KEYNOTE ARTICLES

CLINICAL MALADIES OF SHEEP WITH SPECIAL REFERENCE TO KASHMIR

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The economics of a sheep farm depends on lambing percentage and later on the survival of these lambs that can produce an adult stock for future. It is imperative to curb lamb mortality by various diseases .The mortality of lambs may be expected as their immune system is not well developed as in adults. Various of disease reported causing lamb mortality are diseases of fetus during intrauterine life e.g. prolonged gestation, intra uterine infections, abortion, fetal death with resorption or mummification. Diseases associated with dystocia, causing cerebral anoxia or fetal hypoxemia and their consequence and predisposition to other diseases. Early postnatal diseases like hypoglycemia and hypothermia due to poor mothering and exposure to cold, low vigor in neonates due to malnutrition, delayed postnatal disease like colibacillosis, joint ill, lamb dysentery, septicaemic disease, most of viral enteric infections Non infectious diseases like) hypothermia, hypoglycemia / starvation, congenital diseases of newborns, chromosomal abnormalities and inheritance viral infections, nutritional deficiency, iodine/vitamin –deficiency. **Foot Rot** is a problem often overlooked by shepherds and sometimes taken too lightly as a cause of monetary loss and loss of thriftiness in sheep. Once loosed in a flock, foot rot can become a persistent reoccurring nightmare. The shepherd should take notice and act aggressively at the first sign that foot rot may be present in a flock. Foot rot is often in the soil on fair grounds and auction barns and all newly purchased sheep. Meanwhile, sheep back home from fairs or shows should be penned separately and inspected for foot rot. Keep the feet of your sheep trimmed so there are no pockets for the bacteria to thrive. There are numbers of copper and zinc based products on the market to treat against foot rot and scald as well as a vaccine that is fairly effective.

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It is wise to trim feet when sheep are being sheared. Often hooves become overgrown after a winter indoors on soft bedding, or while penned in yards when there is no pasture or while penned in yards when there is no pasture available. Under these conditions foot rot can spread to the entire flock. It is the best to isolate individuals with foot problems. These animals should have their feet treated aggressively and they should not be returned to the flock until all signs of infection are gone. Some sheep are known to be carriers of foot rot and it is better to cull these individuals. Consult your veterinarian for the best course of action before foot rot become a problem on your property. There is a new plague in the UK of a virulent form of foot root that attacks the coronary band of the hoof, it is known as CODD. If you live in the UK be aware of this new threat to your flock. There is some preliminary findings point to the fact that this infection may be crossing over from cattle to sheep.

Tail Docking

If you choose to dock tails, the docked tail needs to be long enough to wag! This may surprise some shepherds, but if the tail is left long enough to be raised, it lifts the supporting tissue around the anus and, like a cow's tail, directs any diarrhea away from the body. If the tail is amputated close to the body, any diarrhea runs down the back end, soiling the skin and fleece. So the tail should be left long enough to cover the vulva or the equivalent length in males.

Tail docking is done to prevent flystrike. First the flies eat the manure on the wool but then actually attack the flesh of the tail. This is more of a problem with sheep on rich pasture or those fed high concentrations of grain. When a tail is docked short, the rear muscle attachment is removed, thus weakening these muscles.

The weakness may not be apparent immediately, but very often a tailless sheep will invert the rectum when passing feces. Eventually the rectum will not completely return, leading to a prolapse. In the late 80s, the vogue was for tailless sheep, and there was a significant problem with prolapsing ram lambs in the test station. As tails were left longer the problem disappeared.

Horn affections

Horns should be away from the face, close growing horns cause sores and can restrict a sheep from eating properly. It's interesting to note that in cold climate heat loss through the horn surface may be substantial. The internal core of the horn contains many blood vessels, while the outer keratin sheath presumably offers little the way of insulation. Considerable amounts of heat can be lost through the horn surface, particularly in the large-horned species. Horns are thought to play a thermo regulatory role as heat-dissipation structure and benefit the animal in hot weather. This heat loss may be detrimental in winter. The largest surface area that the animal can afford to sustain through the winter may limit horn size.

