

## Diseases of Bovine Udder and Teats

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### ABSTRACT

Diseases of udder and teat result in heavy losses to the dairy farmer and leads to reduction in milk production, drastic decrease in production, permanent damage to the udder or death in severe cases. Pure exotic breeds are highly susceptible followed by crossbred animals, while buffalos are least affected. The lower susceptibility of local breeds is basically due to its better immunity levels and low production. Preventing the occurrence of different udder diseases would therefore play a pivotal role in making milk business profitable. A proper understanding of the diseases will go a long way in reducing the incidence at the farmer's homestead.

**Keywords:** udder, teat, diseases

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### I. INTRODUCTION

Udder and teat infection can cause economic loss to dairy man by decrease milk production, loss of quarter, decrease cost of animal and affect the economic value of animals. Inflammation of the udder and teat can occur due to injuries and infection like viral, bacterial and fungal. Udder diseases can cause heavy losses to the dairy farmer. It leads to reduction in milk production causing permanent damage to the udder or death of the animal in severe cases. Pure exotic breeds like HF, Jersey etc. have the highest susceptibility to udder diseases followed by crossbreds. The lower susceptibility of local breeds to the infection is basically due to its lower milk production and a better immunity levels. Buffaloes are the least susceptible to infection. Preventing the occurrence of mastitis would therefore play important role in making milk business profitable. The teat affections may not lead to production losses directly, but indirectly it affects the production due to the lesions. Physical injuries in the teat may result from chronic mastitis, traumatic hand milking, calves sucking and tick bites (Morwal S, 2017).

#### Mastitis

Mastitis is a contagious udder infection where physical changes can be visible in udder and milk. Mastitis has been reported in almost all domestic mammals and has a worldwide geographic distribution. Climatic conditions, bedding, housing density of livestock populations, seasonal variation and husbandry practices affects the incidence and etiology of disease. High yielding animals are commonly susceptible for infection. The disease is mainly caused due to

various forms of bacteria, fungi and virus. Organisms such as Staphylococcus aureus, Streptococcus agalactiae, Strep. dysgalactiae, Strep. uberis and various Gram-negative bacteria have been reported to cause disease in the mammary gland of cows (Watts 1988). The major symptoms includes inflamed udder, atrophy or may lead to fibrosis causing decreased or total loss of production in the affected quarter. Once the complete quarter got fibrosis, the chances of recovery will be very low. Somatic cell count is the major indication of inflammatory condition, most of somatic cells are macrophages and neutrophils (Kalinskaet al., 2017). It was estimated that the genetic correlations between clinical mastitis and somatic cell count was ranged from 0.3 to 0.8 (Koeckel al., 2012).

#### Prevention

Before milking, clean the udder well with clean water and wipe with clean towel or with a paper towel. Milking should be quick, complete and in a hygienic manner followed by teat dipping or spraying. Prevent the animal from sitting for at least 30-45 minutes after milking. Continue teat dipping for 2 weeks after drying and start it again before two weeks of calving. Keep the floor of the cattle shed dry as far as possible and carry out proper fly control. Nanoparticles could be the most promising answer for modern dairy cow problems due to their properties and low toxicity for mammary gland tissue (Kalinskaet al., 2017)

#### Bovine Ulcerative Mammilitis

An acute, ulcerative condition of teat and udder skin of dairy cows is caused due to Bovine

herpesvirus II and IV also referred as bovine ulcerative mammillitis. The clinical signs include skin irritation with reddish discoloration, circular and deep wound at the base of teats and are spreading type. The lesions are sharply demarcated as circular, coalescing or singular, erythematous ulcerations with extensive sloughing of the epithelial surface (Syring et al., 2010). Diagnosis is based on clinical signs and confirmed by histopathology or by virus isolation from early lesions. Treatment is directed toward supportive care, because there is no effective therapy for this virus.

### Prevention

It is difficult to eliminate once the disease has occurred in the farm. Quarantine of newly purchased animals, good hygienic condition on farm and control of fly bite can significantly reduce the disease.

### Pseudo Cowpox

Pseudocowpox is a viral skin disease that causes pox like lesions on the teats and udders of cattle. The virus infects vertebrates and classified into the Chordopoxvirinae subfamily, under the family Poxviridae (Oguzoglu et al., 2014). The disease has zoonotic importance and causes serious occupational hazard. The initial infection is characterized by a small area of swelling and reddening on the teat followed by elevated area with an orange papule, which then forms scabs. Affected areas coalesce leading to large scabs which cover the entire length of the teat. The disease can spread from cattle to man by direct contact. Skin infection in man is known as milker's nodules, and is a painful localized infection. The infection can be controlled by removing the scab and applying any emollient teat dips.

### Prevention

The viral infection can be prevented by proper quarantine of newly purchased cows before introducing into the herd. Maintaining proper hygiene along with regular teat dipping using iodophor compounds is one of the most effective means of control the infection.

