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Effective management of hydrallantois due to fetal hydro-nephrosis in a pluriparous non-descript doe

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Abstract
A full-term pregnant doe presented with the history of bilateral abdominal distention. The case was diagnosed as hydrallantois based on the history, clinical signs and ultrasonographic examination. The doe was treated with Inj. Cloprostenol (125 mg, I/M) and Inj. Dexamethasone (10 mg, I/M) to induce kidding. The time taken to drain allantoic fluid, the amount of fluid drained and the time taken for complete cervical dilation were recorded. The histopathology of fetal kidney revealed hydronephrosis. Intravenous fluids, antibiotics, and antihistamines were administered to the animal for 5 days and the animal recovered uneventfully.

Keywords: Hydrallantois due, fetal hydro-nephrosis, pluriparous non-descript doe

Introduction
Abnormal fluid accumulation within the allantoic portion of the placenta (Alagar *et al*., 2017) [1] due to diseased uterus with non-functional caruncles and reduction in the number of caruncles (Peek, 1997) [13] is called as hydrallantois. Hydrallantois frequently reported in bovines, bubaline and equine and rarely reported in small ruminants and canine (Milton *et al*., 1989; Kumar *et al*., 2012 and Selvaraju *et al*., 2020) [9, 4, 18]. Abnormal abdominal distension (Drivers and Peek, 2008) [3], respiratory distress, depression, difficulty in standing and walking and a tendency to adopt a recumbent posture (Meng *et al*., 2019) [8] are common clinical signs reported in affected animals. The usual treatment for hydrallantois is medical termination of pregnancy but hypovolemic shock due to sudden loss of uterine fluid could be the reason for sudden death with this protocol (Peiro *et al*., 2007) [14]. The present paper describes an effective therapeutic and obstetrical management of hydrallantois due to fetal hydronephrosis in a pluriparous non-descript doe.

Case history and clinical observation
Non-descriptive full term pregnant pluriparous doe was presented with history of bilateral distention of abdomen (Fig. 1), anorexia, respiratory distress, expiratory grunt, first degree of rectal prolapse for past 5 days to the Veterinary Clinical Complex, Large Animal Obstetrics ward, Veterinary College Research Institute, Namakkal. Physiological parameters were within normal range. Vaginal examination revealed that passage was patent and cervix had one finger of dilatation. On ultrasonographical examination scattered placentomes and fluid filled dilatation of fetal kidney (Fig. 3) was noticed. Based on owners' history, clinical observation and ultrasonographical examination the present case was diagnosed as hydronephrosis and it was decided for medical termination of pregnancy (MTP).

Treatment and Discussion
Medical Termination of pregnancy by Inj. PGF2α (125 µg, i/m) and Inj. Dexamethasone (10 mg, i/m) was done. Vaginal examination after 24 hours revealed 3 fingers dilatation and allantoic bag ruptured 38 hours later. After the complete cervical dilatation dead nonviable, male fetus was relieved by mutation operations and placenta was removed manually. After the fetal delivery doe was treated with Inj. Calcium borogluconate (30 ml) inj. Normal Saline (500 ml), inj. DNS (250 ml), inj. Ringer lactate (150 ml) and Inj. Oxytocin (10 IU) by intravenous route and inj. Enrofloxacin (150 mg), inj. Meloxicam (15 mg) and inj. Chlorpheniramine maleate (2 ml) were administered intramuscularly. After a proper postoperative treatment complete recovery was reported in affected doe (Fig. 3).

Postmortem examination (Fig. 5) of fetus revealed protrusion of cortex region from renal capsule of right kidney and diffused dilatation of renal tubules, detachment of renal epithelium and atresia of tubules were reported by histopathology of affected kidney which clearly indicate the condition of hydronephrosis (Fig. 6).

Hydrallantois is most common pathological condition among the placental dropsical condition in bovine and less frequently reported in sheep and goat (Sachan *et al.*, 2018) [19]. Occurrence of sudden abdominal enlargement within 5 to 20 days during last trimester of pregnancy in bovines (Selvaraju *et al.*, 2020) [18] and midgestational in goat (Purohit, 2006) [16] were reported by various authors and in this present case it was reported during the last month of pregnancy. The normal volume of allantoic fluid in small ruminant's ranges between 0.5 to 1.5 liters (Mary *et al.*, 2009) [7] and 6 to 18 liters of allantoic fluid accumulation were reported in small ruminants affected by hydrallantois (Philip *et al*., 2012) [15]. In present case the measured volume of allantoic fluid was 11 liters. Fetal edema (Morin *et al.*, 1994) [12], diseased placentomes (Bhattacharyya *et al*., 2012) [2], uterine diseases (Mobini *et al*., 2002) [11], loss of caruncle, abnormal functioning of placentomes (Misri, 2001) [10] congenital defect (Manokaran *et al*., 2011 and Peek, 1997) [6, 13] and anasarca twining (Philip *et al*., 2012) [15] were the various etiological or pathological condition for occurrence hydrallantois in various farm animals reported by several authors. Fetal hydro-nephrosis and diseased placenta were reported in this present case and effective management of this condition by MTP with fluid therapy in order to avoid circulatory shock. Similar treatment protocol also reported in doe by Manokaran *et al.* (2005) [5] for successful recovery from hydrallantois.