Urolithiasis

Clinical signs of the disease depends upon the duration of the illness. The early signs of the disease when there is partial urethral obstruction are haematuria, oliguria and dysuria. Haematuria is due to long duration of the disease and severe damage to the bladder and urethral mucosa by the uroliths (Osborne and Clinton., 1986). Animals suffering from complete obstruction exhibit tenesmus, tail twitching, weight shifting, colic, inappetance, depression and urethral pulsation ventral to the anus. Diagnosis of Urolithiasis in sheep and goats is based on the clinical symptoms, physical examination, adbomeninocentesis, radiography, sonography and increase in the concentration of creatinine 1.5- 2 times than in serum. Systemic injection of dye that is eliminated by the kidney, injection of dye into the urinary bladder followed by recovery in peritoneal fluid and injection of air in the urinary bladder (during assaulting the abdomen) are considered as additional tools of diagnosis. The treatment of Urolithiasis includes both medicinal and surgical.

Vaccination

You should be aware of what sheep diseases most affect the sheep in your area to vaccinate accordingly but one thing is certain that you should vaccinate to prevent tetanus and C and D perfringes infection. A combination vaccine is available that can protect your growing lambs from infection. Tetanus must be prevented from moving up the umbilical cord so you should dip the cord in iodine at birth and vaccinate you ewes at least three weeks prior to lambing. Tetanus can also infect your sheep during docking and castration. If you vaccinate with a combination vaccine for C&D plus tetanus your sheep will also be protected from "Overeating disease" or Enterotoximia. Enterotoxemia type D is most commonly associated with heavy concentrate feeding or an abrupt change in the diet, usually to a better feed. It usually affects weaned lambs that are consuming at least 3/4 pound of grain per day

Parasitism

Dewormers come in a variety of forms: bolus (large pill), paste, liquid, pour on, and injectable. Most products come with directions and/or applicators for administering the dewormer. We personally have found the paste or liquid forms to be the easiest to use. Ewes should be wormed at breeding time and again before lambing if possible. Lambs have limited immunity to parasites and should be wormed at weaning age and watched closely for signs of reinfection. If possible turn your lambs out on pasture that has not been grazed by adults that season.

Mastitis

Mastitis is the major reason make producers cull ewes. Mastitis is associated with lambs with sore mouth and incorrect "drying up" of the ewe at weaning. Minimize

reinfection by isolating the infected ewe and her lambs. Palpate udders in the fall and cull ewes with indications of scar tissue. Mark infected ewes at lambing time. Avoid udder injury, and cull ewes with pendulous udders. Treatment intramammary infusion of the udder (by a teat tube), or intramuscular injection after performing cultural sensitivity.

Contagious ecthyma (CE), also known as sore mouth or orf, is an acute infectious disease of sheep characterized by sores and scabs on the face, eyelids, teats, feet, and occasionally inside the mouth. animals may become infected more than once in their lifetime but repeat infections usually occur after a year's time and are usually less severe. The disease is widespread in the sheep population and affects all breeds. Infection occur in the spring and summer and heal in about a month. Humans who work around the sheep sometimes become infected.

Copper toxicity is a big concern for sheep, because copper is an essential required mineral but is also toxic as well. Toxicity can vary based on breed, age, health status, levels of other minerals in body and in diet, and levels of ionophores in the diet. Copper is found in the feed supplement for cattle and swine diet. If mixed with or fed to sheep, it can have drastic effects. There are two types of copper toxicosis; acute and chronic. Acute is when a high level is ingested in a short period of time. Chronic is when a low level is ingested over a long period of time, and exceeds the threshold level and escapes into the blood stream. Excess copper is stored in the liver. Eventually hemolytic crisis occurs due to the destruction of red blood cells. Prevention is key in this disease

