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Short Communication

Hydrallantois with foetal monstrosity in a Murrah crossbred buffalo: A case report

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Abstract

The case presents an eight-year-old pregnant Murrah crossbred buffalo with hydrallantois and an epitheliogenesis imperfecta foetal monster. Initial symptoms included bilateral abdominal distension, inappetence, and respiratory distress. Treatment included extensive fluid therapy, cervical dilation, and drainage of 75-80 liters of allantoic fluid. Electrolyte analysis revealed deviations compared to maternal plasma. Manual extraction of the non-viable fetus was done. Post-partum treatment included antibiotics, calcium administration, and recovery within 5 days. Hydrallantois arises from placental irregularities and disrupts sodium metabolism, requiring cautious management to avoid fatal complications during pregnancy termination.

Keywords: Buffalo, Epitheliogenesis imperfecta, Foetal dropsy, Hydrallantois

Highlights

- Physical examination revealed distended uterine horns without foetal or placental palpation and partial cervix dilation.
- Evident signs of dehydration, tachycardia, and tachypnea were observed.
- The buffalo received aggressive fluid therapy and drugs to dilate the cervix and underwent manual rupture of the allantoic bag to drain excessive fluid.
- The foetal monster, identified as epitheliogenesis imperfecta, was delivered after the intensive drainage process. Analysis of drained allantoic fluid revealed imbalanced electrolytes: high potassium, low sodium, and chloride.

Hydrallantois, rapid fluid accumulation in the allantoic cavity within 5-20 days (Morrow, 1986), is more prevalent than hydramnios, accounting for 5-10% of bovine dropsical conditions (Peek, 1997). It is linked to dysfunctional uterus areas and hypertrophied placentomes, fostering adventitious placental structures (Drost, 2007). Causes of hydrallantois include foetal deformities, hepatic or renal issues, and umbilical cord torsion (Jackson, 2006; Landim-Alvarenga, 2006). Foetal monsters, severely malformed fetuses, often result from genetic or environmental factors (Purohit *et al.*, 2012), occurring at 0.5% in general (Craig, 1930) but reaching 7.9-12.8% in riverine buffaloes (Singla *et al.*, 1992). The present case documented hydrallantois in a Murrah crossbred buffalo concurrently afflicted with an epitheliogenesis imperfecta foetal monstrosity.

An eight-year-old pregnant Murrah crossbred buffalo at day 242 of gestation was presented with bilateral abdominal distension persisting for past15 days (Fig. 1), alongside inappetence, reduced water intake, dyspnea, and reluctance to move. Prior local treatment with antihistaminic (Pheniramine maleate- Avilin®; Intervet India) 10 mL and antibiotic (Enrofloxacin- Flobac-SA®; Intas Pharmaceuticals) 25 mL was undertaken.

Physical examination indicated a rectal temperature of 101°F, 2-3% dehydration, tachycardia (110 bpm), tachypnea (40/min), reduced responsiveness, and weak ruminal contractions (1 every 2 mins). Trans-rectal and vaginal exams revealed distended uterine horns without foetal or placental palpation and partial cervix dilation (3-4 fingers) with substantial pressure causing ventral deviation.

Before any intervention, the buffalo was rehydrated with crystalloid i.e., normal saline (Aardex-DNS®; Aarna Healthcare) and ringer's lactate (RL-solution®; Otsuka Pharmaceuticals) 7.5 L with bilateral cannulation of the ear vein. After intensive fluid therapy, the buffalo was treated for dilation of cervix using intramuscular administration of D-cloprostenol (Zolcol-D®; Carrus Laboratories) 150 µg and valethamate bromide (Epidosin®; Ttk Healthcare) 80 mg. After 3 hours of induction, an attempt was made to manually rupture the allantoic bag; however, owing to the thickness of its wall, the puncturing action necessitated the utilization of the barrel, typically designated for bovine discharge collection, in order to facilitate the procedure. Similar fluid therapy was carried out to prevent the buffalo from hypovolemic shock. Allantoic

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Foetal monster in a hydrallantoic buffalo

