiene practices, such as handwashing, safe food handling, and proper sanitation measures, is crucial in preventing zoonotic infections. We will explore the importance of hygiene and food safety in reducing the risk of zoonotic diseases.
- e. **Cross-Sector Collaboration:** Collaboration among public health agencies, veterinary services, environmental organizations, and research institutions is vital for sharing knowledge, expertise, and resources. We will discuss the significance of cross-sector collaboration in developing integrated strategies to prevent, detect, and respond to zoonotic disease outbreaks.

CONCLUSION

The prevention of zoonoses requires a comprehensive and collaborative approach. By implementing strategies such as surveillance, wildlife conservation, strengthening animal health systems, promoting hygiene and food safety, and fostering cross-sector collaboration, we can strive towards a world where the risks of zoonotic diseases are minimized, and the health of all living beings is safeguarded. Embracing the philosophy of "One World, One Health" is not only a moral imperative but a strategic investment in the well-being of our planet and future generations. Through concerted efforts, we can create a healthier and more resilient world, where the harmony between humans, animals, and the environment thrives.



Author - Pawan Kumar Sharma
MVSc, Department of Veterinary
Gynaecology and Obstetrics,
CVAS, RAJUVAS, Bikaner,
Rajasthan.

UTERINE TORSION

Causes, Symptoms & Management Strategies

INTRODUCTION

Uterine torsion, a condition characterized by the twisting of the uterus along its longitudinal axis, is most commonly affects buffaloes and cattle worldwide. It can lead to severe complications during pregnancy and parturition, resulting in economic losses for farmers. Uterine torsion most commonly occurs during late gestation or near parturition. It is maternal cause of dystocia. Uterine torsion exerts considerable stress on the animal and if not treated promptly, it can lead to toxemia followed by dam as well as fetal mortality. This article deals with the causes, symptoms, and management strategies for uterine torsion.

CAUSES

- Fetal Movements:** The vigorous movements of the developing fetus within the uterus can sometimes lead to the twisting of the uterus, especially during the later stages of pregnancy.
- Uterine Abnormalities:** Structural abnormalities of the uterus, such as a pendulous uterus or

elongated horns, can predispose to uterine torsion.

- Lack of Exercise:** Inadequate exercise or close confinement in small spaces can increase the risk of uterine torsion.

SYMPTOMS

Animal with uterine torsion often exhibit a visibly distended abdomen due to the twisted uterus and may show a decrease in feed intake. Animal experiencing uterine torsion may display signs of restlessness, pawing at the ground, kicking of the abdomen with hind legs on the side of the pain and frequent lying down and getting up. Uterine torsion can impede the progress of labor, leading to prolonged calving or even stillbirth.

DIAGNOSIS

Prompt clinical examination is crucial for good prognosis of uterine torsion. Uterine torsion can diagnose by the help of symptoms along with rectal and vaginal palpation. Vaginal examination reveals twisting of the vaginal wall in the side of torsion.

In case of pre cervical uterine torsion pervaginal examination is not useful in diagnosis. On rectal palpation, the broad ligament on the side of torsion is twisted along with the uterus and the opposite broad ligament becomes stretched.

TREATMENT

- a. **Manual Correction:** In cases of mild to moderate degree uterine torsion where obstetrician can touch the fetus. Manual repositioning of the fetus can be done through the cervix with the help of caemmerer's torsion fork or kuhen crutch.
- b. **Rolling of animal:** Uterine torsion can be corrected by rolling the animal while uterus remain static. In case of mild degree of uterine torsion sudden rolling of animal might be effective. During sudden rolling rapid rotating body of the animal overtakes the slowly rotating gravid uterus which helps in repositioning of uterus. In Schaeffer's method of uterine torsion correction the fetus is immobilized using a plank that is held in an inclined position on the animal's abdomen after casting the dam in lateral recumbency to the side of torsion. Three individuals sustained pressure on the plank's edge by standing on it while the animal was rolled to the other side. The modified Schaffer's approach, which involves applying pressure from a person, was employed since the plank kept slipping over while the animal was being rolled. Three to four people placed pressure on the end of the plank that touched the ground by standing on it, while one person put pressure on the other end of the plank.
- c. **Surgical Intervention:** Severe uterine torsion or

cases where manual correction or rolling of animal is unsuccessful may require surgical intervention. Laparotomy can be performed to restore the uterus to its normal position.

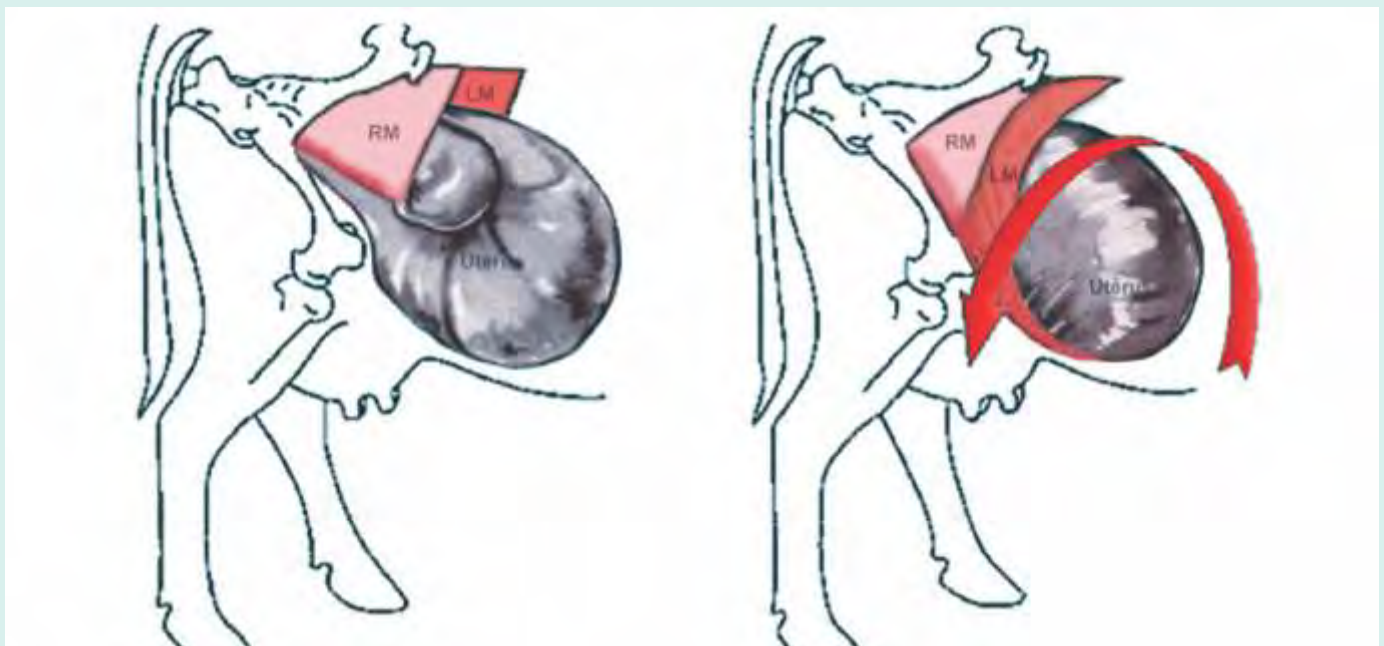
- d. **Post-treatment Care:** Following successful correction, animal should be monitored closely for any signs of infection or uterine damage. Adequate fluid therapy, pain management and appropriate antibiotics may be prescribed to ensure a smooth recovery.

PREVENTION STRATEGIES

- a. **Exercise and Management:** Encouraging regular exercise and providing sufficient space for movement can reduce the risk of uterine torsion.
- b. **Proper Nutrition:** Maintaining a balanced and adequate diet throughout pregnancy supports the overall health and strength of the buffalo, reducing the chances of uterine torsion.
- c. **Timely healthcare:** Regular veterinary check-ups during pregnancy allow for early detection of any potential issues, including uterine torsion.

CONCLUSION

Uterine torsion poses a significant challenge in reproductive health and can have detrimental effects on both the animal and the farmer. Recognizing the causes, identifying symptoms, and implementing appropriate management strategies are vital in minimizing the occurrence and severity of uterine torsion. By adopting preventive measures and seeking timely veterinary care, buffalo farmers can ensure the well-being of their herds and optimize reproductive outcomes.



AN OVERVIEW OF CALF DIARRHEA

INFECTIOUS ETIOLOGY, DIAGNOSIS & INTERVENTION

Author 1 - Rachna poonia

Author 2 - Sumnil Marwaha

INTRODUCTION

India is predominantly an agricultural country with about 70 per cent of its population dependant on income from agriculture. In India and other Southeast Asian countries, cattle and buffaloes are important domestic animals for milk production and draft power contributing significantly to their agricultural economy. About 20.5 million people depend upon livestock for their livelihood and it supports Indian economy with contribution of 4.11 % GDP 25.6 % of total Agriculture GDP.



Among livestock buffalo have emerged as significant contributors of livelihood, food security and nutrition to the masses.

India is the highest buffalo milk producer in the world with over 20 breeds of river buffaloes. Among these, Murrah and Jaffarabadi are popular because of high milk yield. The total milk production in the country amounted to about 187.7million metric tons in financial year 2019 ,the state Uttar Pradesh produced the highest amount of milk in India about 30.5 million metric tons followed by Rajasthan 23.67(BAHS,DADF). India has exported 11, 52,547.32 MT buffalo meat product to the world for the worth of Rs 22,668.48 Crore during the year of (2019 -20). (APEDA).Livestock provide increased economic stability to the poor masses

Successful development of livestock depends upon proper health management. Diseases are the major cause of economic losses due to mortality, cost of treatment and inefficient production of livestock. Diseases are the main constraint in development of livestock in the country. Morbidity and mortality among the neonates have always proved a bottleneck and causes serious blow to the roots of dairy husbandry in India

The important diseases of buffalo calves are bacterial diseases (Colibacillosis, Salmonellosis, Bovine enterotoxaemia, Yersiniasis, Pasteurellosis and Paratuberculosis), viral diseases (Foot and mouth disease, Rotavirus infection, Infectious bovine rhinotracheitis and Bovine viral diarrhoea) and parasitic diseases (Toxocariasis, Bovine coccidiosis and Amphistomiasis). So it is most important to determine the cause of mortality. Due to this reason, studies on

pathological investigation of gastrointestinal tract of bovines are important for understanding the pathogenesis of these diseases. Colibacillosis is a major cause of diarrhoea in neonatal calves and is associated with pathogenic serotypes of E. coli. There

are six pathogroups of E. coli classified on the basis of virulence scheme: enterotoxigenic E. coli (ETEC), shiga toxin-producing E. coli, enteropathogenic E. coli, enteroinvasive E. coli, enteroaggressive E. coli and enterohaemorrhagic E. coli.

DIAGNOSIS

Proper specimen collection and delivery to a diagnostic lab is commonly neglected, and significantly impacts the diagnostic outcome. Antemortem samples for diagnostic testing should minimally include feces from acutely diarrhetic animals prior to therapy

with optional blood samples. Necropsy specimens from freshly sacrificed, moribund, or euthanized calves are of great value for diagnosis during severe outbreaks.

Fresh and formalin-fixed gastrointestinal tissues (abomasum, small intestine, or colon) including ones from regional lymph nodes and liver should be collected along with colonic contents. Fresh fecal samples should be directly recovered from diarrheic animal into a specimen container with either rectal swabs or by rectal stimulation while avoiding environmental contamination (by soil, urine, or other feces).

1. The Ag-ELISA has been utilized in many fields.
2. Fecal flotation and direct microscopy are commonly used to diagnose parasite eggs or oocysts. The principal of fecal flotation is simply based on the density difference between a flotation solution and oocysts.

the last trimester increase calf morbidity and mortality rates because most fetal growth occurs during last 2 months of gestation

Dystocia is closely related to poor calf performance as well as increased susceptibility to environmental pathogens which frequently cause calf diarrhea.

The major causes of dystocia are associated with large calf size and small pelvic size of the dam. Large calves are more likely to have an improper position and presentation (e.g., backward, breech, and mal-positioned limbs or head) in the uterus

The bovine placenta does not permit the passive transfer of antibody to the fetus. As a result, the newborn calf does not receive any



3. Fecal bacteria culturing is a commonly used laboratory method for isolating and identifying bacterial pathogens in feces and intestinal contents. Salmonella spp., E. coli K99+, and C. perfringens are primary bovine enteric pathogens

PREVENTION AND CONTROL OF CALF DIARRHEA

Cow nutrition is closely associated with weak labor, amount of milk production, dystocia, and calf growth. Inadequate feed intake and macro- or micro-nutrient deficiencies during

antibody from the dam and is very susceptible to environmental pathogens.

Harsh weather conditions such as low temperatures, rain, heavy snow, wind, and high levels of moisture act as stress factors to young calves and increase the susceptibility of calves to diarrhea [13,71].

Neonatal calves are not able to effectively regulate their body temperature when exposed to extreme weather conditions.

Dermatophytosis (ringworm) is a superficial cutaneous fungal infection caused by keratinophilic fungi that are able to invade the stratum corneum of the skin, the hairs and other keratinized structures.

ETIOLOGY

Fungi of the genera *Microsporum* and *Trichophyton* cause animal dermatophytoses. The most common equine dermatophyte species isolated from horses are *Trichophyton equinum*, *M. canis*, *M. equinum*, *M. gypseum*, *T. mentagrophytes*, *T. bullosum* and *T. verrucosum*. *Trichophyton equinum* and *M. canis*: 'ringworm' in horses, particularly in young animals. *T. mentagrophytes* or *M. gypseum*: isolated from skin lesions. *T. bullosum* and *M. praecox* from healthy animals and the surrounding environment.

TRANSMISSION

By direct contact: with diseased animals or asymptomatic carriers.

Horse (e.g., *T. equinum*), a cat (e.g., *M. canis*), cattle (e.g., *T. verrucosum*), or a rodent (e.g., *T. mentagrophytes*). Spores can exist on the skin without causing lesions, and up to 20% of normal animals in an infected group will act as 'carrier animals'. Indirect contact with inanimate objects, particularly bedding, harness, grooming kits and horse blankets and from the environment (e.g., *M. gypseum*).

EPIDEMIOLOGY

Environmental risk factors: Although dermatophytosis is worldwide in distribution, it is more prevalent in hot humid climates than in cold dry regions. Host risk factors: Depend on immunologic status. Young animals (less than 2 year) are more susceptible. Skin pH also plays important role. Acidic pH is less susceptible. Young animals have high pH thus more susceptible. Traumatic injuries to skin also increase the risk.

Pathogen factors: Dermatophytes produce enzymes mainly keratinases (enable invasion of the hair and the stratum corneum *Trichophyton equinum*

DERMATOPHYTES IN HORSES

INFECTIOUS ETIOLOGY, DIAGNOSIS & INTERVENTION

Author 1 - Rachna poonia

Author 2 - Sumnil Marwaha

produces urease, gelatinase, protease, hemolysins, and keratinase. Stronger the enzymatic activity greater will be the inflammation. E.g., *T. mentagrophytes* causes severe inflammatory reaction as compared to *T. equinum*. Hemolytic activity and the ability to induce hypersensitivity reactions are also important virulence factors, especially for *Trichophyton* spp.