Fig 1: Full term pregnant doe with bilateral distension of abdomen

Fig 2: Healthy doe after recovery

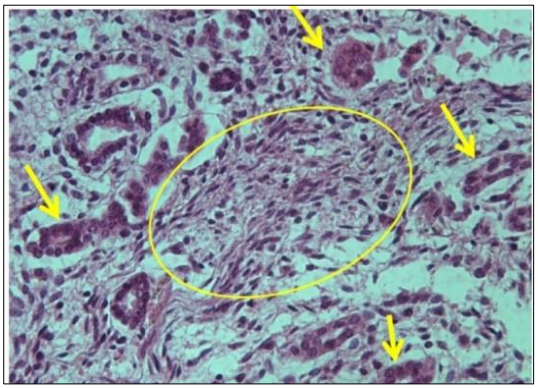


Fig 3: Inter-tubular fibrosis causing compression of tubules

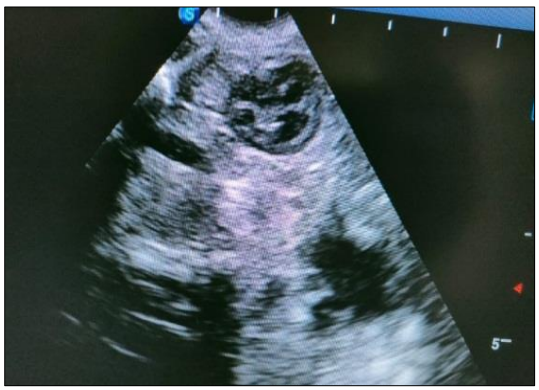
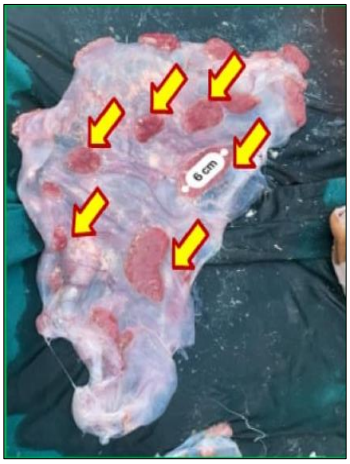


Fig 4: Ultrasound examination of fetus it was revealed that fetal kidney have fluid filled cystic dilatation



Normal Placenta normal crowded cotyledons

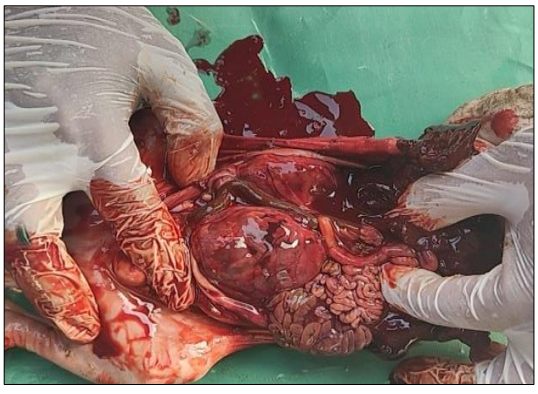
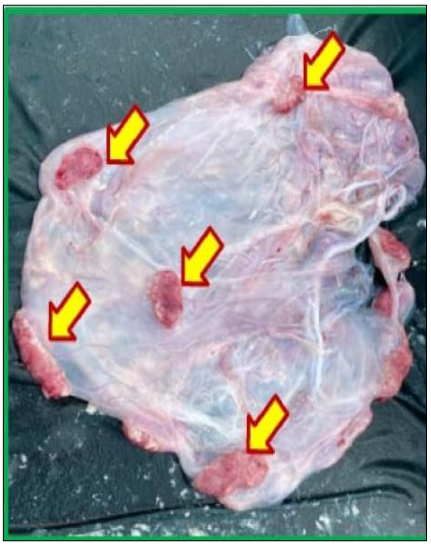


Fig 5: On postmortem examination of fetus it was noticed that there was a protrusion of cortex from renal capsule



Abnormal Placenta with reduced cotyledons

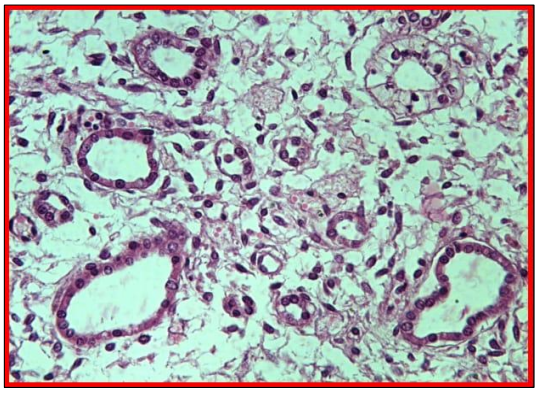


Fig 6: Dilatation of tubular lumen with detachment of renal epithelium

Conclusion

From this present case it was conclude that congenital defect also has correlation with occurrence of hydrallantois and induction of parturition is best therapeutic approach than C-section for the treatment of hydrallantois to prevent hypovolemic shock in goats.

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