Pneumonia, is caused by a virus

Tetanus

Tetanus is a common fatal disease in sheep and goats caused by a bacterium known as Clostridium tetani. The spores of this bacterium can be found in feces. They produce a powerful toxin in open wounds, and are not affected or destroyed by disinfectants. Most often, tetanus is caused by infection of an open wound. Because sheep undergo several minor managerial surgeries, such as castration, ear-marking, tail-docking, dehorning and debudding, sheep are highly at risk for contracting tetanus The risk of contracting tetanus can be prevented through cleanliness and vaccinations, such as tetanus anti-toxin and penicillin. Treatment, once the animal is already sick, can be very expensive and not very effective.

Enterotoxemia (overeating disease or Pulpy Kidney)

Enterotoxemia in sheep can be fatal. It results from the sudden release of toxins by the

bacteria Clostridium perfringens type D in the digestive tract of sheep. Enterotoxemia affects sheep of all ages, but it is most common in lambs under 6 weeks of age that are nursed by heavy-milking ewes, and in weaned lambs on lush pasture or in feedlots. Creep-fed lambs and sheep being fitted for show are often affected. Frequently, the most vigorous lambs in the flock are lost. In unvaccinated feedlot lambs, approximately 1 percent of the lambs can be expected to die from this disease, with an average of about 2 to 3 percent. In severe outbreaks, losses may range from 10 to 40 percent.

The bacteria that cause the disease normally are present in the intestine of most sheep. Under circumstances generally brought about by heavy feeding, the Clostridium perfringens type D bacteria grow rapidly and produce a powerful poison (toxin) that is absorbed through the intestine wall. Death typically occurs within only a few hours, often before the owner observes any sick animals. There is no satisfactory treatment for this affliction, but there are some preventive measures. Prior to placing lambs in a feedlot, vaccinate them with a Clostridium perfringens type D bacteria or toxoid. Allow at least 10 days after vaccination for immunity to develop. Under certain conditions, a booster shot is required two to four weeks later.

BLOAT

Bloat is a condition where the lamb is unable to belch up the gas which is formed in the second stomach (rumen). The pressure will build up until it interferes with the lambs breathing and heart and he can die. It is caused by certain alfalfa hays, clover and alfalfa pastures. It can also be caused by a rapid change in diet or too much grain.

The lamb’s abdominal area (belly) will be very swollen looking, particularly on the left side. The left side will often be higher than the top of the back. The lamb will be uncomfortable and depressed. This is an emergency situation. You need to get the lamb to the veterinarian as soon as possible. The cause of bloat can be divided into three categories:

1. Frothy bloat - caused by diets that promote the formation of stable froth.
2. Free gas bloat - caused by diets that promote excessive free gas production.
3. Free gas bloat - caused by failure to eructate (belch).

Lambing

Newborn lambs primarily dry themselves by burning body fat that generates sufficient heat to evaporate the moisture from their skin and fleece. If you can't provide the lamb with a suitable environment don't "lamb" until the weather is warmer. The extremely critical time is from birth until the lamb is completely dry. Thereafter, a dry, draft-free area will suffice. Be sure your lambing kit is ready well ahead of time. If you are planning an early lamb crop you need to take the time to be on duty even at night to ensure losses do not occur simply because of the freezing temperatures in your barn.

Pregnancy Toxaemia

Ewes suffering from pregnancy toxemia (ketosis) appear lethargic, sluggish and often fail to eat. The first symptom noticed in ewes is a unwillingness to eat. They become depressed, weak and have poor muscle control and balance later in pregnancy. Many times, when they lie down, they are unable to rise. Early in the disease, ewes will show a positive test for ketone bodies in the urine. The breath of does and ewes will have a sweet or foul smell. Ketone bodies are by-products of fat breakdown found in the blood and urine

Risk Factors for Pregnancy Toxemia:

- *Multiple fetuses*
- Poor quality of ingested energy ,Dietary energy level , Environment, Genetic factors ,
- Obesity, Lack of good body condition or high parasite load and Confinement - lack of exercise.