ECONOMIC IMPORTANCE

Lesions causes discomfort and are unsightly affecting esthetic appearance. Prevent the horses from working and interferes with their use in polo, racing, and riding





because the horse will not be allowed at shows or other events (because it can transmit it to other horses), thus decreasing the cost value of the horse.

PATHOGENESIS

Fungi chiefly attack keratinized tissues, particularly the stratum corneum and hair fibers. Autolysis of the fiber structure, breaking off of the hair, and alopecia. Exudation from invaded epithelial layers, epithelial debris and fungal hyphae produce the dry crusts - characteristic of the disease. The lesions progress if suitable environmental conditions for myceliagrowth exist (warm humid atmosphere and a alkaline pH of skin). Ringworm fungi are all strict aerobes and the fungi die out under the crust in the center of most lesions, leaving only the periphery active. Centrifugal progression and the characteristic ring form of the lesions.

Immunity to reinfection: A resistance to reinfection occurs. But a local mycotic dermatitis may occur at the reinfection site. Immunity is specific to the fungal species. Lasts up to 2 years.

Site of lesions: Commonly present on the face and neck Dorsolateral thorax Girth ("girth itch") Legs: less commonly affected. Lesions may be limited to the caudal pastern region ("scratches," "mud fever," "grease heel") The mane and tail are rarely affected.

CLINICAL SIGNS

The initial lesions are often tufted papules, 2-5 mm in diameter. Early lesions may also appear as erect hairs in annular areas of 5-20 mm diameter. Occasionally, an urticarial-like eruption will precede the more obvious follicular dermatosis by 24-72 h. Lesions may be superficial or deep. Classically, a circular area of alopecia

and scaling with erythematous margin is evident. Superficial infections are much more common and are manifested by the development of thick crusts, or more generally a diffuse moth-eaten appearance with desquamation and alopecia. Pruritus is usually minimal to absent In horses with acantholytic dermatophytosis or those with secondary bacterial infections, erosions, epidermal collarettes, suppurative exudate, or rare pustules may be present.

DIAGNOSIS

1. Wood's lamp, can be used as a screening tool, False negatives are common because not all dermatophytes fluoresce. Most effective as a monitoring tool when a fluorescing strain of *M canis* (*M equinum*) is known to be present in a group or on an individual. Fluorescence is best observed during early or active infection, when the entire hair shaft will fluoresce.
2. Microscopic examination of plucked hairs may reveal hyphae and arthrospores in 54-64% of the cases.
3. Fungal culture: Dermatophyte test medium, Sabouraud dextrose agar (Marsella, 2014)
4. Biopsy: infiltrative lymphocytic mural folliculitis and suppurative luminal folliculitis, pyogranulomatous furunculosis, fungal elements are often most easily found in surface scale, crust, and hair fragments

TREATMENT

TOPICAL THERAPY -

Creams and lotions are available for use on focal lesions, and are typically applied every 12 h. Multifocal or generalized skin involvement, antifungal rinses (dips) are indicated. Rinses are preferred because the entire body surface can be treated, rubbing of the hair coat is minimized, and the antifungal agent can be allowed to dry on the skin. Rinses are usually applied daily for 5 to 7 days, and then once or twice weekly until clinical cure. Lime sulfur 2-5% and enilconazole 0.2% are the most effective.



Canine distemper also known as Hard pad disease, Carré's disease. Canine distemper is a highly contagious virus caused by the paramyxovirus. It is seen in dogs around the world, but it can also affect ferrets, racoons, skunks, grey foxes, and many other animals.

ETIOLOGY

Genus- Morbillivirus, Paramyxoviridae family, Non-segmented, single-stranded, RNA genome. Lipoprotein-enveloped virus, Pantropic in nature. 8 different genotypes Snyder Hill, A75/17, and R252 and strains are highly virulent and neurotropic. Geographically distinct lineages of the canine distemper virus are genetically diverse. This diversity arises from mutation, and when two genetically distinct viruses infect the same cell, from homologous recombination.

CANINE DISTEMPER

INFECTIOUS ETIOLOGY, DIAGNOSIS & INTERVENTION

Author 1 - Rachna poonia
Author 2 - Durga Devi

HOSTS

Dogs are the principal host for CDV, and they likely act as reservoirs of infection for wildlife. Eight of the 11 families of carnivores have been reported to be susceptible to canine distemper.

ZOONOSES

Inapparent, self-limiting infections, occur in humans by parenteral inoculation of virulent CDV. Paget's disease, an inflammatory bone disorder in humans, might be related to CDV acquired from exposure to dogs.

EPIDEMIOLOGY

The prevalence of canine distemper in the community has decreased dramatically due to the availability of vaccinations. However, the disease continues to spread among unvaccinated populations, such as those in animal shelters and pet stores. This provides a great threat to both the rural and urban communities throughout the United States, affecting both shelter and domestic canines. Outbreaks of canine distemper

continue to occur throughout the United States and elsewhere and are caused by many factors, including proximity to wild animals and lack of vaccinated animals. This problem is even greater within areas such as Arizona, owing to the vast amount of rural land. An unaccountable number of strays that lack vaccinations reside in these areas, so they are more susceptible to diseases such as canine distemper. A mortality rate is up to 77% in dogs. (Weilley et al., 2016).

TRANSMISSION

Transmitted by aerosol or droplet exposure originating from respiratory exudates. Urine and other secretions also contain infectious virus. Viral shedding may follow infection for 60–90 days. Transplacental infection can occur in domestic dog. Virus is short-lived in the environment, but it can survive at lower temperatures e.g., 48 hr at 25°C and 14 days at 5°C (Shen et al., 1980).

CLINICAL SIGNS

It is estimated that 25 to 75% of the infections occur as subclinical infections.

Incubation period – 3–6 days. Initial transient fever after few days of infection followed by second stage of fever 8–9 days after infection with subsequent respiratory, GIT, CNS and cutaneous involvement. Lethargy, anorexia, Initially serous oculonasal discharge, conjunctivitis, non

productive cough. Secondary bacterial infections resulting bacterial bronchopneumonia, dyspnea, mucopurulent discharge. Severe fatal pneumonia, without other signs, has been reported in neonatal infected pups.

Viral destruction of gastrointestinal tract can result in inappetance, vomiting, diarrhea, electrolyte imbalance, and dehydration. In nervous form signs are hyperesthesia, vocalization, seizures :chewing gum seizures is the classic sign.but tonic clonic seizures and status epilepticus can also occur vestibular signs like head tilt, nystagmus, strabismus, circling paraparesis or tetraparesis with ataxia.

Myoclonus : most commonly of masticator and temporal muscles, although limbs and other muscle group can be affected. Myoclonus often continues with activity, rest, sleep, or with light anesthesia. During rest and sleep, the frequency and severity of the myoclonus lessens.

OCCULAR SIGNS

Optic neuritis: sudden onset of blindness, dilated unresponsive pupils. Retinal detachment, chorioretinitis, uveitis.

CUTANEOUS LESIONS

Vesicular and pustular dermatitis in puppies. Rarely associated with neurologic complications, this is usually a favorable prognostic sign. Nasal and digital hyperkeratosis. It appears in late stages of clinical disease. Usually associated with various neurologic complications. Naso-digital keratosis is reported to occur in about 8% of cases with neurological disease.

POST-MORTEM FINDINGS

Thymic atrophy in infected pups. Hyperkeratosis of the nose and footpads, bronchopneumonia, enteritis, and skin pustules, Intracytoplasmic and intranuclear viral inclusions in epithelial cells of the skin, gastrointestinal tract, lung, renal pelvis, urinary bladder, central nervous system (CNS), and eye, depending on the stage and severity of infection.

DIAGNOSIS

Virus isolation, serological tests, PCR, cytological demonstration of CDV inclusion bodies, Immunochromatographic assay, Immunohistochemistry, Immunocytology

- Differential diagnosis
- Leptospirosis
- Canine infectious hepatitis
- Canine infectious respiratory disease complex
- (Kennel Cough)



- Intoxicants such as lead or organophosphates can cause simultaneous GI and neurologic signs
- Rocky Mountain spotted

TREATMENT

There is no cure for canine distemper, but your vet can recommend supportive care and symptom treatment.

Some treatments for canine distemper may include:

- Broad-spectrum antibiotics
- Pain relievers
- Seizure medications
- Electrolytes
- IV nutrition
- Ascorbic acid I.V. have immunomodulator and antioxidant
- Vita A also play an important role for the treatment of canine distemper in ferrets but mechanism is still unknown.
- Survival rates are higher in dogs treated with anti canine distemper antibodies (0.4 ml/kgIV,IM,SC)
- Few antiviral drugs have been tested invitro for CD like Ribavarin, 5-ethynyl-1-beta-d ribofuranosyl imidazole - 4- carboxamide and proanthocyanidin
- Seizures control require diazepam, phenobarbital, or potassium bromide.
- Variable or temporary success in halting neurologic signs can result from a single anti-CNS edema dose (2.2 mg/kg, given intravenously [IV]) of dexamethasone

PREVENTION

Modified live vaccines have proved very effective. Recombinant vaccine-eg canary pox vectored recombinant vaccine that expresses H and F protiens, rabies virus recombinant vaccine . Primary vaccination should be done at age of 6 to 8 weeks, with repeat vaccination at every 3-4 week until 16 week of age. Revaccination (booster) at either 6 months or 1 year of age, then every 3 years.

Vaccine strains – Onderstepoort, Lederle, Rockborn.

पशुपालन में महिलाओं का योगदान

लेखक - डॉ. ज्ञान सिंह, डॉ. संदीप पणिहार,
डॉ. आनंद कुमार पाण्डेय और डॉ. ऋषिपाल
पशु चिकित्सा विज्ञान कॉलेज, लुवास- हिसार

भारत एक कृषि प्रधान देश है और पशुधन इसका एक अभिन्न अंग है जहां, पशुधन उत्पादन काफी हद तक महिलाओं के हाथों में है। अधिकांश पशुपालन चारा संग्रह, खिलाना, पानी देना और स्वास्थ्य देखभाल, प्रबंधन, दूध देना और जैसी गतिविधियाँ घरेलू स्तर पर प्रसंस्करण, मूल्यवर्धन और विपणन महिलाओं द्वारा किया जाता है। इसके अलावा, गांवों में महिलाओं की काफी भागीदारी और योगदान, लैंगिक असमानताएं भी मौजूद हैं। इसलिए, पशुधन क्षेत्र में लैंगिक असमानताओं को ठीक करने की आवश्यकता है। आत्मविश्वास के साथ बातचीत करने और अपनी रणनीतिक जरूरतों को पूरा करने के लिए महिलाओं की क्षमता बढ़ाने की जरूरत है।

महिलाएं पशुधन प्रबंधन, प्रसंस्करण और विपणन में एक महत्वपूर्ण भूमिका निभाती हैं तथा देखभाल के रूप में कार्य करती हैं। वे दूध उत्पादन और उत्पादों की बिक्री में भी भूमिका निभाती

हैं। पशुधन मालिकों, प्रसंस्करणकर्ताओं के रूप में महिलाओं की भूमिकाओं की पहचान करना और उनका समर्थन करना और पशुधन उत्पादों के उपयोगकर्ताओं की क्षमताओं को मजबूत करते हुए गरीबी के चक्र को तोड़ना, एक महत्वपूर्ण पहलू हैं महिलाओं के आर्थिक और सामाजिक शक्तिकरण को बढ़ावा देना और परिणामस्वरूप ग्रामीण महिलाओं को सक्षम बनाने का एक तरीका प्रदान करता है।

विश्व के विकासशील क्षेत्रों में, महिलाओं को प्राकृतिक



संसाधनों जैसे भूमि, जंगल और जल की प्राथमिक उपयोगकर्ता माना जाता है क्योंकि वे अपने परिवार के लिए भोजन के लिए जिम्मेदार हैं। महिलाएं स्वयं, उत्पादन पैटर्न, विकास और प्राकृतिक संसाधन प्रबंधन के दृष्टिकोण में एक आवश्यक भूमिका निभाती हैं। इस प्रकार, महिलाएं हमेशा अपने परिवेश की मुख्य रक्षक रही हैं। महिलाएं एक परिवार और उसके समुदाय के निर्णायक परिवर्तन में बहुत महत्वपूर्ण भूमिका निभाती हैं। आदिवासी और पिछड़े समुदायों में काम के लिए पुरुषों के दूसरे शहर में प्रवास के कारण, पशु प्रबंधन से संबंधित अधिकांश काम महिलाओं को करना पड़ता है। महिलाएं, कृषि कार्यों के लिए बीज चयन और संरक्षण जैसे मौलिक कर्तव्यों का पालन करती हैं, हालांकि इन कार्यों के लिए उन्हें शायद ही कभी श्रेय मिलता हो।

जैसे-जैसे दुनिया वैज्ञानिक और तकनीकी विकास के साथ अभूतपूर्व गति से आगे बढ़ रही है, महिलाओं का सशक्तिकरण प्रगति के लिए आवश्यक है।

पशुपालन के क्षेत्र में महिलाओं द्वारा किये जाने वाले बहुआयामी कार्य इस प्रकार हैं

डेयरी उत्पादन में महिलाओं का योगदान सबसे अधिक है। यह उल्लेख करना उचित है कि पिछले एक दशक में डेयरी में महिलाओं के योगदान को उचित मान्यता मिल रही है। यह महसूस किया जाता है कि दूध पिलाने, दूध निकलने और नवजात बछड़ा की देखभाल और दवा प्रबंधन जैसे अधिकांश महत्वपूर्ण कार्य महिलाएं संभालती हैं। महिलाएं प्रत्येक जानवर के व्यवहार और उत्पादन विशेषताओं से अच्छी तरह वाकिफ रहती हैं। महिलाएं स्थानीय चारा संसाधनों के बारे में जानकार हैं और डेयरी पशुओं को खिलाने के लिए लाभकारी घास,

खरपतवार और चारे के पेड़ों की पहचान करने में सक्षम हैं। विभिन्न स्तरों पर किण्वण प्रक्रियाओं से पता चला है कि एक महिला अपने परिवार की देखभाल के अलावा आसानी से 3-4 पशुओं की देखभाल अच्छी तरह कर सकती है। इन पशुओं को पालने से वह सालाना अच्छी खासी कमाई कर सकती है। गौरतलब है कि महिलाएं डेयरी पशुओं को पालना पसंद करती हैं जिनका दूध और घी का उत्पादन अधिक रहता है। गांव में महिलाएं दूध बेचने, जानवरों की खरीद और निपटान जैसे विपणन से संबंधित प्रसंस्करण गतिविधियों में अधिक भाग लेती हैं। महिलाएं आजीविका को बढ़ावा देने के लिए महत्वपूर्ण भूमिका निभाती हैं। महिलाओं द्वारा डेयरी उत्पादन में कुल 93 प्रतिशत रोजगार (विश्व बैंक, 1991)।

