



Integrating Ayurveda and Veterinary Medicine in Management of Degnala Disease in *Bubalus bubalis*: A Case Study

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Abstract

Two female buffalos, aged 6-7 years, were brought to the Veterinary Teaching Hospital at International Institute of Veterinary Education and Research with a history of ingesting moldy straw stored in a damp environment. Both animals initially exhibited prolonged irregular appetite, which gradually worsened into anorexia and lameness. Subsequent clinical signs included swelling in the lower limbs, erythema near the udder, base of the ear, and neck, as well as hair loss, scaling, and skin cracking at multiple sites, accompanied by the characteristic "bracken fern tail". Several cracks oozed purulent, foul-smelling discharge. Physical examination revealed tachypnea, hypothermia, and gangrenous lesions affecting various extremities. Blood analysis showed no significant abnormalities. Based on the history and clinical presentation, both animals were diagnosed with Degnala disease. Supportive care was the primary management strategy, with therapeutic interventions including antihistamines, antibiotics, NSAIDs, Cu-Co supplements, Vitamin A therapy, phosphorus supplements, and topical zinc oxide ointment. Additionally, Ayurvedic treatments such as TEE-BURB capsules and a mixture of garlic juice, jaggery, and ajwain were administered for their antifungal and antibacterial effects. Over five weeks, both animals showed significant recovery, highlighting the effectiveness of integrating Ayurvedic therapies with conventional veterinary treatment.

Keywords: Antihistamines; Cu-Co supplements; Moldy Straw; Ointment; TEE-BURB

Introduction

Degnala disease is an overlooked but serious condition in buffaloes and cattle, causing severe dermatological and systemic complications that greatly affect animal health and productivity. (Hatzade *et al.*, 2020). The disease is primarily caused by mycotoxins produced by fungi that proliferate in damp, improperly stored feed, especially rice and wheat straw. These toxins weaken the immune system and induce various clinical symptoms, including dry gangrene, skin lesions, lameness, limb swelling, and necrosis of the extremities. In severe cases, the condition can result in permanent

disability or death, leading to significant economic losses for farmers in affected areas. Scientifically, this disease is termed "Clinical Gangrenous Syndrome", and it is also referred to as "Mycotoxiosis in buffaloes and cattle." However, it is more commonly known as "Degnala disease," a name derived from its first documented outbreak in villages along both sides of the Deg rivulet (Nala) in Pakistan [1]. Degnala disease commonly occurs in buffaloes and cattle due to feeding of paddy straw infected with fungus, *Fusarium* sp. [2]. As exclusive feeding of paddy straw without complete post-harvest drying before storage or during threshing period with

subsequent storage without drying is considered as the probable cause of disease (Rajesh., *et al.* 2018). Preventive measures, such as improving feed storage conditions, using antifungal treatments, and providing balanced nutrition, are essential in controlling the disease and reducing its economic impact on the livestock industry.

History and clinical findings

Case 1

A 7-year-old female Murrah buffalo was presented with a history of ingestion of mouldy straw approximately two weeks ago. Since then, the animal has exhibited a diminished appetite, which has progressively worsened to complete anorexia over the past week. The buffalo also shows signs of lameness in the left forelimb. Notable clinical findings include body temperature of 100.3° F and tachypnea with swelling and formation of cracks in the neck and brisket regions, with purulent discharge emanating from the fissures. Scaling resulting into denuding of hairs at multiple sites. Additionally, there is marked erythema (redness) of the skin in the brisket, udder, and neck areas.



Figure 2: Gangrene with scaling of neck.



Figure 1: Erythema and swelling of brisket region.



Figure 3: Gangrene of ear.

Case 2

A 6-year-old female Murrah buffalo was presented with a 5-day history of lameness affecting all four limbs, accompanied by anorexia. Clinical findings included body temperature of 99.8 °F with significant alopecia of the tail, erythema of base of the ears and neck and hoof cracking in all limbs. The tail exhibited necrosis with cracks filled with purulent discharge.



Figure 4: Alopecia and necrosis of tail.



Figure 5: Gangrene of tail.



Figure 6: Cracking of hoof.