NEWBORN DISEASES

1- Fetal disease (diseases of fetus during intrauterine life), prolonged gestation. Intra uterine infections, abortion, fetal death with resorption or mummification.

2- Parturient diseases (These are diseases associated with dystocia, causing cerebral anoxia or fetal hypoxemia and their consequence and predisposition to other diseases.

3- Postnatal diseases:

- EARLY POSTNATAL DISEASES (within 48 hours of birth): hypoglycemia and hypothermia.
- DELAYED POSTNATAL DISEASE (2-7 days of age): Colibacillosis, joint ill, lamb dysentery, septicaemic disease, most of viral enteric infections in young animals, eg rotavirus and corona virus.
- LATE POSTNATAL DISEASES (1-4weeks of age) cryptosporidiosis, white muscle disease and enterotoxaemia

HYPOTHERMIA: lambs are very susceptible to cold and hypothermia is an important cause of mortality in early postnatal period. the healthy newborn lambs have good ability to increase its metabolic rate in respond to cold stress by shivering and non shivering thermo genesis(brown adipose tissue) the energy source in the neonatal lambs are liver and muscle glycogen.

HYPOGLYCEMIA / STARVATION: an important cause of lamb mortality as hypoglycemia predisposes to hypothermia. This occurs due to loss of sucking drive; mismothering. Hypoglycemia can be prevented by adequate glucose therapy. Glucose is administered intraperitoneally at a dose rate of 2g/kg body weight using a 20% solution. A feeding of 100-200ml of colostrums will also be beneficial but lambs should not be fed before they are normothermic as aspiration pneumonia is a risk.

CONGENITAL DISEASES OF NEWBORNS

Congenital and inherited anomalies can result in the birth of diseased or deformed neonates. Congenital disorders can be due to viral infections of the fetus or to ingestion of toxic plants by the dam at certain stages of gestation. The musculoskeletal system can also be affected by certain congenital neurologic disorders. e,g, Contracted Flexor Tendons, Glycogen Storage Disease` (Glycogenosis), Muscular Steatosis

Chromosomal abnormalities and inheritance—most chromosomal abnormalities are associated with poor fertility, early embryonic deaths and multiple deformation. Most chromosomal abnormalities are mutant genes and the majority is inherited as recessive traits.

Viral infections: many viruses e.g. Bunya virus, Orbivirus (blue tongue virus) Pestivirus (bovine viral diarrhea virus) Japanese – B encephalitis virus are recognized as teratogens.

Nutritional deficiency: there are many congenital diseases of new born which are due to deficiency of specific nutrient, e.g.,

Iodine: deficiency may be primary or induced by nitrate or Brassica spp. causes prolonged gestation in sheep.

Copper: copper deficiency causes enzootic ataxia in lambs which may be primary cooper deficiency or due to interference with the ability of copper by other minerals e.g., molybdenum and iron.

Vitamin –D: causes neonatal rickets.

Vitamin-A: causes harelip, eye defects.

Cobalt: decreases lamb vigor and causes impaired immune

Poisonous plants

Various poisonous plants e.g., veratrum californium, lupinus species, Astragalus, conium maculatum etc., are responsible for various teratogenic effect on lambs.

Farm chemicals

Some benzimidazoles (Parbeizimdazoles, cambendazole, oxfendanzole, Netobimin) are important teratogens for sheep.

Apholate, an insect chemosterilant also causes teratogensis in sheep.

Suggested Readings

Linklater, K., Smith, M.C.: Color Atlas of Diseases and Disorders of the Sheep and Goat.

Martin, W.B.and Aitken, I.D.: Diseases of Sheep 2nd edition.

Zettl, K., Brömel, J.: Handbuch Schafkrankheiten