यह नकदी का भी एक स्रोत है और छोटे पशुओं की बिक्री से प्राप्त आय को, चिकित्सा उपचार या स्कूल की फीस के लिए नकदी का एक आपातकालीन स्रोत प्रदान कर सकती है, जबकि दैनिक दूध नकद आय का एक नियमित प्रवाह प्रदान करता है। जिसका उपयोग अक्सर भोजन और घरेलू सामान



खरीदने के लिए किया जाता है।

बकरीधंधे पालन ज्यादातर गांव की महिलाओं का क्षेत्र है। ग्रामीण परिवारों के अधिकांश भूमिहीन और छोटे भूमिधारक किसान धंधे और बकरियों का पालन करते हैं। गरीब परिवार में बकरीधंधे को पालने के लिए प्राथमिकता दी जाती है क्योंकि वे आसानी से प्रबंधनीय होते हैं और उन्हें बहुत कम धन की आवश्यकता होती है। बकरी और धंधे उत्पादन की सबसे महत्वपूर्ण विशेषता, विशेष रूप से पहाड़ी क्षेत्रों में, मैदानी इलाकों में मुख्य रूप से क्षेत्र चराई प्रणाली के मुकाबले, कमरे व शेड में दिन और रात के दौरान बकरियों को पालने और खिलाने की आम प्रथा है। पहाड़ी क्षेत्रों में एक परिवार द्वारा पाले जाने वाली बकरियों की औसत संख्या आमतौर पर 1 से 5 के बीच होती है। महिलाओं को प्रत्यक्ष लाभ प्रदान करने के साथ-साथ, बकरीधंधे पालन के उत्पादन से वंचित परिवार के पोषण में भी सुधार होता है।

मुर्गी पालन, विकासशील देशों में विशेष रूप से वंचित समाज

की एक पारंपरिक और सदियों पुरानी प्रथा है। इस पेशे का पूरा हिस्सा अंडे और टेबल के प्रयोजनों के लिए मुर्गियोंपोल्ड्री पक्षियों का प्रबंधन और देखभाल करना है, जो पूरी तरह से किसान महिलाओं को सौंपा जा सकता है, जो समाज के इस लाभकारी कार्य के लिए अपना समय समर्पित कर सकती हैं। मुर्गी पालन का बहुत अधिक आर्थिक, सांस्कृतिक और मनोरंजक मूल्य है। इसके अलावा, यह पोषण का एक सस्ता स्रोत है। पोषण के अच्छे स्रोतों और उच्च गुणवत्ता वाले भोजन के अलावा, यह पेशा, महिलाओं को अंडे और पक्षियों की बिक्री के माध्यम से आमदानी का साधन प्रदान करता है। इसके अतिरिक्त, मुर्गी की खाद पौधों के पोषक तत्वों (N, P, K, Ca, Mg, S) और गौण (Fe, Zn, Cu, Mn, Mo, B और Cl) दोनों में समृद्ध होती है क्योंकि यह मिट्टी उर्वक छमता को बढ़ाने में योगदान करती है। कई ग्रामीण महिलाएं, देशी मुर्गी पालन करना पसंद करती हैं क्योंकि वे पक्षी भूरे रंग के अंडे देते हैं, जिनकी ग्रामीणशहरी क्षेत्रों में अधिक मांग है। इसके अलावा, ऐसे कुक्कुट पक्षी आसानी से प्रबंधनीय, पारिस्थितिक होते हैं और उन्हें घर में उत्पादित अनाज और रसोई के कचरे पर पालन - पोषण खिलवाया जा सकता है।

निष्कर्ष

भारत में पशुधन का उत्पादन काफी हद तक महिलाओं के हाथ में है। इसके अलावा, महिलाओं का काफी भागीदारी और योगदान होने के बावजूद, भारतीय गांवों में काफी लैंगिक असमानताएं भी मौजूद हैं। जिसे दूर करने की आवश्यकता है। पशुधन क्षेत्र में लैंगिक असमानता को ठीक करें। महिलाओं के साथ बातचीत करने की क्षमता बढ़ाने के प्रयासों की आवश्यकता है। विश्वास और उनकी रणनीतिक जरूरतों को पूरा करने के लिए, सभी पशुधन विकास कार्यक्रमों में महिलाओं की भागीदारी का प्रयास किया जाना चाहिए। पशुपालन में महिलाओं द्वारा निभाई गई महत्वपूर्ण भूमिकाओं को



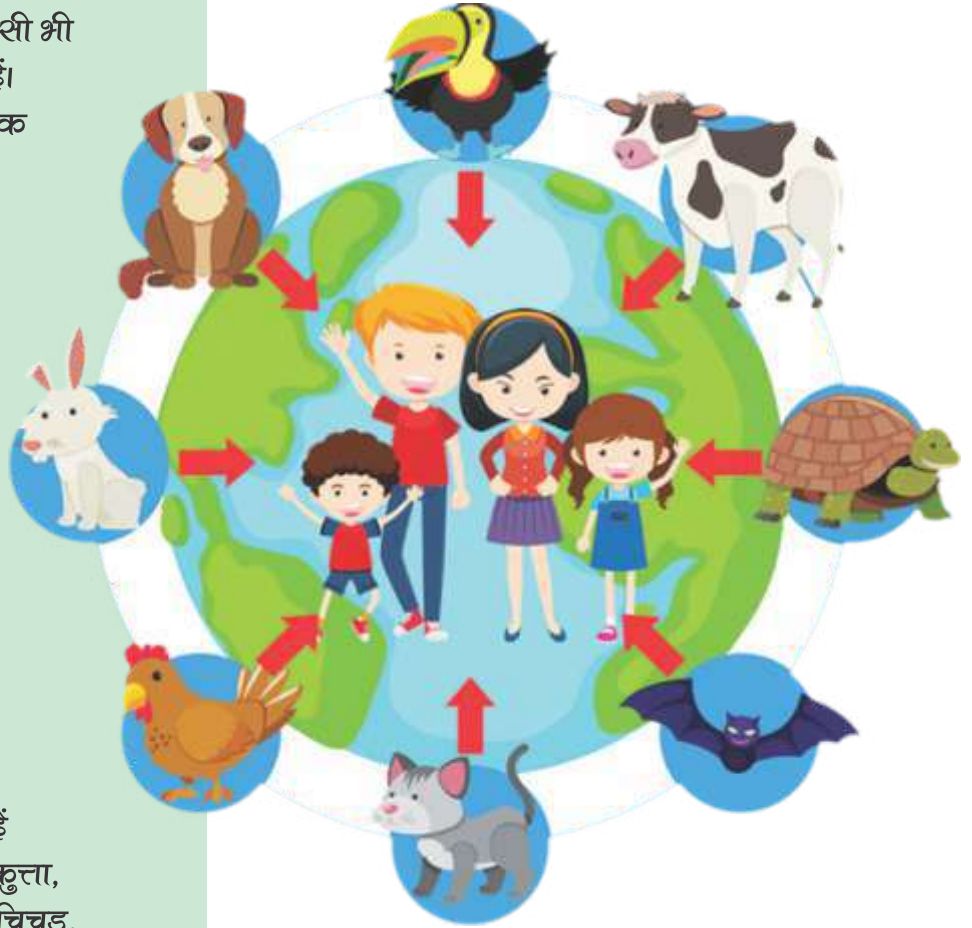
स्वीकार करने के लिए समुदाय आधारित कार्यक्रम भी करने चाहिए। इस तरह के मंचों पर सफल महिलाओं, उद्यमियों और किसानों को पुरस्कृत करने से पुरुषों द्वारा पशुधन संसाधनों के नियंत्रण के स्वीकृत मानदंडों को तोड़ने में काफी मदद मिलेगी।

मानव स्वास्थ्य एवं पशुओं पर जूनोटिक बीमारियों का प्रभाव

जूनोटिक रोग वो संक्रामक रोग होते हैं जो जानवरों से मनुष्यों और मनुष्यों से जानवरों में फैलते हैं। जब ये रोग मनुष्यों से जानवरों में फैलते हैं तो इसे रिवर्स जूनोसिस कहा जाता है। जूनोटिक रोग बैक्टीरिया, वायरस, फफूँद अथवा परजीवी किसी भी रोगकारक से हो सकते हैं। भारत में होने वाले जूनोटिक रोगों में रेबीज, ब्रुसेल्लोसिस, स्वाइन फ्लू, बर्ड फ्लू, ईबोला, निपाह, वलैंडर्स, साल्मोनेल्लोसिस, लेप्टोस्पाइरोसिस एवम जापानीज इन्सेफेलाइटिस इत्यादि शामिल हैं। ये लिस्ट काफी लम्बी हैं, विश्व भर में लगभग 150 जूनोटिक रोग उपस्थित हैं। कुछ जूनोटिक रोग तो सीधे ही सम्पर्क में आने से फैलते हैं जबकि कुछ वेक्टर जैसे कुत्ता, बिल्ली, चमगादड़, घोंघा, चिचड़, मछली, पिण, मुर्गी और घोड़ा इत्यादि के द्वारा फैलाये जाते हैं ये रोग पालतू और जंगली दोनों प्रकार के जानवरों में लक्षणों को पहचान कर तुरंत प्रभावी उपाय कियेयुवा पशुपालकों को अत्याधुनिक वैज्ञानिक तकनीकों, नवीन अनुसंधानों के प्रयोग से अधिक

Author 1 Dr. Raj Kumar Berwal

Asstt. Professor, Department of Livestock Products Technology, College of Veterinary Science, Rajasthan University of Veterinary and Animal Sciences, RAJUVAS - Bikaner



दुध उत्पादन हेतु प्रेरित किया जाना चाहिए, पशुचिकित्सा सेवाओं, और लाभकारी योजनाओं का व्यापक प्रचार प्रसार भी आवश्यक हैं, अभी भी ग्रामीण इलाकों में पशुओं और पशुपालकों के लिए कल्याणकारी योजनाओं के प्रति उतनी जागृति दिखाई नहीं देती हैं, पशुपालकों को अभी भी समय पर कृमिनाशन, टीकाकरण करवाने के फायदे नहीं पता होता !

पशुपालन विभाग जब भी टीकाकरण अभियान चलाता है तो उसे अपेक्षित सहयोग नहीं मिल पाता है, पालतू पशुओं की बात तो हो गयी परंतु जंगली जानवरों पर तो सर्वाधिक संकट है। घटते वनों से जंगली जानवरों के रहने और खाने-पीने की समस्या खड़ी हो गयी है। फिर दूसरा पहलू ये कि उनकी चिकित्सा व्यवस्थाएं भी ज्यादा अच्छी नहीं हैं। उनसे होने वाले जूनोटिक रोगों से भी काफी बार जूझना पड़ता है। इस बीच बड़ा बिंदु ये भी है कि जूनोटिक रोगों से बचाव हेतु वेटरनरी और मेडिकल दोनों प्रोफेशन में बेहतर तालमेल बहुत जरूरी है, प्रशासनिक स्तर पर इसके लिए प्रयास किये जाने चाहिए।

जूनोटिक रोगों से लड़ाई की सभी योजनाओं और प्रयासों में वेटरनरी डॉक्टर्स को शामिल किया जाना चाहिए।

दूध मनुष्य के लिए सर्वश्रेष्ठ और संपूर्ण भोजन होता है यह सभी पशु तथा मनुष्य के लिए भोजन का प्रथम स्रोत है जिसे सबसे पहले भोजन के रूप में ग्रहण किया जाता है दूध न्यूट्रीशन से भरपूर होता है। पशु का दूध मनुष्य के लिए कार्बोहाइड्रेट, प्रोटीन, वसा, विटामिन, मिनरल्स का स्रोत है दूध में वे सभी घटक होते हैं जो सभी आयु के आदमी वर्ग के विकास के लिए आवश्यक होते हैं ! मनुष्य के लिए पशु का दूध जितना आवश्यक होता है, उतना ही मनुष्य द्वारा पशु का रखरखाव भी आवश्यक है क्योंकि सारी जीवाणु जनित बीमारियां पशु से प्राप्त दूध से मनुष्य में फैलती है इन बीमारियों को जूनोटिक बीमारियां कहते हैं किसी भी पशु की दूध की गुणवत्ता इस बात पर निर्भर करती है कि पशु किस नस्ल का है किस बयांत में है या पशु की आयु क्या है! दुधारु पशुओं का स्वास्थ्य कैसा है इन सब के साथ पशुओं की दूध गुणवत्ता बाड़े की साफ-सफाई तथा आसपास के वातावरण पर निर्भर करती है।

दूध से होने वाली बीमारियों से कैसे बचें

1. पशुओं का दूध निकालने से पहले हाथों को अच्छी तरह से धोना चाहिए।
2. दूध निकालने के काम आने वाले सभी बर्तन और उपकरण को अच्छी तरह से साफ करना चाहिए।
3. कभी भी दूध को कच्चा नहीं पीना चाहिए।
4. दुधारु पशु के रहने वाले स्थान को साफ सुथरा रखना चाहिए।
5. पशुओं की देखभाल करने वाला व्यक्ति भी खुद साफ सफाई का ध्यान रखें।
6. दूध को हमेशा अच्छी तरह गर्म करके ही उपयोग में लेना चाहिए।
7. इस तरह से हम सावधानियां रखकर इन बीमारियों से खुद को और पशु को बचा सकते हैं।



REVOLUTIONIZING VETERINARY EXTENSION THROUGH ICT

EMBRACING TECHNOLOGY FOR BETTER ANIMAL HEALTH

INTRODUCTION

In today's fast-paced world, Information and Communication Technology (ICT) has permeated virtually every industry, and veterinary extension is no exception. The application of ICT in veterinary extension has opened up new possibilities, transforming the way veterinarians interact with their clients and improving animal health outcomes. In this article, we will explore the significance of ICT in veterinary extension, its impact on animal care, and how it benefits both veterinarians and pet owners alike.



ICT TOOLS AND APPLICATIONS

The integration of ICT in veterinary extension encompasses a wide range of tools and applications that aim to streamline communication and enhance veterinary practices. Some of the key ICT tools used in this field include:

Author - Jyoti Meena & Subhash Chand

Department of Veterinary and Animal Husbandry Extension Education, Post Graduate, Institute of Veterinary Education and Research (PGIVER), Jaipur, Rajasthan (302031) India

a) Telemedicine: Telemedicine has emerged as a game-changer in veterinary care. It allows veterinarians to remotely diagnose and treat animals through video conferencing and other digital communication platforms.