### Bovine Warts (Bovine Papillomavirus)

Bovine papillomatosis is highly contagious viral disease known as papillomas, these are small, cauliflower-shaped growths occurs in heifers and milking animals. Warts are commonly seen in all animal species (Radostits et al., 2007), and are highly species-specific (Borzacchiello and Roperto 2008). The warts are characterized by solid outgrowth of the epidermis with cauliflower like appearance. These are most

commonly seen on the nose, chin, lips, neck, shoulder and brisket region of the body. Once an animal acquires the disease, it usually develops immunity within three weeks to four weeks after the initial infection. Surgical removal is possible but may lead to recurrence. Removal should only be done on mature growths, since removing warts too soon can stimulate the growth and spread the virus. Large pedunculated warts can be removed slowly by tying a ligature around the base. The wart will dry up and fall off within a month. Other treatments including auto hem therapy, anthiomaline and homeopathic medicine (Thuja) was found to be effective.

### Prevention

The warts can be prevented by disinfecting the stalls and area with formaldehyde or glutaraldehyde solution. The virus is thought to be transmitted by flies, so fly control is also important. Teat warts can sometimes be prevented by mixing cows with heifers when they are younger.

### Teat-End Hyperkeratosis

Hyperkeratosis is normal physiological condition occurs in response to force applied to skin during milking by milking machine or hand milking, milker's hand and calf suckling. The hyperkeratosis of teat get severe by the overriding effects of climate, environmental conditions and different season, herd milk production level, milking management, and genetic effect of each cows (Mein et al., 2003). Hyperkeratosis is commonly seen in highly producing animals. Hyperkeratosis can be reduced by adjusting threshold settings of automatic cluster (Rasmussen, 1993).

### Prevention

Avoid incorrect use of teat cleaners and sanitizers, improper milking machine settings leading to overmilking, exposure of wet teats to cold weather, inadequate massage phase during milking, and inadequate milk letdown. Complete prevention of underlying factors results in recovering of teat condition.

### Dermatitis

Udder dermatitis is occurring mainly due to chemical irritants, sunburn, and bacterial infection. Dermatitis is seen due to chemical irritants from bedding and chemicals used during milking. The irritation usually resolves after removal of the causative substance, but gentle udder washers and use of emollient products can speed up healing. Udder impetigo is a bacterial

dermatitis characterized by development of small pustules on the skin of the udder and teats. Staphylococci usually can be isolated from the pustules. Small (3-6 mm) vesicles appear on hairless parts of the body; it occurs in the early stages and is surrounded by a narrow zone of erythema. Involvement of hair follicles is common and leads to the development of acne and more extensive lesions. Individual lesions heal rapidly in about a week but successive crops of vesicles may prolong the duration of the disease.

#### Prevention

Avoid using harsh chemicals on udder surface, clean and dry the udder before milking. Avoid milking of infected and normal animals together. Follow personal protective care before handling the animals.

#### Teat Fistula

Teat fistula is the opening of the wall of teat connecting to exterior of the teat canal other than the pre-existing. It causes continuous outflow of milk. This condition may be congenital or acquired (Bhowmik et al., 2015). The condition is caused due to penetrating wound which extend the teat canal.

#### Teat Spider

It is a condition may be due to some fibrous tissue blockage in the teat canal. Teat slitter or teat bistouries instrument was introduced for clearing those membranes. Teat spider in cattle and buffalo is congenital as well as acquired condition (Johnson, 1988).

## II. BLOCKED TEAT AND LEAKERS

A blocked teat is a condition that does not allow easy removal of milk which may or may not be painful. Teat blockage can be temporary or permanent, depending upon the cause and extent of damage. The blocked teat condition develops due to any injury, mastitis, blood-clot or swelling after injury, narrowing of the teat canal or growths in the teat canal and due to genetic inheritance. Different preparation or readymade ointments can be applied to reduce the swelling, teat dilators inserted into the teat canal and special instruments used to cut the growth inside the canal. Milk leakage is seen due to impaired teat sphincter function in high yielding dairy cows. It is commonly seen in animals in which automatic or machine milking is practiced (Klaaset al., 2005). The incidence of mastitis is higher in the animals with milk leakage and causes hygiene problems. The characteristics of the teat orifice, protrusion of teat canal and high yielders are associated with the risk for milk leakage.

#### Prevention

To prevent the condition proper breeding strategies should follow. Proper screening of multiparous cows for presence of short teats and inverted teat ends are beneficial in evaluating the risk for milk leakage. The selection of individual cows is necessary to reduce the occurrence of milk leakage in the herd.

## III. UDDER EDEMA

The condition results when there is an excessive accumulation of fluid between secretory cells within the udder. The relative concentrations of solute in intracellular and interstitial fluids markedly influence colloidal pressure, fluid retention, and edema (Mobarhan, 1988). Movement of fluid between blood vessels and interstitial fluid is controlled by a balance between hydrostatic and osmotic pressures. The edema often extends forward under the skin in front of the udder and can lead to permanent damage of suspensory ligaments in udder. The exact cause is not known but it develops primarily because of an impaired blood and lymph circulation from the lower abdomen because of fetal pressure in the pelvic area. The decrease in mammary blood flow with increase in venous blood pressure results in edema (Al-Aniet al., 1986). Other related factors are sharp drop in blood serum proteins that occurs near calving time. This drop is closely associated with the transfer of gamma globulins (antibodies) to colostrum and it is usually more severe in animals calving for the first time than in subsequent lactations.

#### Prevention

Nutrition during dry period plays a very important role for developing udder. High sodium and potassium with low level of magnesium helps to get rid of edema. Feed with required quantity of protein should be supplied.

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