

Hydroamnios Associated with Foetal Arthrogryposis in a Murrah Buffalo

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Abstract

The present case report describes dystocia in a Murrah buffalo complicated by hydroamnios and fetal arthrogryposis. The foetus exhibited bilateral flexion at the shoulder joints along with arthrogryposis affecting all four limbs. To facilitate delivery, fetotomy was carried out at the shoulder joint of the right forelimb. As the foetus was relatively small, it was subsequently delivered by applying traction using an obstetrical chain placed around the fetal neck.

Keywords: Arthrogryposis, Buffalo, Hydroamnios, Shoulder Flexion.

Introduction

Hydroamnios is an uncommon pathological condition of pregnancy, marked by progressive accumulation of amniotic fluid leading to gradual and steady enlargement of the dam's abdomen over several weeks to months, which becomes apparent mainly during the last trimester (Drost, 2007). This condition accounts for about 5–10% of uterine dropsy cases, and the prognosis for the survival and future fertility of the dam is generally fair to good (Roberts, 2004). Hydroamnios is consistently associated with particular fetal anomalies, especially defects involving the facial region (Mehra *et al.*, 2012). The most commonly reported congenital skeletal deformities include cleft palate, brachygnathia, achondroplasia, congenital paunch calf syndrome, complex vertebral malformation, arachnomelia, short spine lethal syndrome, perosomus acaudatus, and syndactyly (Gentile & Testoni, 2006).

Arthrogryposis is a severe form of tendon contracture with multiple articular rigidity. It is a documented congenital anomaly in cattle (Prasad *et al.*, 2010; Sarma *et al.*, 2010) as well as in buffaloes (Singh *et al.*, 2019; Dutt *et al.*, 2021). The condition may also develop following prenatal infections with Akabane and Bluetongue viruses (Sarma *et al.*, 2010) or due to the consumption of alkaloid-containing toxic plants during gestation (Natkar *et al.*, 2024). The present case report outlines the clinical management of hydroamnios associated with foetal arthrogryposis in a Murrah buffalo.

Case History and Observations

A seven-year-old Murrah buffalo in third parity and at full term of pregnancy was reported to VCC, LUVAS Hisar during off-peak hours, with a history of rupture of both the water bags prior to presentation. Besides, there was the history of oozing of around 40 litres of viscid fluid at the time of rupture of second water bag. Anamnesis revealed slow abdominal distension over last few weeks and months. The dam was straining since last four hours and no further progress was recorded. Further, the case was attended by local paravet at farmer's door step and only the muzzle part of the fetus was approachable. The case was referred to VCC, LUVAS for further treatment. After giving epidural anaesthesia with lignocaine hydrochloride 2% (3.5 ml) and with proper lubrication with liquid paraffin, per-vaginal examination was carried out. Clinico-gynaecological examination revealed fully dilated cervix, bilateral shoulder flexion, forelimbs affected with arthrogryposis and comparatively smaller sized fetus. So, fetotomy was planned to deliver the foetus.

Treatment and Discussion

The right fetal forelimb was amputated at the shoulder joint by fetotomy. Then, the foetus was delivered by applying traction with an obstetrical chain looped around the foetal neck (Fig. 1). Presence of larger amount of amniotic fluid in the uterus, complete cervical dilatation and smaller size of foetus could make the delivery feasible with completely flexed forelimb. There was arthrogryposis in the forelimbs affecting knee, fetlock, pastern and coffin joints. Likewise, in both the hindlimbs, arthrogryposis was observed involving hock, fetlock, pastern and coffin joints. Considering the case of hydroamnios, attempt was made to replenish the fluid loss and to prevent the dam from hypovolaemic shock, 10 litres of normal saline solution and inj. Dexamethasone 40 mg I/M, were administered intravenously. Then, the animal was administered with injection chlorpheniramine maleate 227.5mg I/M, injection Ceftiofur sodium 1 g I/M, injection Ascorbic acid 7.5g I/V, and injection Flunixin Meglumine 1000mg I/M for 5 days. Injection Oxytocin 50IU I/V in 500 ml normal saline solution, injection Cloprostenol 500 microgram I/M and injection Calcium Borogluconate 450ml slow I/V were administered once. Injection Normal saline solution (NSS) 5 litres was administered twice a day for next 5 days intravenously. Besides, injection Metronidazole 5000mg/1000 ml I/V was given for three days. The dam recovered without any post-partum complications.

Hydroamnios is considered a congenital condition associated with the expression of a recessive autosomal gene and is frequently linked with developmental abnormalities resulting in fetal malformations (Roberts, 2004). Mehra *et al.* (2012) documented clinical manifestations including knuckling of the forelimbs along with deformities of the maxilla and mandible. Administration of fluid therapy is commonly recommended to restore altered fluid and electrolyte balance in affected buffaloes. Such derangements may occur as a direct consequence of excessive fluid accumulation within the uterus or indirectly due to compromised feed intake and associated gastrointestinal disturbances observed in cases of hydroamnios (Parmar *et al.*, 2024).



Fig. 1: Foetus affected with arthrogryposis

Nevertheless, there is no consensus on the requirement for rapid intravenous infusion of large volumes of fluids during parturition. While some authors advocate fluid therapy to minimize the risk of shock following abrupt expulsion of uterine and placental fluids (Roberts, 2004), others argue that the loss of fluid is primarily confined to the uterine compartment rather than the systemic circulation, and hence routine aggressive fluid administration may not be warranted. In the present case, the onset of parturition was spontaneous, which could be attributed to the normal development of the fetal head.

Conclusion

Early presentation of hydroamnios and dystocia to referred centers allows timely intervention, reduces complications during delivery, lowers treatment costs, and significantly improves the chances of survival and recovery of the dam.

Contribution by Authors

All the authors contributed equally to writing the manuscript. The final manuscript was read by all authors and consented to publication.

Conflict of Interests

There is no conflict of interest.

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