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Hydrallantois with concurrent schistosomiasis and amphistomiasis in a crossbred cow: A case report

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Abstract

Hydrallantois is one of the gestational disorders in which sudden increase in allantoic fluid occurs in allantoic cavity due to foetal membrane pathology leading to bilateral distension of abdomen. A four year old cross-bred cow was presented to TVCC, Mannuthy with overdilated abdomen, foetid diarrhoea with blood, dyspnoea, dyspepsia and inappetance. Animal was six months pregnant. Clinical examination revealed a subnormal temperature (98.5°F), lymphadenopathy, congested mucous membrane and sunken eyes. Peripheral blood smear examination was negative for haemoparasites. Faecal sample examination exposed heavy infestation of *Schistosoma spindale* and Amphistome ova. Per rectal examination revealed highly distended uterus, the foetus was failed to ballote inspite fremitus was evident on left middle uterine artery. Intravenous injection of calcium borogluconate was given @ 1.5 ml/Kg BW supported with fluids (Dextrose normal saline and ringer's lactate). Strict intravenous injection of tartar emetic was administered @ 1mg/kg BW as 1% solution with normal saline on alternate days for an overall three occasions. Oxytocin was also given @ 10 mg/Kg BW orally on alternate days for two times supported with oral haematinics. Based on poor health status, respiratory distress and overdilated abdomen, it was decided to terminate pregnancy with intramuscular injection of dexamethasone (25mg) and PGF_{2α} (500 mcg). After 24 hrs of induction two finger dilatation of cervix was noticed followed by escape of copious quantity of light yellow coloured fluid. Foetus was presented in the pelvic brim with posterior presentation after 36 Hrs of induction and a large quantity of fluid was further drained out. On per vaginal examination, foetal anasarca was noticed which was relieved by manual traction with ample lubrication. Fluid therapy at continuous rate and dexamethasone was given as follow up therapy. Intramuscular injection of ceftiofur sodium @ 2.2 mg/Kg BW was given for three days.

Keywords: Bovine, hydrallantois, amphistomiasis, schistosomiasis

1. Introduction

Hydrallantois and hydroamnios are the most common dropsical conditions of the foetal membranes and foetus in cattle. Hydrallantois attributes to 85 to 90 per cent of dropsical conditions in bovines (Peek, 1997, Noakes *et al.*, 2009) [5, 7] and occur in the late gestation. Placental dysfunction is considered to be the main cause of hydrallantois, which includes adventitious placentation, deficiency of caruncles. The deficiency can be congenital or due to acquired disease of uterus prior to the onset of condition. It is a sporadic condition and major risk is associated with multiple foetus pregnancies.

The structural and functional defects in the caruncles lead to excessive and rapid accumulation of fluid measuring 150 to 225 litres in the uterus. The transudative fluid resembles plasma comprising of electrolytes like sodium, potassium chloride etc. The elevated values of these electrolytes in the allantoic fluid of hydrallantois cow have been reported. Foetal hydronephrosis is also said to contribute to the rapid fluid accumulation in the uterus.

Hydrallantois is usually treated by terminating the pregnancy by Cloprostenol sodium (PGF_{2α}) and corticosteroids, although sudden removal of allantoic fluid can lead to hypovolemic shock which can be avoided by slow and continuous removal of the same. Transcervical allantocentesis has been adopted for slow removal of the fluid by the use of catheters (Palanisamy *et al.*, 2016) [6].

Amphistomiasis and schistosomiasis are two common fluke diseases prevalent in Kerala (Dhivya *et al.*, 2018) [1]. Wet, swampy grazing areas with snail habitats expose cattle population to these diseases. *Schistosoma spindale* and *Schistosoma indicum* are the most common cause of visceral schistosomiasis. The affected animals are usually subclinical but higher prevalence predisposes to other parasitic and bacterial diseases (Digraaskar *et al.* 2018) [2]. The spined eggs of schistosoma *spp.* are responsible for the pathology and clinical manifestations which include diarrhoea mixed with blood or mucous, weight loss, dehydration,

emaciation and decreased production. Mature amphistome adhere to rumen and immature ones attach themselves to duodenum which decreases the feed conversion leading to debility, loss of production and foul smelling diarrhoea often mixed with blood, leading to mortality in young cattle population.

The clinical case of hydrallantois with concurrent schistosomiasis and amphistomiasis is presented in this case report.

2. Material and methods

2.1 Anamnesis

A four year crossbred dairy cow was presented to TVCC, Mannuthy with a complaint of overdistended abdomen, foetid bloody diarrhoea, dyspnoea and inappetence for few weeks. The animal calved one year back without complications. Deworming history was not proper.

2.2 Clinical Examination

Animal was dull, depressed and emaciated with a subnormal temperature of 98.5°F and a bilaterally distended abdomen. Clinical parameters were within normal range. Foul smelling mucous coated diarrhoea and malena was observed. Per rectal palpation revealed sluggish fremitus of left middle uterine artery and highly distended uterus in the abdominal cavity with non-palpable foetus and placentomes. Vaginal examination revealed that the cervix was closed. No haemoprotozoans were evident on peripheral blood smear examination. Faecal sample examination revealed heavy infestation of napoleon hat shaped eggs of *Schistosoma spindale* and *Amphistome* ova. Based on history, clinical signs, per rectal examination, vaginal examination, the case were diagnosed as hydrallantois with concurrent amphistomiasis and schistosomiasis.