Result and Discussion

Blood profile of affected animals indicates slight anemia and leukocytosis. The management of Degnala primarily focuses on revitalizing the animal's overall condition, particularly addressing the issues of prolonged anorexia and dehydration, which are common in the disease. Fluid therapy is crucial in such cases, as it helps counter dehydration, restores electrolyte balance, and provides the necessary support for other treatments. In addition, antihistamine injections, specifically Injection Pheniramine Maleate (INJ. AVILIN VET) at a dose of 2-5 mg per kg body weight intramuscularly (IM), were administered to counter any allergic reactions that may occur due to the inflammation or hypersensitivity to secondary infections or medications. Broad-spectrum antibiotics like Injection Oxytetracycline (INJ. OTC) at 7-10 mg per kg body weight intravenously (IV) were used for their antimicrobial activity, helping to treat secondary bacterial infections, including skin infections. Given that Degnala can compromise the immune system, broad-spectrum antibiotics are essential to control bacterial pathogens that could exacerbate the condition, particularly those affecting the skin and mucous membranes. To manage pain and inflammation associated

with the disease, Injection Phenylbutazone (INJ. ARTIZONE-S) at a dose of 2-4 mg per kg body weight IM was administered, Additionally, Vitamin A supplementation (LIQ. VIMERAL) was provided throughout the course of treatment, as Vitamin A is essential for the repair and regeneration of epithelial cells. Phosphorus supplementation, through Injection Sodium Acid Phosphate (INJ. URIM-IN), was also included in the treatment plan. The dosage of sodium acid phosphate varies based on the animal's condition but generally ranges around 1-2 mg per kg body weight IM. Phosphorus plays a key role in energy metabolism, cellular function, and the repair of tissues, including the skin. Finally, the administration of Copper and Cobalt supplements (BOLUS VETS Cu-Co). Copper is critical for the formation of collagen and connective tissue, while cobalt is vital for the synthesis of vitamin B12, which supports overall metabolic health and immune function. Topical application of Zinc oxide treatment over wounds helps in better healing. Its protective, anti-inflammatory, and antibacterial properties can help address the skin-related symptoms of Degnala and aid in the overall recovery process. In continuation to the above treatment herbal TEE BURB CAPSULES @4 capsules per day orally were also given to patients. These capsules, often containing natural ingredients like antioxidants, anti-inflammatory agents, and digestive enhancers, can help combat infections, improve appetite, and aid in the animal's recovery. Feeding a mixture of garlic juice (antibacterial, antiviral, and anti-inflammatory properties), jaggery (rich in iron, calcium, and magnesium), and ajwain (aids in digestion, stimulates appetite) to buffaloes can be highly beneficial in managing Degnala disease.

Preparation: Extract a small amount of garlic juice and mix it with ajwain powder. Dissolve a piece of jaggery in warm water and combine all ingredients. Both animals started showing clinical improvement from 5-7th day onwards and recovered to normal in 4 weeks completely. Arora., *et al.* [4] reported chronic selenium toxicity, as a cause of Degnala disease in buffaloes. Arora., *et al.* [4] reported that 80% of Degnala was cured by feeding pentasulphate mixture. Some research workers tried injection of Anti Degnala liquor (Diethylamine acetarsol derivatives) with antifungal properties and found effective in inducing complete recovery from fungal Mycotoxins [5,6]. In conclusion, Degnala disease is characterized by visible skin lesion viz. alopecia, scales, cracking of skin and ulcerative wound on different part of body especially at the feet and tail. It can be treated by different regimens of ayurveda and medicine [7-10].

Blood examination

Parameters	Normal value	Case average (Mean value)
HBG(g/dl)	8-14	10.6
RBC($\times 10^6$ /ul)	5-8	7.8
WBC($\times 10^3$ /ul)	5.9-14	19.5
PLT($\times 10^3$ /ul)	233-690	217
L%	48-75%	40.4
M%	2-7%	0.05
E%	2-15%	2.05
N%	15-45%	57.45

Table a

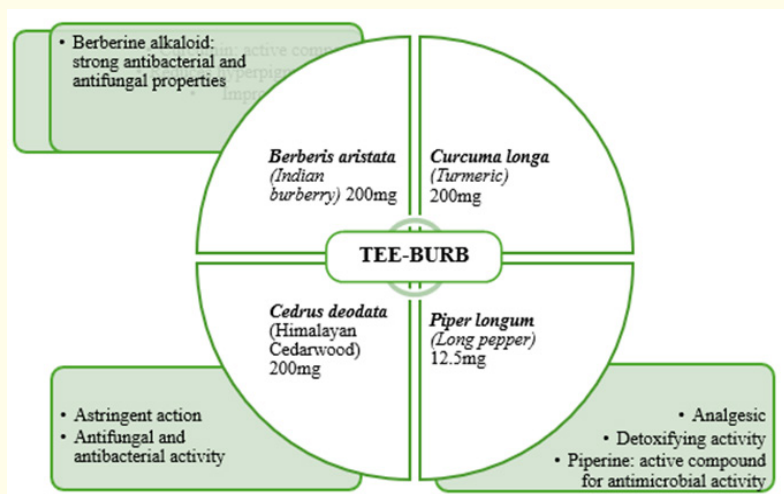


Figure a

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