Pet owners can now seek expert advice without the need to physically visit a veterinary clinic, making veterinary care more accessible and convenient.

b) Mobile Apps: The rise of mobile applications has led to the development of numerous apps catering to animal health and care. These apps provide valuable information on pet care, vaccination schedules, and even symptom checkers to help pet owners identify potential health issues.

c) Online Portals: Veterinary clinics and institutions are now setting up online portals to offer resources and information about animal health, preventive care, and treatment options. These portals enable pet owners to access information at their convenience and stay informed about their pets' well-being.

d) Data Management Systems: ICT has also facilitated the implementation of efficient data management systems in veterinary practices. Electronic health records, appointment scheduling, and reminders for vaccinations can now be easily managed using dedicated software, streamlining administrative tasks and improving overall service.

ENHANCED COMMUNICATION AND COLLABORATION

ICT has revolutionized communication between veterinarians and pet owners. In the past, a lack of easy communication channels often led to delays in seeking veterinary advice, resulting in compromised animal health. With ICT tools, pet owners can now connect with veterinarians instantly, sharing images, videos, and medical history, enabling quicker and more accurate diagnoses.

Moreover, ICT has facilitated collaboration among veterinarians from different locations. This means that complex cases can be discussed among experts, leading to improved decision-making and treatment outcomes. Remote consultations have made it possible for veterinarians to extend their expertise beyond geographical boundaries, ultimately benefiting animals worldwide.

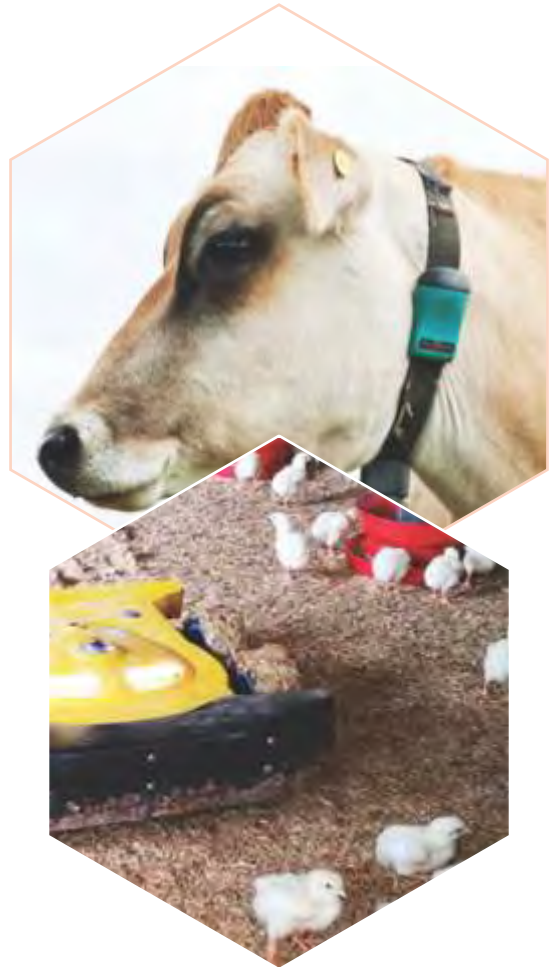
EDUCATION AND TRAINING

ICT has also revolutionized the way veterinary professionals receive education and training. Online courses, webinars, and virtual workshops allow veterinarians to stay updated with the latest advancements in their field without the need for travel. This has fostered continuous learning, ensuring that veterinary professionals are equipped with the knowledge and skills required to provide the best possible care.

CHALLENGES AND FUTURE PROSPECTS

While ICT has brought about numerous benefits, some challenges must be acknowledged. Reliable internet connectivity is crucial for the successful implementation of ICT in veterinary extension, especially in rural or remote areas where access might be limited. Additionally, ensuring data privacy and security is vital when dealing with sensitive medical information.

The future of ICT in veterinary extension looks promising.



Advancements in artificial intelligence and big data analytics will further enhance the accuracy of diagnostics and treatment planning. Wearable health monitoring devices for animals and telemedicine robots are also being explored to expand the scope of remote care.

CONCLUSION

Information and Communication Technology has transformed veterinary extension, offering innovative solutions to improve animal health and well-being. From telemedicine to mobile apps and online portals, the integration of ICT has revolutionized the way veterinarians and pet owners interact. Embracing these technological advancements will undoubtedly lead to a brighter and healthier future for our beloved animal companions. As ICT continues to evolve, the veterinary industry must adapt and seize the opportunities it presents to ensure the best care for animals across the globe.

EFFLUENT TREATMENT FROM BY-PRODUCT PLANT

ABSTRACT

Rendering plants produce large amounts of effluent. The wastewater contains chemicals with a low long-term environmental risk, but they need to be treated before being released into lakes, rivers, or streams. Federal, state, and municipal laws and regulations govern the release of wastewater. Protection of aquatic life, protection of human and animal health, preservation of receiving stream aesthetics, and preservation of water supply quality are the four main environmental concerns relating to wastewater produced and discharged by rendering factories. The most significant attention and expense in wastewater treatment is required for aquatic life protection.

INTRODUCTION

The types and conditions of the raw materials, the kinds of rendering processes used, and standard housekeeping procedures all affect the rates and characteristics of the wastewater generated by rendering facilities. Relatively low volume but extremely high concentration wastewater sources are frequently the cause of wastewater issues. With a production capacity of three to seven million pounds of raw material per week, a typical dead stock rendering factory produces 100,000 gallons of wastewater per day, with 5,000 pounds of CBOD and 900 pounds of TKN per million pounds of raw material.

Wastewater is produced by a typical rendering plant from the following sources:

- Liquid raw materials
- Hide operations; processing of



Authors

Dr. Mamatha - S.P., Assistant Professor Dept of VPH (Veterinary College Bidar)

Dr. Arun Kharaate - Associate Professor (I/C) Dept of VPH (Veterinary College Bidar)

Dr. Sarita - Assistant Professor Dept of VPY (Veterinary College Bidar)

restaurant grease; processing of blood; plant cleaning and sanitation; processing of cooking condensate; devices for reducing air pollution.

- Storm water; non-contact cooling water

COMPONENTS OF RENDERING EFFLUENT

Stickwater is typically 4%–7% fat and other particles from low-temperature wet rendering. The amount of protein and fat lost is substantial. Rendering plants must compare the costs and benefits of "end-of-pipe treatment" versus recovery or prevention at the source. Recovery is typically easier with concentrated effluent streams as opposed to a dilute combination.

EFFLUENT SOURCE - TYPICAL RANGE OF POLLUTANTS (mg/L)

	TDS	P	N	COD	Oil and Grease
Raw material bin drainage	6000 - 14500	300-700	3000-5500	40000-65000	Up to 10000
Tallow processing	20000-35000	70-120	250-400	50000-70000	Up to 50000
Blood processing	2000-20000	75-150	1200-8500	15000-100000	Up to 500
Cooker condensate - HT rendering	< 200	< 25	200-400	700-3600	< 100

IMPACT OF RAW MATERIALS

Contaminants entering the waste stream are a problem that begins with the source material. Fresh raw materials generate tallow of the greatest quality and value, minimise the ammonia content of the condensate from high temperature rendering systems, and reduce odour emissions throughout the entire rendering process. Before size reduction, materials should be sent to the raw material bin. Size reduction has to only take place right before the material is fed into the cooker or preheater. Avoid using Hasher Washer systems in conjunction with pneumatic conveyance. The pace of material deterioration and the amount of effluent lost from raw materials are both maximised by this way of preparation. Raw materials can be preserved using either of two methods: acid stabilisation or refrigeration.

METHODS OF RENDERING PLANT EFFLUENT TREATMENT

The physical separation of fat and solids by screening or dissolved air flotation (DAF) should be the first step in the treatment of effluent in order to enhance the recovery of fat and protein that may be recycled for further processing.

Pond systems, chemical dosing, and activated sludge systems are examples of secondary

treatment. Large amounts of sludge can be produced using activated sludge systems and chemical dosing. When chemical dosing is used, the recovered sludge might not be appropriate for further processing in the rendering plant because of chemical residues. In activated sludge systems, the process may be planned to nitrify or denitrify the effluent or create sludge with a high protein content. Water percentage in solids and sludge recovered from waste water treatment can range from 90% to 98%. Excess water can be removed using techniques like centrifuging or vacuum filtration, which lowers the cost of drying or reprocessing. Protein and fat can often be valuable commodities that can be recovered, processed, and turned into finished goods as an alternative to off-site disposal or payment to a sewage treatment authority. Rarely do DAF systems deliver sludge with a solids content more than 7.5%. Therefore, processors should think about either another means for concentration, such as a centrifuge or vacuum filter, or direct collection and return to the source rather than letting concentrated effluent such as raw material seepage or LT rendering stickwater to enter the effluent system.

PRIMARY PRETREATMENT

Traditional wastewater pretreatment involves

removing oil and grease as well as suspended particulates before wastewater is discharged to municipal sanitary sewers. The CBOD percentage that is linked to the suspended solids is also removed when the suspended solids are removed.

SECONDARY TREATMENT

The term "secondary treatment" describes the biological processes used to remove organic pollutants. The same fundamental natural biodegradation of organic material occurs in streams and lakes throughout secondary treatment operations. In order to remove the organic matter from the wastewater more quickly than in the natural aquatic environment, biodegradation takes place in tanks with extremely high concentrations of microorganisms.

- Aerobic lagoons
- Batch treatment process or Sequencing Batch reactors

DISINFECTION

Pathogenic organisms must be eliminated during disinfection. The disinfection of wastewater from rendering plants is frequently accomplished using a potent oxidizer like chlorine or UV radiation. Common sources of chlorine include chlorine gas and bleach or sodium hypochlorite. Chlorine contact basins are made with

sufficient flow and volume control baffles to keep the liquid in place for at least 15 minutes before discharge. For aquatic life, chlorine is harmful. A reducing agent chemical, such as sulphur dioxide or sodium metabisulfite, is used to eliminate unreacted chlorine before discharge.

TERTIARY TREATMENT

Processes that remove contaminants above and beyond the typical CBOD and TSS removal in secondary treatment are referred to as tertiary treatment. This includes increased TSS removal, total nitrogen, phosphorus, and ammonia. In order to adhere to ammonia and nutrient discharge limits, tertiary treatment is frequently necessary. Because biodegradable, organic suspended solids contribute to CBOD, their removal may be necessary to comply with strict CBOD or BOD discharge limitations.

- Nitrification and denitrification
- Removal of phosphorus by chemical precipitation and activated sludge process
- Filtration of suspended solids

ODOUR CONTROL METHODS

- Chemical oxidation
- Combustion
- Thermal destruction
- Biological odor reduction

Indian Standards for Disposal of Treated Effluents: Parameters	Inland Surface water	Discharge into public sewers
pH	5.5 - 9.0	5.5 - 9.0
Temperature (°C)	40	45
Color (Units)	100	-
Total Dissolved solids (mg/l)	2100	2100
Suspended solids (mg/l)	100	600
BOD5 (mg/l)	30	350
COD (mg/l)	250	-
Oil and Grease (mg/l)	10	20

GASTRITIS INDUCED BY HEPATIC DISORDERS IN CANINES

Authors

Vandana - 5PhD Scholar, Division of Medicine, ICAR-IVRI, Bareilly, Uttar Pradesh

Ankit Dahiya - MVSc Scholar, Division of Medicine, ICAR-IVRI, Bareilly, Uttar Pradesh

Pooja Solanki - PhD Scholar, Division of Medicine, ICAR-IVRI, Bareilly, Uttar Pradesh

Rajashekar Kamalla - PhD Scholar, Division of Medicine, ICAR-IVRI, Bareilly, Uttar Pradesh

Varun Kumar Sarkar - PhD Scholar, Division of Medicine, ICAR-IVRI, Bareilly, Uttar Pradesh

Portal Hypertensive (PH) Gastropathy: Histologically, this gastropathy is defined by mucosal and submucosal vascular ectasia in the absence of inflammation.

Similar lesions can be found in the small and large bowel.

Various factors implicated in pathophysiology of PH gastropathy include: 1) Changes in splanchnic circulation 2) Humoral factors and 3)

Dysregulation in tone of local vasculature. Among human beings, 50-98% of patients with PH gastropathy reveal gastric ulcers and mucosal lesions. PH gastropathy is also associated with greater risk of GIT bleeding in human beings

Dogs affected with liver diseases frequently display gastrointestinal (GIT) signs which may be elicited by ulceration. The liver has a vital role in inactivation of various forms of gastrin. Therefore, hypergastrinaemia has been implicated in the pathogenesis of gastrointestinal ulcerations related to liver dysfunction (Tovi et al., 2012).

which may be acute or chronic.

In veterinary medicine the characteristic histopathological lesions observed in PH gastropathy have not been reported till now, however hepatic disorders increase the likelihood of development of gastric ulcers in canines and felines. In human patients with portal hypertension, gastric mucosal defense is impaired, caused by circulatory stasis in mesenteric



vascular bed due to thrombosis, alterations in GIT motility, overgrowth of intestinal bacteria occurs due to absence of bile acids in GIT lumen, and mucosal edema caused by increased permeability of GIT mucosa. Increased production of vasoconstrictors like endothelin-1, along with overproduction of free radicals, has been thought to be involved in pathophysiology of PH gastropathy (Buob et al., 2011).

Gastric mucosal lesions such as portal hypertensive (PHT) gastropathy are increasingly recognized at endoscopy as common features in patients with portal hypertension. Furthermore, they are recognized as a cause of anemia or even overt hemorrhage. Using endoscopy, severe PHT gastropathy is located in the fundus and the corpus. Severe PHT gastropathy is specific to cirrhosis (Payen et al., 1995).

Liver disease (unspecified chronic hepatitis, vascular disease, acute liver failure) can cause gastrointestinal ulceration in dogs. But gastrointestinal ulceration in dogs may result due to various other factors also which include extensive trauma, severe pancreatitis or septicemia, strenuous exercise, corticosteroids, gastroduodenal inflammation, gastroduodenal neoplasia, hypoadrenocorticism, gastric or duodenal foreign bodies, or extragastrointestinal neoplasia (gastrinoma and mast cell tumors) etc. (Daure et al., 2017).

The exact nature of the association between liver disease and gastroduodenal ulceration in small animals is unclear. Recent results also suggest that gastrointestinal (GIT) bleeding is a frequently occurring complication in dogs with acute liver failure. Association between gastrointestinal ulceration and chronic liver disease exists in humans, particularly those with portal hypertension (Daure et al., 2017).

Gastric mucosal lesions are common in portal hypertension. They may lead to significant blood loss, which may be slow and insidious causing anaemia, or sudden and severe, causing massive and occasionally fatal haemorrhage (Cormack et al., 1985).

Major causes of portal hypertension are increased vascular resistance, enhanced blood flow in portal circulation or both. (Buob et al., 2011).

GASTRIC HOMEOSTASIS

Despite the harsh environment, the integrity of the stomach is preserved by an intricate system of homeostatic mechanisms. Several conditions can

disrupt the mucosal barrier of gastrointestinal tract, leading to gastric mucosal damage (e.g., gastritis, gastric erosions, ulcers). Gastric injury occurs when noxious factors overwhelm the natural defenses, as seen when there is overproduction of gastric acid, and also when there is impairment of the gastric cytoprotective defense mechanisms.