3. Treatment

Schistosomiasis was treated by administering intravenous injection of tartar emetic @ 1mg/kg bwt. As 1 per cent solution thrice at 48 hour interval. Oxytocin was given @ 10 mg/Kg BW orally on alternate days for two times supported with oral haematinics to treat amphistomiasis specifically. Fluid therapy included ringers lactate solution and dextrose normal saline intravenously. Oral haematinics were also advised for ten days. As the animal was experiencing respiratory distress with over distended abdomen, it was decided to terminate the pregnancy by administering 500mcg of cloprostenol sodium and dexamethasone (25mg) intramuscularly.

4. Results

Twenty four hours after administration of cloprostenol sodium and dexamethasone, per vaginal examination revealed two finger dilation of cervix through which allantoic fluid evacuated slowly. An anasarca foetus was presented 36 hours after induction in posterior presentation, which was tracted out manually with ample lubrication. The placenta was manually removed. Broad spectrum antibiotic Ceftiofur was administered intramuscularly @ 1.5mg/kg body weight for 5 days along with continuous fluid therapy, corticosteroid administration and supportive treatment. Vitamin supplements were given orally along with concentrate pellets. Animal recovered uneventfully after five days of treatment.

5. Discussion

Occurrence of snail borne trematode infections along with hydrallantois is rare, although has been managed successfully in this case report by treating specifically for individual disease. The animal was continuously made to graze in swamp areas around water bodies, which could have led to infestation of trematode through snails as intermediate hosts. The immature flukes of amphistomes get lodged in the duodenal villi and are responsible for reduced feed conversion and as these flukes mature they ascend towards the rumen where they mature as adults. They often obstruct the cardia and do not allow the gas to escape from rumen which causes free gas bloat (Nikpay *et al.*, 2019) [4]. Visceral schistosomiasis occurs initially as a subclinical manifestation where the affected animal act as carrier and remain threat to other animals in surrounding areas (Digraskar *et al.*, 2018) [2]. The pathogenicity of visceral schistosomiasis is mainly due to the spined eggs rather than the adult worms as they adhere to the intestinal villi and are responsible for bloody diarrhoea, loss of production and performance of animal (Sumanth *et al.*, 2004) [9].

Occurrence of these diseases along with hydrallantois could be fatal; hence earliest intervention of veterinarian is necessary in order to induce parturition. Hydrallantois is a single dropsical condition present in 85 to 90 per cent of dropsical conditions in bovines. It is characterised by rapid accumulation of allantoic fluid in the uterus at late gestation (Kumar *et al.*, 2019) [3]. The exact root cause of this condition is unknown but it has been stated that the abnormal functioning of chorio-allantois, adventitious placentomes, decreased number of caruncles, increased permeability of chorioallantoic membrane, hormonal imbalance, foetal hydronephrosis, multiple foetus, foetal liver diseases, collectively or individually lead to hydrallantois. The handling of hydrallantois depends on the severity of disease. It may not be diagnosed until rapid distention of abdomen in late gestation and is accompanied by severe accumulation of fluid in uterus which makes palpation of foetus very difficult per rectally. Hydrallantois must be differentiated from hydroamnios, intestinal obstruction, ascites, rupture of bladder, abdominal masses like tumour, abscess or fat necrosis, rumen tympany, extensive ventral edema, multiple fetuses (Roberts.,1970) [8]. PGF_{2α} and dexamethasone are recommended for termination of pregnancy and evacuation of fluid. Slow evacuation and aggressive fluid therapy is highly advised in order to compensate for the copious quantity of fluid and electrolyte loss. Common sequelae of hydrallantois include retained placenta and septic metritis and can be resolved by prior administration of ecbolics and antibiotics. Correction of parasitic infestation followed by termination of pregnancy is better in order to reduce stress of allantoic fluid evacuation and the animal in this case report successfully recovered by proper follow up and screening out the parasites from the body.

6. Conclusion

Hydrallantois and hydroamnios are the most common dropsical conditions of the foetal membranes and foetus in cattle. It occurs in the last trimester of pregnancy and consists of increased amount of fetal fluids in the amniotic sac or the allantois, known as hydramnios and hydrallantois, respectively. In the present case the animal exhibited all signs of hydrallantois and concurrent infestation of amphistomiasis and schistosomiasis. Timely intervention, treatment and

management helped to regain the health status of the animal.



Fig 1: Hematochezia (presence of fresh blood in the dung)

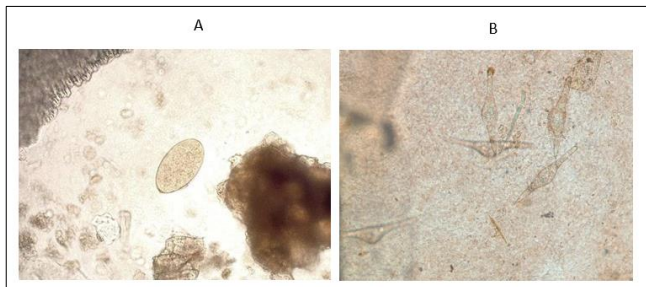


Fig 2: Faecal sample examination revealed presence of *Amphistome* ova (A) and *Schistosoma spindale* ova (B)



Fig 3: Severe bilateral abdominal distension secondary to hydrallantois is evident when this adult crossbred cow is viewed from the rear



Fig 4: Hind limbs of foetus presented after 36 hours of induction



Fig 5: Foetus affected with Anasarca



Fig 6: Active animals after fifth day of treatment

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