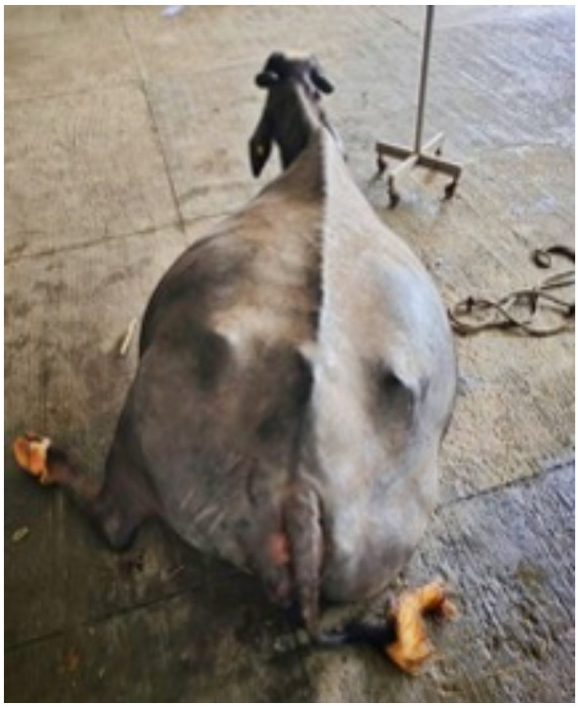

Fig. 1. Bilateral abdominal distension

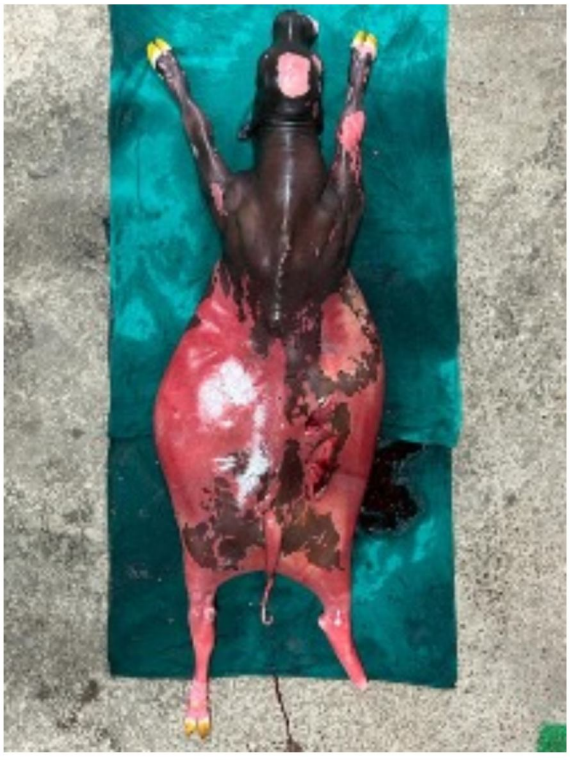

Fig. 2. Epitheliogenesis imperfecta (Foetal monstrosity)

Table 1. Electrolyte profile of allantoic fluid and maternal plasma

Electrolytes	Allantoic fluid	Maternal plasma
Sodium	93.7 mMol/L (PL)	132.9 mMol/L (L)
Potassium	6.730 mMol/L (H)	3.277 mMol/L (L)
Chloride	73.9 mMol/L (L)	93.7 mMol/L
Ionized calcium	2.565 mMol/L (PH)	1.300 mMol/L
Total calcium	20.466 mg/dL (PH)	10.376 mg/dL

fluid drainage continued for 26 h and 75-80 L of allantoic fluid was drained. During this procedure, the allantoic fluid was aseptically collected for evaluation of the electrolytes (Table 1). Subsequent to the drainage, the fetus was tactically assessed, revealing a posterior longitudinal presentation with dorso-sacral position. Furthermore, discernible signs indicating viability were notably absent. Consequently, manual extraction was attempted and foetal monster identified as epitheliogenesis imperfecta was delivered (Fig. 2).

The dam received post-foetal removal treatment: oxytocin (Evatocin®; Neon Laborataries) 75 I.U., strepto-penicillin (DCR-CON®; Perfocon) 5 gm, flunixin meglumine (Megludyne®; Virbac) 12 mL, and pheniramine maleate (Avilin®; Intervet India) 10 mL intramuscularly. Additionally, calcium magnesium borogluconate (Mifex®; Elanco) 450 mL was slowly administered intravenously. Complete recovery ensued after 5 days, with no post-partum complications observed for 60 days.

Hydroallantois, a gestational disorder, stems from excessive fluid production in the allantoic sac, mirroring blood plasma (Kapadiya *et al*., 2018). Placental irregularities and sodium metabolism disruptions drive fluid accumulation, causing abdominal distension and respiratory distress (Arthur *et al*., 1989). This weight increase impedes movement and can prove fatal for the dam (Noakes *et al*., 2009). During pregnancy, allantoic fluid's electrolyte and creatinine concentrations resemble extracellular fluid, but by the third month, variations emerge. Chloride levels remain consistently low compared to plasma, declining until the eighth month, while sodium and potassium display an inverse relationship (Skydsgaard, 1965). Treatment involves terminating the pregnancy with prostaglandin F2α and corticosteroids (Manokaran *et al*., 2011). However, sudden fluid removal risks hypovolemic shock and collapse (Peiro *et al*., 2007).

Removing the fetus vaginally post-complete allantoic fluid evacuation risks respiratory distress and possible fatality from abdominal pressure. Terminating pregnancy in hydrallantois poses hypovolemic shock risks, emphasizing the critical need for cautious fluid therapy in management strategies.

Conflict of interest: The authors declare that they have no conflict of interest.

Authors contribution: AA, AS, PS: Concept, design and drafting; PS, AS, A, PS: Assisted in post-treatment follow up.

Data availability statement: Data from research are given in the paper, and if any data is needed, it will be available upon request.

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