The cytoprotective mechanisms in the stomach can be divided in six categories: (1) pre-epithelial factors, including the mucous barrier and phospholipids; (2) the epithelial barrier, including the surface epithelial cells and tight junctions; (3) epithelial cell turnover; (4) trophic factors and prostaglandins; (5) high mucosal blood flow; and (6) sensory innervations (Daure et al., 2017). The fifth defense mechanism is the high rate of mucosal blood flow supplied by a dense network of submucosal capillaries. This mucosal blood flow, which is regulated largely by PGs, supplies oxygen and vital nutrients to the surface cells and is necessary to meet the high metabolic demand for production of gastric secretory products and cell renewal. Gastric mucosal blood flow is also vital in the disposal or buffering of back-diffusing hydrogen ions by carrying bicarbonate to the mucosal surface (Henderson and Webster, 2006). The chronic liver disease leads to ischemia in GI mucosa that causes portal hypertension and thrombus formation into the gastric vessels (Stanton and Bright, 1989).

PATHOPHYSIOLOGY

Gastric mucosal injury is common in veterinary patients because many regularly used drugs and common diseases can surpass the gastric mucosal defense mechanism. When the integrity of the mucosal barrier is compromised, a cascade of pathologic events follows, contributing to further damage of the mucosal layer. First, the rate of back diffusion of gastric acid and pepsin increases, leading to inflammation and hemorrhage. Various inflammatory (neutrophils, mast cells) and Endothelial cells get activated and release different pro-inflammatory factors like histamine, leukotrienes (LTs), platelet activating factor (PAF), proteases and oxygen free radicals. Histamine release causes further acid secretion, whereas other mediators promote vasodilation, vasoconstriction, increased capillary permeability, edema, translocation of inflammatory cells, and capillary plugging. These events exacerbate the initial mucosal damage by reducing blood flow, leading to ischemia, impaired cell renewal, and reduced mucus and PG secretion (Henderson and Webster, 2006).

Hepatic disease, both acute and chronic, is frequently identified as a significant predisposing cause of gastric and duodenal ulceration. In a retrospective study conducted on 43 dogs with gastroduodenal ulceration, hepatic disease and NSAID use most common factors associated with ulceration (Stanton and Bright, 1989).

Satani et al. induced portal hypertension (PH) in dogs by whole liver compression and measured gastric blood flow, tissue oxygen levels and other biochemical indicators of oxygen availability in the gastric mucosa. This group concluded that portal hypertension reduced mucosal blood circulation and oxygen tension indicating that gastric mucosal hypoxia may lead to haemorrhagic gastritis.

The pathogenesis of ulceration associated with liver disorders is still uncertain; reduced mucosal blood flow due to portal hypertension and increased gastric acid secretion secondary to hypergastrinaemia have been suggested as potential mechanisms (Fraser et al., 1993).

Liver disease can also result in hypergastrinemia, although not usually to the degree seen with a gastrinoma. The impairment of normal hepatic function leads to accumulation of various metabolic byproducts and toxic substances that may cause direct injury to gastric mucosa and affect gastric function producing symptoms of gastritis. Increase in permeability of gastric mucosa, decreased mucosal blood flow leading to mucosal ischemia creates an even more acidic environment within gastric mucosa (Webb and Twedt, 2003).

In hepatic disease, the pathogenesis is multifactorial and somewhat speculative, including increased secretion of gastric acid and derangement in mucosal circulation. Increase in acid secretion in hepatic disease is partially due to decreased hepatic degradation of gastrin and histamine, resulting in increased blood levels of these secretagogues and thus increased acid secretion. Compounding this is an increase in serum bile acid concentration, which stimulates gastrin secretion and can induce apoptosis of gastric epithelial cells. Decreased GI mucosal blood flow occurs in chronic liver disorders as a result of portal hypertension (PH) and thrombosis of gastric vessels. In acute liver failure, reduced blood flow may also occur as a result of thrombosis secondary to DIC. Mucus production and epithelial cell turnover are secondarily diminished because of poor mucosal blood flow. (Henderson and Webster, 2006).

According to other study, the pathophysiology of

gastric erosions or ulcers in dogs with hepatic pathology is unknown. A recent study showed that gastrin concentration in serum of dogs with hepatocellular diseases and porto-systemic shunts was normal, so hyperacidity due to poor gastrin clearance is likely not an important factor. Other possibilities for gastric damage in hepatic disease include impaired gastric secretion of bicarbonate ions and mucus, microvascular abnormalities, bile acid-induced epithelial cell apoptosis, impaired healing capacity of GIT mucosa, and portal hypertension (Daure et al., 2017).

Gastrointestinal signs, including vomiting, diarrhoea and anorexia, are common in dogs affected with hepatic disorders and may be elicited by gastrointestinal ulceration among other mechanisms (Webster, 2005).

DIAGNOSIS OF PORTAL HYPERTENSION

CBC: Microcytosis is commonly seen. Other findings include anemia, thrombocytopenia or both.

Liver Function Tests (LFTs): Abnormal LFT is a significant indicator of PH. Concentration of ammonia in blood or that of bile acids in serum may be increased due to multiple acquired portosystemic shunts (MAPSS). Other indicators of liver dysfunction in cats or dogs with portal hypertension include hyperbilirubinemia, decreased serum albumin, urea nitrogen (BUN) and cholesterol concentrations.

Coagulation Parameters: Prothrombin time (PT) and activated partial thromboplastin time (APTT) are reliable indicators of coagulation disorders in dogs and cats with portal hypertension and consequently indicate the degree of hepatic dysfunction. Decreased concentrations of antithrombin, fibrinogen and protein C in serum also indicate liver dysfunction associated with portal hypertension in cats and dogs.

MEASUREMENT OF BLOOD PRESSURE (BP) IN PORTAL VEIN: DOG: >11 MMHG

Ultrasound: Ultrasonography (USG) is a very useful non-invasive tool to detect the gastric ulceration in dogs. Ultrasonographic findings associated with gastric ulcers include thickened gastric wall, loss of the 5-layered structure, defect in wall or accumulation of fluid in stomach and decreased gastric motility. The localized thickening of gastric wall varies from 0.9-1.6 cm. The crater is often localized centrally in thickened site and appears as a

defect in mucosa along with persistent accumulation of tiny echoes, representing micro bubbles. However, there is no definitive differentiation between malignant and benign ulcers, and gas within the gastric lumen may interfere with imaging (Parrah et al., 2013).

Detection of MAPSS: It appear as a network of small, twisted splenic to renal blood vessels in left dorsal peri-renal area. There is decreased velocity of blood flow in portal vein along with decreased hepato-fugal flow in portal vein. Single congenital shunt can be differentiated from Multiple AV shunts, as the latter are greater in number (more than 2) and smaller in size (less than 4 mm). there may be hepatomegaly with hypoechoic liver with due to posthepatic PH or liver may be decreased in size due to chronic disease (Buob et al., 2011).

TREATMENT OF GASTROPATHY INDUCED BY HEPATIC DISEASE

Gastrointestinal (GIT) ulceration accompanied by hepatobiliary dysfunction can be treated with :

- Antacids: H₂ receptor blockers or proton-pump inhibitors (PPIs)
- Mucosal protectants like sucralfate

H₂ Blockers may cause a rare idiosyncratic reaction in human beings leading to hepatotoxicity but there are no such reports in veterinary medicine as of now (Buob et al., 2011).

Adjunctive therapy with antiemetics, fluid therapy and elimination of predisposing factors all contribute

to successful ulcer management.

Surgical treatment (Resection of the ulcer with or without pyroplasty, Bilroth I or II, vagotomy) is indicated when uncontrolled haemorrhage, gastric outlet obstruction or acute perforation occurs (Stanton and Bright, 1989).



CARE & MANAGEMENT OF NEW BORN CALF

ABSTRACT

Calves play an important role in the development of the dairy sector of the country, as a calf is tomorrow's cow and solely responsible for the future of the dairy herd. Female calves are especially kept for herd replacement while the male calves are usually reared till weaning when they are sold. Care and management of new born calf is not only essential for sustenance of the dairy industry but also for preserving and maintaining a good quality germplasm. Calfhood diseases have a major impact on the economic viability of cattle operations, to prevent from such untoward difficulties later proper care and management of calves starting from right after calving to weaning is a must of which the basics are dealt in brief in the current paper.

INTRODUCTION

The life of a bovine, from its health point of view is divided into two parts; the first 24 hours, and the rest of its life. The first 24 hours of a calf's life is very important and crucial to make a strong bearing on the rest of its life. Inadequate care or negligence during this time may result in neonatal diseases, calf diarrhea being one of the most important ones or the calf may always remain weak and an underperformer, despite having good genetic potential and a good environment.

The first hour after calving, called 'the golden hour' is the most critical period in the entire life of a new born calf. Utmost care should be taken such that it receives all the prime care during this time. Cleaning of nostrils and mouth sooner after birth is crucial as it helps the calf breathe better and prevents future breathing problems. The mother should be allowed to lick the calf clean which promotes circulation within the calf's body and prepares the calf to stand up and walk. Generally, dairy calves are removed from their dam shortly after the dam has licked the calf clean (within one hour) (Mee et al., 2008). The navel cord must be cut at a distance of around 2 inches from the base with a clean

Authors

Vishakha Uttama, Vaibhav Patelb, Vikas Diwakara
- Ph.D. and P.G. Scholar, Animal Genetics & Breeding, ICAR-National Dairy Research Institute, Karnal, Haryana- 132001, India.



instrument, followed by dipping the navel in a 3.5% or higher solution of iodine. The minimum contact time required is at least 30 seconds. The exposed end of the cord should be closed by tying with a clean thread to close the opening. This whole procedure of navel dipping is advised to be repeated after 12 hours. A poorly maintained navel serves as the gateway to many deadly infections (Vinod and Hitesh, 2022). The navel should be examined for excessive bleeding, discomfort, abnormal

swelling, smell, or pus during the first week of life, and treated accordingly.

FEEDING FROM BIRTH TO WEANING

Colostrum feeding: Colostrum is the first milk secreted after parturition which is considered as calf's 'passport to life' which signifies how important and crucial it is for the calf's sustenance. It contains large amount of gamma globulins which are antibodies produced by the cow against antigens encountered during her life. Absorption of these antibodies provides the calf with an umbrella of passive immunity. Colostrum is a highly fortified source of nutrient having 7 times the protein and twice the total solids of normal milk, thus it gives an early boost in portion and solid intake. Within the first 2 hours of birth a new born calf should be given 2 litres of colostrum and 1-2 litres (based on size) within 12 hours of birth. Colostrum is fed for 3-4 days consecutively. Usually, many calves do not nurse adequate amounts of colostrum from their dams within the first few hours of life, and thus they do not receive adequate immunity which calls for artificial assistance or intervention that would protect the calves from diseases for the first three months of life. The number of antibodies absorbed is related to the timing of colostrum feeding after birth. Within six hours after birth, the ability of the gut to absorb antibodies decreases by one-third. By 24 hours, the gut can absorb only 11% of what it originally could have absorbed at birth. After 24 hours of birth colostrum may not help the calf to ward off infections. Therefore, hand-feeding of colostrum to new-born calves is recommended so that the farmer/owner is sure about the amount of colostrum an individual calf receives. Calves are born with little defense or immunity against disease. They acquire resistance to disease from their dam through timely and adequate intake of high-quality colostrum, their mother's first milk. If the mother dies during calving or produces limited colostrum insufficient for the calf artificial colostrum or a foster mother is recommended. Fostering is applicable only when many cows are calved/lactating at the same time which may be difficult in a small farm or farmers with few numbers of animals. In such cases, artificial colostrum comes to the rescue. Artificial colostrum is a mixture of an egg, half litre of fresh warm water, half litre whole milk, one teaspoonful of castor oil/cod liver oil. The egg is a source of protein, castor oil and cod liver oil are sources of energy and whole milk acts as a source of lactose and milk

protein (Donna et al., 2006).

Week 1 (from day 4)-week 4: Making the calf independent of its mother is known as weaning. If day old weaning is not practiced the calf can be allowed to remain with the mother in the calving pen for 7 to 10 days. Otherwise, the calves can be removed immediately to calf pen. However, the general rule is that calves should not be weaned based on age but rather based on their intake of starter. 4-5 litres of milk/milk replacer per day is required, only clean warm water should be used when mixing the milk replacer to avoid scours. Calf starter pellet (high in fibre, highly digestible, highly palatable with 18% CP, vitamin A, D and E) is given at the rate of 0.25Kg/day in 1st week, 0.5Kg/day in 2nd week, 0.75Kg/day in 3rd week and 1Kg/day in 4th week. Hay is given free of choice. By 5th-9th week, milk/milk replacer should be reduced to 3L/day with 1.5kg/day of calf pellet at week 5 and increasing it to 2 kg/day till week 9. Once it consumes calf starter pellets at the rate of 2kg/day it is ready for weaning, by this time it is advised to stop milk/milk replacer completely. However, mineral brick and water must be continued. After weaning the calves should be fed with milk at 10% of body weight, and be reduced when it starts to consume other solid feeds (Donna et al., 2006). An example of a simple calf starter in approx. percentages is- maize- 52%, oats- 20%, soyabean meal- 20%, molasses- 5%, salt- 0.5%, minerals- 1.5% and vitamins- 1%.

HOUSING AND VENTILATION

Calves are born with functional thermoregulatory mechanisms as a result of which, healthy calves are readily able to deal with outdoor temperatures if adequate amounts of energy and dry, well-bedded and draft-free shelter are provided (Davis et al., 1998). In the first two weeks of life the lower critical temperature lies in 10-15°C declining with age to approximately 6-10°C in older calves. The quality of bedding material is crucial as the amount of heat loss via conduction in calves is related directly to the bedding (Webster, 1984). Individual housing of dairy calves, either indoors or outdoors, is generally linked with improved calf health. However, caring for calves in outdoor hutches can be uncomfortable in adverse weather conditions (McKnight, 1978). Calves housed individually in naturally ventilated calf barns, solid dividers on the side of pens, together with a high 'nesting score' have lower risk of respiratory diseases (Lago et al., 2006).

Ventilation of calf barns is very important as inadequate ventilation increases the risk of disease



due to a buildup of high levels of humidity, noxious gases, dust and bacterial content. Ammonia levels should not exceed 10 ppm which is the maximum permissible limit (Woolums, 2009). Natural ventilation is achieved through wind and buoyancy in monopitch or duopitch houses, with adequate air outlets (ridge opening: 5 cm width for every 3 m width of the building) and inlets (eave openings: at least half the space of ridge openings) (Bates, 1984) as well as sufficient difference in height between the openings is provided (not less than 1.5 m, but preferably 2.5 m). Recommended air space per calf is not less than 6 m³ up to 6 weeks and 10 m³ up to 12 weeks of age. Acceptable relative humidity in calf barn is below 85% (Webster, 1984).

