

Successful Clinical Management of Chronic Mastitis Cum Udder Abscess in A Transition Cow

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Abstract

Based on ultrasonographic findings and ABST results, a Holstein Friesian cross-bred cow eight and half months pregnant, which had udder swelling accompanied by thick yellowish milk discharge from all quarters except the left forequarter, which had a yellowish discharge with flakes was diagnosed and subsequently treated for chronic mastitis cum udder abscess.

Keywords: Cow, Chronic Mastitis, Udder, abscess, *Staphylococcus spp.*, *Bacillus spp.*,

Case History and Clinical Observations

A full-term pregnant Holstein Friesian cross-bred cow presented to a Large Animal Medicine Unit with a history of udder swelling and thick yellowish milk discharge from all quarters except the left fore quarter (Fig. 1 and 2). The animal was treated for the past one week with intramammary preparation containing Ceftriaxone and supportive therapy. Physical examination revealed elevated temperature (40.3°C), edematous swelling at the gland cistern and thick yellowish milk discharge from all quarters except the left fore quarter, which had a yellowish discharge with flakes. All quarter milk samples were collected aseptically in separate containers for culture. The milk sample was inoculated in nutrient broth on the first day and incubated overnight at 37°C and the overnight grown culture was streaked in nutrient agar plate to obtain pure colonies on the 2nd day. The isolates were identified as *Staphylococcus spp* based on their cultural, biochemical and staining properties. The pure colony of *Staphylococcus spp* isolated was then subjected to Antibiotic sensitivity test (ABST) in the Muller Hinton agar plate (Himedia Pvt ltd, Mumbai) against antibiotics like Streptomycin 25 mg, Oxytetracycline 30 mg, Cotrimaxazole 25 mg, Gentamicin 10 mg Amikacin 30 mg, Enrofloxacin 10 mg, Ciprofloxacin 5 mg, Ceftriaxone/ Sulbactam 30/ 15 mg and found to be sensitive to Enrofloxacin, Ciprofloxacin, Gentamicin, and Clotrimazole and resistance to Streptomycin and Amoxicillin antibiotics.

Ultrasonography of the left fore quarter was done by using a Sonoray DS 50 Plus Vet ultrasound machine equipped with a curved probe that had adjustable MHz capacity (2.5 to 5 MHz) curvilinear probe in standing posture without sedation. Gel contact techniques are adopted as per standard protocols (Cartee *et al.*, 1986; Venkatesan *et al.*, 2020). Which revealed multiple anechoic cavities with pockets of hyperechoic areas (Fig.5).

Results and Discussion

The animal was continuously treated based on ABST results with inj. Gentamicin @ 5mg per kg body weight IV, inj. Enrofloxacin @ 5 mg per kg body weight IM, inj. Flunixin meglumine @ 1mg per kg body weight IM and inj. Vitamin AD₃E 10 ml IM for 3 days and uneventful recovery was noticed after 5 days of treatment. On the seventh day animal delivered a female calf. Udder swelling was found reduced and milk was normal in all quarters except the left quarter on the twelfth day. Further investigation of the left forequarter revealed hard swelling at the cranial region, yellowish watery milk and fine needle aspiration revealed the presence of thick pus (Fig. 3 and 4).

Milk sample and ultrasound guided aspirated pus of left forequarter subjected to microbiological examination. milk discharge showed *Staphylococcus spp* and ultrasound-guided aspirated pus discharge showed *Bacillus spp.*, infection. The animal was once again treated for udder abscess by evacuation from the left fore quarter and impregnated the cavity with seton daily for 5 days and recovered uneventfully (Fig.6 and 7).

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Udder abscesses are commonly observed in cases of chronic suppurative mastitis, manifesting as distinct and localized lesions on the udder. These lesions are primarily caused by environmental pathogens that are prevalent in the surroundings (Venkatesan *et al.*, 2020 and Piccinini *et al.*, 2012). Munif *et al.* (2022) reported that among the udder affections in dairy cows, the

prevalence of udder abscess was 9.26 percent and udder myiasis 11.11 percent. Abd-El-Hady, 2015 reported that among the udder affections in cattle, Gangrenous mastitis had a higher percentage (10%) followed by abscesses (5.83%), hematoma (5.6%), rupture of suspensory ligament (2.8%), and deep wounds (1.4%).



Fig.1. Swelling of Left forequarter



Fig.2. Curdy discharge was observed in the left fore quarter and other quarters showed yellowish discharge on first day of presentation

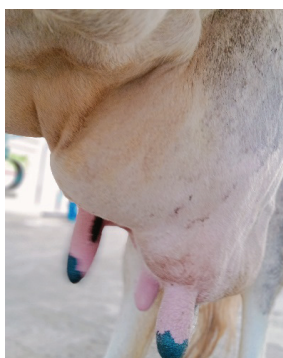


Fig.3. Hard swelling at the cranial region of Left fore quarter (on the 12th day of review)



Fig.4. Yellowish discharge – Left fore quarter (on the 12th day of review)



Fig. 5. Ultrasonography of the left fore quarter (using a Sonoray DS 50 Plus Vet ultrasound machine with 2.5 to 5 MHz curvi linear probe) - Multiple anechoic cavities with pockets of hyperechoic areas



Fig. 6. Pus was evacuated from the left fore quarter and impregnated the cavity with seton daily



Fig.7. Recovered udder

Chronic mastitis leads to fibrosis of all four quarters of the udder (Ijaz *et al.*, 2014). Long-standing udder swelling cases need to be ultrasonographical evaluated to rule out localized udder infection. Venkatesan *et al.* (2020) reported ultrasonographic examination of the udder showed hyperechoic alveolar tissue with anechoic or heterogenous content in the four dairy cows with chronic mastitis. Ultrasonography of the udder can be used to diagnose pathological alterations of the udder such as inflammation, mucosal lesions, tissue proliferation, foreign bodies, milk stones, congenital changes, hematoma and abscesses (Rajamahendran *et al.*, 1994). Hence ultrasonographic guided aspiration of udder abscess will be non-invasive and minimize tissue injury which may be encountered in blind aspiration and or partial mastectomy techniques.

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