DEWORMING AND VACCINATION

Calves must be dewormed following a regular deworming cycle against parasitic infections. This practice should be started on or before two weeks of age, repeated after 21 days and should be repeated 3-4 times in a year at regular intervals. Parasitic load is a major reason of calf mortality due to which their health deteriorates and the calf often dies (Sharma and Mishra, 1987). When the calf is 3 months old, vaccination protocol should be initiated.

DEHORNING OF CALVES

Dehorning of horned cattle is the process of removal of their horns or the process of preventing their growth and it is a very common procedure in modern

dairy production systems and it is considered necessary by most dairy farmers (Duffield, 2008). Dehorning reduces the risk of injury and bruising to herd mates, the animals become docile that are easier to handle, prevents financial losses from trimming damaged carcasses caused by horned feedlot cattle during transport to slaughter. Moreover, horned animals can cause injury to herd mates during aggressive interactions and competition at the feeding gate (AVMA, 2010). In dairy holdings, dehorning is commonly carried out on female calves anytime from 1 to 32 weeks of age, however, it is better at a younger age (less than eight weeks) although there is no such evidence of differing pain between young and older calves (Fulwider et al., 2008).

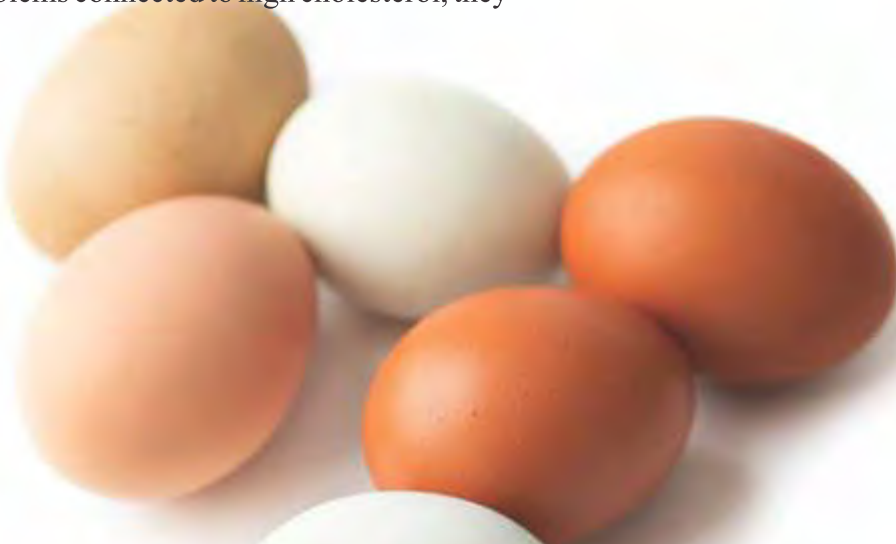
CONCLUSION

Successful calf management can be summed up in five words viz., colostrum, calories, cleanliness, comfort and consistency. Calf management is the cornerstone of dairy cattle productivity and profitability however; little attention is given to calf care by researchers particularly in developing nations. Therefore, awareness creation and further studies to identify the specific causes of mortality and morbidity of new born calves should be initiated for improvement of the management and hygiene.



ROLE OF POULTRY MEAT AND EGG PRODUCTS IN IMMUNITY BOOSTING AGAINST VARIOUS TYPES OF DISEASES

The best sources of high-quality protein are poultry meat and eggs, which are desperately required by the many millions of people who live in poverty. They offer valuable vitamins and minerals in addition to high-quality protein. The absence of taboos surrounding eggs and poultry meat is a significant benefit over meat from other livestock. Even though they have been linked in numerous studies to problems connected to high cholesterol, they



can still help protect against a variety of lifestyle diseases if they are included in a healthy diet.

NUTRITIONAL QUALITY OF POULTRY MEAT

Although the nutritional quality does not differ significantly between different species, the protein content of most meat lies between 15% to 35%, depending on the water and fat content of the product. They contain unsaturated lipids (primarily found in the skin and easily removed), B-group vitamins (primarily thiamine, vitamin B6 and pantothenic acid), minerals (like iron, zinc, and copper), and highly digestible proteins of good nutritional quality. Poultry meats are distinguished by having a balanced nutritional

Authors

1. **Dr. Sarita**, Assistant professor Dept. Of VPB, Veterinary College Bidar
2. **Dr. Mamatha**, Assistant professor Dept. Of VPH, Veterinary College Bidar
3. **Dr. Vittal**, Senior Veterinary Officer, AHVS
4. **Dr. Arun Kharate**, Associate professor (I/C) Dept. Of VPH, Veterinary College Bidar

composition. These meats can be optimally absorbed into the diet at all ages due to their high biological-value protein, vitamin, and mineral content in combination with a low fat content (most of which is constituted of unsaturated fatty acids).

NUTRITIONAL QUALITY OF POULTRY EGGS

A typical egg would provide roughly 6.5g of protein, 15%

of vitamin B6, 10-20% of folate, and a similar amount of total, saturated, and polyunsaturated fatty acids to an adult's daily average energy intake. Eggs included higher concentrations (20–30%) of the vitamins A, E, and B12. Although the percentage is relatively low in eggs, both n-6 and n-3 polyunsaturated fatty acids are significant components of our diet. Following meat (20%) and seafood (71%), eggs were shown to be the third most significant source of n-3 PUFA (6%), according to a recent Australian study (Meyer et al., 2003). Eggs are a strong source of protein with a high biological value and contain around 75% water. The egg protein quality is frequently used as the benchmark for evaluating the protein content of all other foods. A significant source of iron, phosphorus,

trace minerals, the fat-soluble vitamins A, D, E, and K, as well as several of the water-soluble B vitamins, eggs are also a good supply of vital unsaturated fatty acids (linoleic 18: 2n6), oleic acid, a monounsaturated fatty acid, and trace minerals. Despite being a powerful source of vitamin D, eggs are deficient in calcium and devoid of vitamin C.

For people of all ages, eggs offer a special, well-balanced source of nutrients. Hard boiled egg yolk was a significant additional source of iron for young babies before the development of modern baby meals. Precooked infant cereals, strained meats, and canned egg yolks are now available as iron-enriched alternatives that are also more practical. Hard boiled egg yolks are still more desirable supplement for infants. Eggs are a great diet for young children and teenagers since they considerably contribute to the body's nutrient needs during rapid growth. Large, whole raw eggs and boiled eggs have essentially the same composition, however scrambled eggs differ slightly because of the potential addition of milk and fat during preparation. Despite making up slightly more than one-third of the edible section, the yolk contains 78% of the egg's calories, all or most of the fat, calcium, phosphorus, iron, zinc, vitamins B6, B12, and A, folic acid, pantothenic acid, and thiamin, and only about half of the protein and riboflavin. More than half of the total protein and riboflavin are in the white, despite the fact that protein and riboflavin are less concentrated in the white due to the white's nearly two-to-one ratio to the yolk. Fatty acid composition of the egg yolk is easily modified by adding fat to diet of the hen. Vitamin and trace mineral values can also vary greatly when rations are heavily modified with a particular vitamin or mineral.

POULTRY MEAT AS IMMUNE BOOSTER

Iron deficiency in vegetarian children can result in a drop in immunoglobulin levels, with inferior immune defenses compared to meat eaters, according to the analysis of blood immunoglobulin levels in omnivore and vegetarian children. The consumption of energy, zinc, copper, and vitamin B6 are also associated to immunological response, in addition to iron. All of

these nutrients are found in high quantity and bioavailability in meat, which vegetarians don't eat. Due to this, there are disparities between vegetarians and omnivores in how these nutrients affect antibody levels, with vegetarian children having lower levels of antibodies.

The number of white blood cells and red blood cells, as well as the concentrations of neutrophils, monocytes, eosinophils, lymphocytes, and basophils—all cells implicated in the antibody response—have all been found to be significantly lower in those who avoid eating meat and fish, including adults, older people, and children. The investigation of immune function found poorer phagocytic activity, which is a lesser capacity of the cells to ingest and eradicate foreign things such as viruses and bacteria, decreasing the likelihood that they will be able to fight off infections. This could be because vegetarian diets are deficient in crucial nutrients, such as proteins, which build enzymes and antibodies, the "soldiers" that fight for our bodies. Also, other micronutrients that intervene in the basic biochemical reactions of the immune system, such as iron, calcium, magnesium, copper and zinc, which are poorly bio available in plant-based diets, but are crucial in supporting immune defences.



Even a clinical study by the University of Graz found that vegetarians have a lower quality of life and are more likely to get sick than omnivores, with higher rates of allergies, asthma, diabetes, migraines, osteoporosis, heart disease, mental disorders like anxiety and depression, eating disorders, and tumors. This proves once more that giving up meat and fish is not at all advantageous. Because white meats like chicken and turkey are high in vitamin B6, which is essential for the production of new, healthy white and red blood cells as well as an important link in the basic biochemical immunity chains, they strengthen immune defenses as well as red meats like beef and pork. Also, the content in essential omega 3 fatty acids, particularly DHA, which is found in higher concentrations in the breast milk of women who eat meat and can therefore pass it on to the infant, is crucial. DHA boosts the effectiveness of white blood cells and the ability of the child to defend himself. Because of this, beef is the ideal immune system supporter, strengthening not just the body's defense against foreign invaders but also lowering the inflammation that follows, minimizing harm and enhancing function. Therefore, eating meat can make a difference, strengthening us against diseases and arming us to fight against daily external aggressions because of its distinctive density.

Although poultry meat as a whole does not protect against infectious diseases, it can assist to avoid or lower the risks of diseases linked to a sedentary lifestyle. Consuming poultry meat as part of a balanced diet can help you manage your weight or fight obesity. Numerous prospective studies show a significant association between eating poultry meat at the prescribed amount and a lower chance of acquiring cardiovascular illnesses, including associated risk factors like obesity and insulin resistance, as well as tumors. Substituting red meat with poultry meat in diet was found to significantly reduce coronary risk. Red meat contain saturated fats, cholesterol, and heme iron which are often associated with atherosclerotic process, cardio-vascular risk

factors and chronic diseases such as hypertension, hypercholesterolemia, endothelial dysfunction, insulin resistance and Type II Diabetes. Similarly, a dietary pattern comprising a high poultry intake, along with whole-grain cereals, fish, fruit, and vegetables, and a decrease in red meat consumption, processed foods, starches, and simple sugars seems to be effective in the management of the disease. Consumption of fresh meat was found to be more safer as they reduce the risk of formation of heterocyclic amines and polycyclic aromatic hydrocarbons during processing such as smoking. These compounds are often associated with the risk of coronary artery disease, diabetes mellitus and cancer.

Numerous studies had reported eating animal meat lead to an increased risk of developing cancer. However, eating poultry meat is safer than eating red meat since it contains fewer carcinogens including saturated fats, heme iron, salt, and N-nitroso compounds. A diet high in chicken and turkey meat has been linked in an Italian study to a lower risk of oesophageal cancer. In general, switching from red to poultry meat could reduce breast cancer risk by about 17%, and by 24% in postmenopausal women. A meta-analysis found that eating a lot of fowl may cut your risk of lung cancer by about 10%. According to WHO, "the human population benefits greatly from poultry meat and eggs, which provide food containing high-quality protein, and a low level of fat with a desirable fatty acid profile". Moreover, poultry meat consumption also contributes to the overall quality of the diet in specific ages and conditions. Well-cooked lean meats



(e.g. chicken and turkey) are to be privileged during pregnancy. Baby foods containing these meats are easily digestible and characterized by a low allergenicity.

POULTRY EGG AND EGG PRODUCTS AS IMMUNE BOOSTER

It is well known that eggs are a functional food since they include a number of bioactive substances that can affect both pro- and anti-inflammatory pathways. It's interesting to note that diverse groups, including those categorized as healthy, overweight, metabolic syndrome-afflicted, and type 2 diabetic, respond differently to the effects of egg consumption on inflammation. Egg eating has been linked to increased satiety in adolescents and young adults. Additionally, it has been demonstrated that eating eggs improves the ex vivo cholesterol-accepting ability of serum from lipid-loaded macrophages and increases HDL-phosphatidylethanolamine concentration in people with metabolic syndrome. In people with well-controlled T2DM, the anti-inflammatory effects of eggs may be beneficial.

In addition to vitamins, carotenoids, minerals, and trace elements, chicken eggs also contain significant amounts of egg-white proteins like ovotransferrin, either in its natural state or as a hydrolytic peptide, ovomucoid and ovomucoid hydrolysates, ovomucin hydrolysates, and derived peptides, as well as egg yolk proteins like phosvitin. The majority of these molecules have been produced in vitro, although some tests carried out on a pig model have shown that proteins obtained from egg yolk have a positive impact on lowering the production of pro-inflammatory cytokines. Egg white lysozyme's ability to prevent tumor growth has been demonstrated in numerous experiments utilizing artificial tumors. Immunopotentiality is essentially how it works. Ovomucin (beta subunit) and peptides generated from ovomucin also demonstrated anti-tumor activity through cytotoxic effects and immune system activation.

Additionally, hydrolytic peptides from ovotransferrin and egg tripeptides' anticancerous effects have been documented. Numerous egg proteins may have immunomodulatory properties. Egg-white lysozyme stands out among them as a potential therapy for inflammatory bowel illness. The majority of peptides produced from eggs with anti-hypertensive properties have inhibitory effects on the ACE. Angiotensin I is processed and activated by this enzyme to become the active vasoconstrictor angiotensin II. Ovotransferrin and egg white

hydrolysates are two examples of yolk-derived peptides with antihypertensive properties.

CONCLUSION

Poultry meat and eggs serve as a good source of energy and also has a great potential to serve as immune booster against various diseases. However, there are many unexplored effects of poultry meat and egg products which needs to be given a serious thought.



अजोला घास, पशुओं के लिए एक उत्तम पोषण स्रोत

पशु पालन एक महत्वपूर्ण और लाभकारी क्षेत्र है, और उसके सफलता में पोषण का महत्वपूर्ण योगदान होता है। अच्छे पोषण से ही पशुओं की स्वस्थता, उत्पादकता और उनके सामाजिक जीवन की देखभाल हो सकती है। इसके साथ ही, प्राकृतिक और सामर्थ्यपूर्ण पोषण स्रोत की खोज और उपयोग भी महत्वपूर्ण है। इसी दिशा में, अजोला घास एक उपयोगी और प्राकृतिक पोषण स्रोत के रूप में उभर रही है, जिससे पशुओं की देखभाल और उत्पादकता में सुधार किया जा सकता है। पशुओं के सही पोषण की व्यवस्था करने में अजोला घास एक महत्वपूर्ण सामग्री हो सकती है, जो उनके स्वास्थ्य और प्रदर्शन को सुनिश्चित करती है। यह पशुओं को उचित पोषण प्रदान करने के साथ-साथ विभिन्न पोषणात्मक तत्वों की सहायता से भरपूर होती है। अजोला का पोषणीय मानवरोहितस अजोला घास पशुओं के लिए एक प्रमुख पोषण स्रोत है जो उनकी आहार की मानवरोहित सामग्री की कमी को पूरा करने में मदद करता है। यह उच्च प्रोटीन, विटामिन, और मिनरल्स का संचार करता है, जिससे पशुओं की स्वस्थता और विकास में सुधार होता है।

Authors

Jyoti Meena - Department of Veterinary and Animal Husbandry Extension Education, Post Graduate

Subhash Chand - Institute of Veterinary Education and Research (PGIVER), Jaipur, Rajasthan



अजोला के प्रमुख फायदे

उच्च पोषण स्तर : अजोला पशुओं के लिए एक श्रेष्ठ पोषण स्रोत होता है जो उनकी शारीरिक और मानसिक स्वस्थता को सुनिश्चित करता है।

ताजा और जलीय सामग्रीस अजोला को आसानी से उगाया

अजोला घास में पोषणसामग्री का स्तर

- प्रोटीन : 20-25 प्रतिशत
- फाइबर : 15-20 प्रतिशत
- कैल्शियम : 1.5-2.5 प्रतिशत
- मैग्नीशियम : 0.5-1.0 प्रतिशत
- फास्फोरस : 0.5-0.8 प्रतिशत
- विटामिन ए : 8000-10000 IU/kg
- विटामिन डी : 800-1000 IU/kg



और प्राप्त किया जा सकता है, जिससे पशुओं को हमेशा ताजा और पोषणीय आहार की आपूर्ति हो सकती है।

वितरण की सुविधा : अजोला की बढ़ती हुई मात्रा के कारण, इसका पशुओं के बीच वितरण करना भी सरल होता है।

जलसंचयन के स्रोत : अजोला पशुओं के लिए जलसंचयन का एक प्राकृतिक और स्थायी स्रोत हो सकता है, जो उनके पीने के पानी की आपूर्ति को सुनिश्चित करता है।

उचित पोषण : अजोला घास पशुओं के लिए पोषणपूर्ण खाद्य स्रोत के रूप में महत्वपूर्ण है। इसमें प्रोटीन, फाइबर, विटामिन, और खनिज जैसे कैल्शियम, मैग्नीशियम, फास्फोरस आदि पाए जाते हैं, जो पशुओं के सही विकास और स्वास्थ्य के लिए आवश्यक होते हैं।

डाइजेस्टिव हेल्थ : अजोला घास का सेवन पशुओं की पाचन क्रिया को सहायक बनाता है और पाचन संबंधित समस्याओं को कम करने में मदद करता है। इससे पशुओं के पेट की समस्याएँ कम होती हैं और उनके खाने का परिणाम स्वस्थ होता है।

वजन बढ़ाने का सहायक : अजोला घास में पाए जाने वाले पोषण सामग्री पशुओं के वजन बढ़ाने में मदद करते हैं। इससे पशुओं का वजन बढ़ता है और उनकी उपजाऊता में वृद्धि हो सकती है।

विटामिन और खनिज स्रोत : अजोला घास विभिन्न विटामिन और खनिजों का उचित स्रोत है, जैसे कि विटामिन ए, विटामिन डी, कैल्शियम, मैग्नीशियम, आदि, जो पशुओं के स्वास्थ्य के लिए आवश्यक होते हैं।

विभिन्न प्रजातियों के पशुओं के लिए उपयोगी अजोला घास विभिन्न प्रजातियों के पशुओं के लिए उपयोगी है, जैसे कि गाय, भैंस, बकरी, बकरा, उँट, आदि। इसका सेवन पशुओं की विशेष आवश्यकताओं को पूरा करने में मदद करता है।

DIAGNOSIS OF BOVINE TUBERCULOSIS

Authors

1. Sudhir Kumar Prajapati, Division of Bacteriology and Mycology, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly-243122, Uttar Pradesh, India

2. Deepti Narang, Department of Veterinary Microbiology, College of Veterinary Science, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana-141004, Punjab, India

3. Pallavi Slathia, Department of Veterinary Microbiology, College of Veterinary Science, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana-141004, Punjab, India

4. Sonu S. Nair, Division of Bacteriology and Mycology, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly-243122, Uttar Pradesh, India

5. Athira V, Division of Bacteriology and Mycology, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly-243122, Uttar Pradesh, India

6. Km Himani, Division of Bacteriology and Mycology, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly-243122, Uttar Pradesh, India

7. Bablu Kumar, Division of Biological Products, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly-243122, Uttar Pradesh, India

8. Prasad Thomas, Division of Bacteriology and Mycology, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly-243122, Uttar Pradesh, India

9. V K Chaturvedi, Division of Bacteriology and Mycology, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly-243122, Uttar Pradesh, India

10. P. Dandapat, Division of Bacteriology and Mycology, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly-243122, Uttar Pradesh, India

11. Abhishek, Division of Bacteriology and Mycology, ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly-243122, Uttar Pradesh, India



ABSTRACT

Bovine tuberculosis (bTB) is a chronic disease that affects animals, particularly cattle, leading to a loss in productivity and signifies a crucial public health risk. Exact estimates of bTB prevalence are lacking in many nations, including India, despite the zoonotic threat and considerable economic expenses associated with the disease. Early TB diagnosis is crucial for the effective prevention and management of the disease. Conventional diagnostic methods like culture and microscopy, though considered the gold standard. For the early detection of the disease, molecular diagnosis and ante-mortem testing of cellular immune response (Tuberculin test and Interferon gamma Assay) are necessary. Additionally, serological tests like indirect ELISA can be performed to screen for anti-TB antibodies in a herd.

INTRODUCTION

Mycobacterium bovis is primarily responsible for the chronic granulomatous inflammatory disease known as bovine tuberculosis (bTB). Although mostly harming cattle, the disease has a wide range of hosts, including people. According to estimates, *M. bovis* accounts for 10% or less of all human TB cases in underdeveloped nations, which puts the world's health at risk (Olea-Popelka et al., 2014; Gagneux et al., 2018). Worldwide, cattle, buffaloes, and many other wild species are susceptible to the infectious disease known as bovine tuberculosis (BTB), which is brought on by the bacterium *Mycobacterium bovis* (Ameni et al., 2007; Le Roex et al., 2013). Due to the disease's chronic and progressive character, dairy cattle suffer a 10 to 25% reduction in productivity, which has a substantial economic impact and frequently leads to high animal morbidity.

The identification and removal of the diseased animal from the herd are necessary for the most efficient bTB control plan. Using a variety of tuberculin tests, including the single intradermal test (SIT), comparative intradermal, brief thermal, and Stormont tests, BTB is typically identified based on delayed hypersensitivity reactions. However, because of the sensitivity and specificity limitations of these tests, BTB cannot be diagnosed at all phases of infection by a single test (Bezous et al., 2014).

EPIDEMIOLOGY



A wide variety of mammals can become infected with mycobacteria, which has complicated efforts to eradicate the disease by creating infection reservoirs in wildlife and spreading the virus to cattle (De Lisle et al., 2002). According to Zanella et al., (2008), ingestion of tainted milk is a frequent and significant method of zoonotic tuberculosis transmission between humans and cattle. Numerous researchers in India have examined animal TB (Thakur et al., 2010). Even though the disease is present in India, it is more common in Africa, some parts of Asia, and America. In India, it is a serious health issue.

TRANSMISSION

Primarily, tuberculosis is a respiratory disease and is transmitted through air born routes within and between species during close contact. According to Ramos et al. (2015), Broughan et al. (2016), and Bapat et al. (2017), infected cattle are thought to be a potential source of infection since they release a considerable amount of mycobacterial organisms through droplet nuclei into the environment and may serve as a source of intra-herd transmission.

In addition, the World Health Organisation has listed BTB as one of the seven neglected zoonotic diseases with the potential to spread to humans through direct contact with infected animals or consumption of raw milk, meat, and their products (Malama et al., 2013).

MICROSCOPIC EXAMINATION

The diagnosis is confirmed by direct microscopic demonstration of very small red beaded rods (acid fast bacilli) in clinical specimens by Ziehl-Neelsen (ZN) staining technique. The Ziehl-Neelsen acid-fast stain, a conventional approach, and the pigmentation, growth rate, and gross and microscopic colony morphologies of cultures of the isolated causal organism are used to identify the mycobacteria. The distinct species of mycobacteria are identified by biochemical assays, such as niacin, catalase, nitrate reduction, and urease tests (Niemann et al., 2000).

DIAGNOSIS

Traditional laboratory techniques like culture and smear microscopy can be used to diagnose TB (Parsons et al., 2011). Although these techniques are inexpensive, they have little sensitivity. The culture method, which is the gold standard, takes 6 to 8 weeks to demonstrate organism growth (Ameni et al., 2010). In vivo, detection of the dominant, pre-clinical cell-mediated immune response using the intradermal skin test is the main method used to diagnose bTB infection in animals (Humphrey et al., 2010). With the help of different tuberculin tests,



including the single intradermal test (SIT), comparative intradermal test (CIT), and gamma interferon (-IFN) assay, this test is based on delayed hypersensitivity reactions. According to Inwald et al. (2003), the OIE (2009), and Gormley et al., (2006), the tuberculin used for diagnostic purposes in cattle is a combination of dominant mycobacterial proteins obtained from particular strains of *M. bovis*. However, a sizable portion of these antigens are also found in non-pathogenic mycobacterial species that are ubiquitous in the environment, and this cross-reactivity to common antigens might result in non-specific reactors, or false positives, which reduce the specificity of the test. As a result, the comparative intradermal test includes *Mycobacterium avium* (*M. avium*) tuberculin (Monaghan et al., 1994).

In India, the diagnosis and speciation of bTB are frequently done using polymerase chain reaction (PCR) technology. Recently, molecular techniques like PCR that perform better and are more inexpensive have been introduced. According to Sharma et al. (2012), this nucleic acid-based amplification (NAA) technique reliably amplifies the targeted region for the diagnosis of non-pulmonary TB. The tuberculin skin test (TST) has long been a helpful diagnostic and epidemiological tool for the management of bovine tuberculosis. Bovine tuberculosis can be diagnosed using the officially recognized -IFN assay. In many nations, eradication programs for bovine tuberculosis can

combine the use of the -IFN assay with the intradermal tuberculin test (Palmer et al., 2006).

The identification and removal of the diseased animal from the herd is necessary for the most efficient BTB control plan. Using a variety of tuberculin tests, including the single intradermal test (SIT), comparative intradermal, brief thermal, and Stormont tests, bTB is typically identified based on delayed hypersensitivity reactions.

However, because of the sensitivity and specificity limitations of these tests, bTB cannot be diagnosed at all phases of infection by a single test (Bezoz et al., 2014). Animals are individually tested utilizing the comparative cervical tuberculin test (CTT) and gamma interferon (-IFN) assay in addition to SIT to boost diagnostic sensitivity to get around this issue (Schiller et al., 2010).

CONCLUSION

Bovine TB can be diagnosed in its early stages in live animals using blood PCR and assays based on the cell-mediated immune response (CITT and IFN assay), particularly during the stage of bacteraemia. Combining the use of CITT and IFN-assay increased the accuracy of TB screening, while IFN-assay was more focused than CITT.

Early diagnosis of TB can lead to quick segregation of infected animals, restrict transmission, and help in eradication of bovine TB from the country.

HAEMORRHAGIC SEPTICEMIA

A SWIFT AND LETHAL ANIMAL DISEASE

Authors

1. **Apurv Kaushik**, Teaching Associate, DUVASU, Mathura

2. **Sapna Sharma**, Corresponding author, Teaching Associate, DUVASU, Mathura

ABSTRACT

Haemorrhagic septicemia is a severe bacterial disease that affects various domestic and wild animals, causing significant economic losses in livestock industries worldwide. This article provides an in-depth analysis of the pathogenesis, clinical presentation, diagnostic approaches, and management strategies for haemorrhagic septicaemia. By understanding the complexities of this disease, stakeholders can enhance their ability to control and prevent its occurrence, ultimately safeguarding animal health and industry sustainability.

INTRODUCTION

Haemorrhagic septicemia also known as “Galgotu” is a severe bacterial disease that poses a significant threat to a wide range of animals, including livestock and wildlife. It is primarily caused by the bacterium *Pasteurella multocida*, Gram-negative bacterium, known for its ability to trigger rapid and devastating infections. The disease earns its name from the hallmark symptom of internal and external bleeding, which stems from the bacterium's ability to damage blood vessels and provoke inflammation. Haemorrhagic septicemia is a highly contagious and often fatal bacterial disease. The disease affects a wide range of animal species, including cattle, buffalo, goats, sheep, pigs, and occasionally humans, posing a significant threat to both animal health and global food security.

PATHOGENESIS

The pathogenesis of Haemorrhagic septicemia involves several intricate steps. Following inhalation or ingestion of contaminated material, *P. multocida* colonizes the upper respiratory tract and enters the bloodstream, leading to septicemia. The bacterium produces toxins and other virulence factors that contribute to tissue damage, vascular disruption, and



widespread inflammation. The hallmark of the disease is the development of acute localized or systemic hemorrhages, particularly in lymph nodes, lungs, and various internal organs.

WHEN BLOOD RUNS WILD

As the name suggests, Haemorrhagic septicemia is marked by a grim sight—bleeding. Blood vessels become fragile, giving rise to internal bleeding, sometimes leading to sudden, unexplained deaths. Mucous membranes and skin may also be stained by red patches, a grim reminder of the havoc the bacterium wreaks on the body.

TRANSMISSION AND IMPACT

The transmission of Haemorrhagic septicemia occurs through inhalation or ingestion of contaminated materials. Once inside the body, *P. multocida* rapidly multiplies and spreads through the bloodstream. The bacterium's virulence factors contribute to tissue damage, vascular disruption, and a systemic inflammatory response. The resulting bleeding, particularly in the lungs, lymph nodes, and internal organs, can lead to severe illness and sudden death.

CLINICAL PRESENTATION

Clinical signs of Haemorrhagic septicemia can vary depending on the species affected and the severity of the infection. Common symptoms

include high fever, rapid and laboured breathing, nasal discharge, depression, reluctance to move, and swollen lymph nodes. Haemorrhagic lesions may be observed on mucous membranes, along with petechiae and ecchymoses on the skin. In severe cases, sudden death can occur before clinical signs become apparent.

THE DIAGNOSTIC PUZZLE

Unmasking this disease isn't a walk in the park. Veterinarians play detective by employing a range of methods, from isolating the bacteria to genetic tests that reveal the bacterial strain's secrets. Quick and accurate diagnosis is pivotal for containing outbreaks, protecting animals, and ensuring public health. Accurate and timely diagnosis is crucial for disease control and prevention. Various diagnostic methods are available, including bacterial isolation and identification, serological tests, and molecular techniques such as Polymerase Chain Reaction (PCR). Serotyping and genotyping of *P. multocida* strains aid in understanding the epidemiology and virulence profiles of different isolates.

ARMING AGAINST THE THREAT

In this ongoing battle, vaccination is our armor. By fortifying animals' immune systems, we can reduce the severity of infections and halt the spread of the disease. But it's not just about injections; biosecurity measures like quarantine and hygiene practices play a crucial role in stopping the bacterium in its tracks.

Haemorrhagic Septicemia Vaccination Schedule for Cattle: Haemorrhagic septicemia is a serious bacterial disease that can lead to significant losses in cattle herds. Vaccination is a crucial tool to prevent and control this disease. Here's a recommended vaccination schedule for cattle.

INITIAL VACCINATION

- Calves should receive their first vaccination at around 3 to 6 months of age, depending on local disease prevalence and the availability of vaccines.
- Use a vaccine that provides protection against the prevalent strains of *Pasteurella multocida*.
- A combination vaccine that includes protection against other common respiratory diseases is often recommended.

BOOSTER VACCINATION

- Administer a booster shot 3 to 4 weeks after the initial vaccination to enhance the calf's immune response.
- This booster helps ensure the development of strong and lasting immunity against

Haemorrhagic septicemia.

ANNUAL REVACCINATION

- Provide annual revaccination to maintain a robust immune response and continuous protection.
- Annual vaccinations are crucial, especially in regions where the disease is endemic or poses a high risk.

CONSIDERATION FOR HIGH-RISK SITUATIONS

- In areas with a history of Haemorrhagic septicemia outbreaks or where cattle are at higher risk due to factors like stress, overcrowding, or poor hygiene, a more frequent vaccination schedule might be necessary.
- Consult with a veterinarian to determine the appropriate vaccination frequency based on the specific risk factors in your region.

PREGNANT COWS

- Pregnant cows should be vaccinated to ensure the passive transfer of immunity to their calves through colostrum.
- Administer the vaccine to pregnant cows a few weeks before calving to ensure that adequate antibodies are transferred to the newborn calves.

QUARANTINE AND NEW ADDITIONS

- Any new cattle introduced to the herd should be properly quarantined and vaccinated before mixing with the rest of the animals.
- This practice helps prevent the introduction and spread of diseases, including Haemorrhagic septicemia.

MONITORING AND SURVEILLANCE

- Regularly monitor the health of the herd for any signs of illness or disease.
- Work closely with a veterinarian to conduct periodic health checks and adjust the vaccination schedule if necessary

CONCLUSION

Haemorrhagic septicemia remains a significant challenge in the livestock industry and poses a threat to animal health and food security. A comprehensive understanding of the disease's pathogenesis, clinical presentation, diagnostic methods, and management strategies is crucial for reducing its impact. Collaborative efforts between veterinarians, researchers, policymakers, and industry stakeholders are essential to effectively control and prevent Haemorrhagic septicemia outbreaks on a global scale.

SPILLOVER AND SPILLBACK INFECTIONS

UNDERSTANDING THE DYNAMICS OF EMERGING DISEASES

ABSTRACT

Spillover and spillback infections, two interconnected phenomena, have gained prominence as critical drivers of emerging diseases in both human and animal populations. Spillover refers to the transmission of pathogens from animals to humans or vice versa, while spillback denotes the reverse transmission of pathogens from humans or domesticated animals back to wildlife. This review explores the intricate dynamics of spillover and spillback infections, delving into their underlying mechanisms, contributing factors, and implications for global health and ecosystem stability. By examining case studies and recent research, we aim to provide a comprehensive understanding of these phenomena and underscore the importance of multidisciplinary approaches to disease prevention and management.

INTRODUCTION

The continuous emergence of infectious diseases has heightened the urgency of studying spillover and spillback infections. These phenomena exemplify the complex interactions between species, ecosystems, and pathogens, emphasizing the need for a holistic understanding to effectively mitigate their impact. Spillover and spillback events challenge traditional disease paradigms and underscore the intricate connections between human, animal, and environmental health. In an increasingly interconnected world, the spread of infectious diseases has become a major concern for global health. The concepts of "spillover" and "spillback" infections play a pivotal role in understanding the dynamics of emerging diseases and their potential impact on human and animal populations.

SPILLOVER

Bridging the Species Barrier: Spillover refers to the transmission of infectious agents, such as viruses or bacteria, from one species to another.

Authors

1. **Sapna Sharma** - Teaching Associate, DUVASU, Mathura
2. **Baleshwari Dixit** - Assistant Professor, Co. V.Sc.&A.H., NDVSU, Rewa
3. **Apurv kaushik** - Corresponding author, Teaching Associate, DUVASU, Mathura
4. **Namrata Upadhyay** - PhD Scholar, Co. V. Sc. & A.H., NDVSU, Rewa
5. **Abhilasha Nayak** - M.V. Sc Scholar, Co. V. Sc. & A.H., NDVSU, Rewa
6. **Abhishek Asati** - M.V. Sc Scholar, Co. V. Sc. & A.H., NDVSU, Rewa

While not a new phenomenon, spillover events have garnered significant attention due to their potential to trigger outbreaks or pandemics. One of the most notable examples is the spillover of the HIV virus from non-human primates to humans, leading to the global AIDS pandemic. Spillover events can occur through various mechanisms. Zoonotic diseases, which originate in animals but can infect humans, are perhaps the most well-known spillover examples. Factors driving zoonotic spillover include encroachment on wildlife habitats, increased human-animal interactions, and changes in land use. As humans and animals come into closer contact, the likelihood of pathogens crossing the species barrier rises.

SPILLBACK

The Return Journey: Spillback, on the other hand, refers to the reverse transmission of an infectious agent from humans or domesticated animals back to wildlife populations. This phenomenon highlights the potential for humans to act as reservoirs for diseases that can then infect animals. This is particularly concerning as it can lead to the establishment of new disease reservoirs in wildlife, perpetuating the cycle of infection and complicating control efforts. The concept of spillback challenges the traditional perspective that wildlife



serves as the primary source of infectious diseases. It underscores the intricate relationship between humans, animals, and pathogens, emphasizing the need for a holistic approach to disease surveillance and management.

MECHANISMS OF SPILLOVER AND SPILLBACK

Spillover events are driven by a myriad of factors, including changes in land use, habitat destruction, wildlife trade, and global travel. Zoonotic diseases, such as Ebola and COVID-19, illustrate the potential for pathogens to bridge the species barrier, often with devastating consequences. The increased frequency of spillover events highlights the interconnectedness of ecosystems and the impact of human activities on pathogen transmission dynamics. Conversely, spillback infections illuminate the role of humans as potential reservoirs for diseases in wildlife populations. Domesticated animals, through close proximity and shared environments, can act as intermediaries, facilitating the transmission of pathogens back to wildlife. This phenomenon challenges assumptions about the direction of disease transmission and underscores the need for comprehensive surveillance strategies.

FACTORS DRIVING SPILLOVER AND SPILLBACK

- **Globalization and Travel:** Increased international travel and trade facilitate the rapid movement of pathogens across borders, amplifying the risk of spillover and spillback.
- **Environmental Changes:** Deforestation, urbanization, and habitat destruction can force wildlife species into closer proximity with humans and domesticated animals. This heightened interaction increases the chances of disease transmission.
- **Climate Change:** Altered climatic conditions can impact the distribution and behavior of both

pathogens and their hosts, potentially expanding their ranges and increasing the likelihood of spillover.

- **Antimicrobial Resistance:** The misuse and overuse of antibiotics can lead to the development of drug-resistant strains of pathogens, making infections more challenging to treat and control.
- **Livestock Intensification:** Intensive farming practices can facilitate the emergence of new diseases in livestock, with spillback potential into wildlife and humans.

IMPLICATIONS FOR HEALTH AND ECOSYSTEMS

Spillover and spillback infections have significant consequences for both human and animal health. Outbreaks of zoonotic diseases can lead to public health emergencies, economic losses, and social disruption. In wildlife populations, spillback infections can result in declines or extinctions of species, disrupting ecosystem balance and biodiversity.

MITIGATION AND FUTURE OUTLOOK

Preventing and managing spillover and spillback infections requires a multidisciplinary approach that involves public health, veterinary science, ecology, and social sciences. Early detection and surveillance are crucial to identify potential spillover events before they escalate into larger outbreaks. International cooperation and information sharing are vital to address emerging diseases on a global scale. Additionally, promoting sustainable land use, conserving biodiversity, and implementing responsible wildlife management practices can help mitigate the risk of spillover and spillback infections. Research into understanding the drivers of these phenomena can inform targeted interventions and policy decisions to prevent future outbreaks.

CONCLUSION

Spillover and spillback infections serve as poignant reminders of the intricate connections between humans, animals, and pathogens. Understanding the mechanisms, drivers, and implications of these phenomena is essential for mitigating the impact of emerging diseases on global health and ecosystems. By embracing multidisciplinary approaches and fostering international collaboration, we can navigate the complex web of pathogen transmission and build a more resilient future for both species and environments.

भेड़ व बकरीयों में टोक्सोप्लाज्मोसिस एक जूनोटिक रोग



पशुपालन भारतीय कृषक का महत्वपूर्ण आय स्रोत है। कम लागत व कम संसाधनों में ज्यादा आय उपलब्ध करने के कारण भेड़ व बकरी पालन के प्रति पशुपालकों का रुझान बढ़ रहा है। परन्तु भेड़ व बकरी में होने वाले रोग न केवल पशु की उत्पादकता आय को कम करते हैं बल्कि कई रोग पशुपालकों को भी संक्रमित कर सकते हैं। इसलिए पशुपालकों को इन रोगों के लक्षणों का ज्ञान होना अतिआवश्यक है ताकि वे समय रहते चिकित्सीय सलाह ले सकें। ऐसा ही एक रोग है टोक्सोप्लाज्मोसिस जो की ना सिर्फ भेड़-बकरीयों अपितु मनुष्यों को भी प्रभावित करता है। भेड़ और बकरीयों में यह रोग गर्भपात का सबसे प्रमुख कारण है। जबकि मनुष्यों में इसके प्रमुख लक्षण मस्तिष्क शोथ, तंत्रिका तंत्र विकार व गर्भपात हैं।

कारण

टोक्सोप्लाज्मोसिस एक संक्रामक रोग है जो की "टोक्सोप्लाज्मा गोंडाई" नामक प्रोटोजोआ द्वारा होता है। यह परजीवी प्राकृतिक रूप से बिल्लियों में पाया जाता है। यह परजीवी बिल्लियों की आंत्र-कोशिकाओं में गुणन



लेखक

सुमनिल मारवाह - भाकृअनुप- राष्ट्रीय उष्ट्र अनुसंधान केंद्र, बीकानेर

रचना पूनिया - पशुविज्ञान वधायकी, राजस्थान पशु चिकित्सा और पशु विज्ञान विश्वविद्यालय, बीकानेर

करता है और ऊसिस्ट के रूप में मल में विसर्जित होते हैं। यह ऊसिस्ट वातावरण में जा कर पशुओं के चारे व पानी को संक्रमित कर देते हैं। इस संक्रमित चारे व पानी को ग्रहण कर पशुओं में यह रोग हो जाता है। संक्रमित भेड़ बकरीयों में गर्भपात हो जाता है या मृत शिशु का जन्म होता है। ऐसे संक्रमित पशुओं की गर्भ-नाल, गर्भ-स्राव, नासिका-स्राव और मल द्वारा इस रोग का अन्य पशुओं और मनुष्यों में संचरण होता है। यह परजीवी मृदा में या मृत पशु के शव में लम्बे समय तक जीवित रहता है और रोग को फैलाने की क्षमता रखता है।

रोग के लक्षण

भेड़ और बकरीयों में इस रोग का प्रमुख लक्षण गर्भपात, मृत शिशु का जन्म या शिशु की जन्मोपरांत मृत्यु है। इस रोग में गर्भपात समान्यतः ब्यांत के तीन- चार हफ्ते पहले हो जाता है। कई बार संक्रमित भेड़ों में ज्वर, साँस लेने में तकलीफ व निमोनिया भी पाया जाता है। व्यसक बकरीयों में गर्भपात के अलावा इस रोग में अन्य कोई लक्षण नहीं दिखाई देता।

मनुष्यों में टोक्सोप्लाज्मोसिस

मनुष्यों में यह रोग टोक्सोप्लाज्मा परजीवी की ऊसिस्ट नामक संक्रामक अवस्था से होता है। यह ऊसिस्ट या तो

संक्रमित पशु के मल में या गर्भपात की शिकार भेड़ व बकरी के मृत भ्रूण, गर्भ-नाल या गर्भ स्त्राव के संपर्क में आने से होता है। संक्रमित पशु के कच्चे या अधपके मांस से या दूध से भी संक्रमण हो सकता है। यह रोग संक्रमित गर्भवती महिलाओं में उनके शिशुओं में भी हो जाता है। ऐसे शिशुओं की या तो गर्भ में ही मृत्यु हो जाती है या जन्मोपरान्त। यदि संक्रमित शिशु जीवित जन्म लेता है तो उसमें बुखार, तिल्ली का बढ़ना, यकृत का बढ़ना, और तंत्रिका तंत्र विकार पाए जाते हैं। वयस्कों में इस रोग के लक्षण इस प्रकार हैं- ज्वर, शरीर में दर्द, लसिका ग्रंथियों में सूजन, आँखों में कोरिओरेटिनिस, मस्तिष्क शोथ व तंत्रिका तंत्र विकार आदि।

निदान

गर्भपात के पश्चात अपरा या भ्रूण उत्तको के प्रयोगशाला निरीक्षण द्वारा रोग की पहचान की जा सकती है। सीरम आधारित जांचें जैसे एलिसा, एग्लूटिनेशन टेस्ट और सी. फ. टी. द्वारा इस रोग का निश्चित निदान किया जाता है। चिकित्सा:

इस रोग की चिकित्सा के लिए सल्फा समूह की

औषधियां जैसे सल्फाडाइजीन, सल्फामेथाजिन का प्रयोग किया जाता है। कई बार सल्फा औषधियों को पाईरामेथामिन के साथ भी किया जाता है।

रोकथाम

भेड़ और बकरियों में इस रोग की रोकथाम के लिए कोई टीका उलब्ध नहीं है। इस रोग से बचने के लिए कुछ विशेष बातें इस प्रकार हैं-

- गर्भपात से प्रभावित भेड़ बकरियों का परित्याग करना आवश्यक है। गर्भपात के पश्चात मृत भ्रूण, अन्य ऊतक व संक्रमित स्त्राव व उसके संपर्क में आने वाली मृदा को जलाएँ या सुरक्षित रूप से दफनाएँ। उस जगह को निस्संक्रामक जैसे लाइसोल आदि द्वारा साफ करें। गर्भवती महिलाएँ ऐसे पशुओं के संपर्क में ना आएं।
- संक्रमित द्रव्यों के साथ काम करते हुए हाथ में दस्ताने अवश्य पहनें।
- मांस को अच्छी तरह पकाकर व दूध को 70 डिग्री तक गरम कर या उबाल कर ही प्रयोग में लाएं।

