



CLINICAL MANAGEMENT OF HYDRALLANTOIS DUE TO FETAL ASCITES WITH CYSTIC FETAL KIDNEYS AND ADVENTITIOUS PLACENTA BY TRANSCERVICAL ALLANTOCENTESIS IN A CROSSBRED JERSEY COW

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ABSTRACT

A Jersey crossbred cow on its second parity was presented to Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal with an anamnesis of pregnant about nine months having sudden onset of bilateral abdominal distension and anorexia for two days. Per rectal examination revealed distended fluid filled gravid horn obliterating the whole abdominal cavity and unable to palpate the placentomes and fetus. Per vaginal examination revealed closed external os of cervix. Sonographic examination of the uterus revealed less numbers of placentomes and unable to locate the fetus. Based on the anamnesis, clinical and ultrasound examination the case was diagnosed as hydrallantois. Hence, it was decided to terminate the pregnancy with 500 µg of Cloprostenol i/m and 40 mg of Dexamethasone i/m. Fluid loss was replaced daily by intravenous fluid therapy and Inj. Enrofloxacin was administered @ 5 mg/ kg b.wt i/m. The animal was examined for every 24 hours to assess the extent of cervical dilatation. After 48 hrs of administration, 18G Foley's catheter was inflated and fixed transcervically so as to facilitate slow release of fetal fluids to prevent hypovolemic shock. After 72 hrs of Cloprostenol administration, cervix was fully dilated and a dead female fetus was delivered by traction. Examination of the fetus revealed ascites with cystic kidneys. Examination of placenta revealed adventitious placentation. The cow was clinically treated with antibiotic, antihistamine and intravenous fluids for three days and recovered uneventfully.

KEYWORDS: Cow, Hydrallantois, Fetal ascites, Cystic Kidneys, Foley's catheter.

INTRODUCTION

Hydrallantois is a pathological condition affecting pregnant uterus characterized by a rapid accumulation of watery, amber colored fluid inside the allantoic cavity over a period of 5 to 20 days in late gestation (Morrow, 1986). It is usually related with a diseased uterus in which most of the caruncles in one horn are not functional and rest of the placentomes are greatly enlarged and possibly diseased (Roberts, 1971). A reduction in the number of cotyledons has also been associated with hydrallantois (Peek, 1997). Decreased active transport of sodium across the chorio-allantoic membrane, increased permeability of the chorio-allantoic membrane, hormonal imbalances, fetal renal disease (Morin *et al.*, 1994). Fetal ascites is seen as an occasional cause of dystocia in many species but occurs most often in the cow (Roberts, 1971). The physiopathology of hydrallantois is related to the reduction of placental vascularization resulting in metabolic changes in the placental tissue and fetal membranes thereby accumulating fetal fluids. Additionally fetal malformation, fetal hepatic or renal disorders (e.g., hydronephrosis) and umbilical cord torsion also cause hydrallantois (Landim-Alvarenga, 2006 and Jackson, 2006). Hydrallantois could usually be associated with a diseased uterus in which most of the caruncles in one horn were not functional and atrophied and rest of the

placentomes were enlarged, edematous and possibly diseased which led to formation of adventitious placenta (Drost, 2007).

Hydrallantois is usually treated by terminating the pregnancy using prostaglandin F₂ and corticosteroids (Manokaran *et al.*, 2011) but the sudden removal of allantoic fluid leads to hypovolemic shock and collapse of the animal (Peiroet *et al.*, 2007). This case reports a rare case of hydrallantois due to fetal ascites with cystic kidneys and adventitious placenta and its successful management in a jersey crossbred cow.

CASE HISTORY AND OBSERVATION

A rare case of hydrallantois in a jersey crossbred cow on its second parity was presented to Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal, with the anamnesis of pregnant about nine months having sudden onset of bilateral abdominal distension (Fig. 1) and anorexia for two days. Per rectal examination revealed distended fluid filled gravid horn obliterating the whole abdominal cavity and unable to palpate the placentomes and fetus. Per vaginal examination revealed closed external os of cervix. Sonographic examination of the uterus revealed less numbers of placentomes and unable to locate the fetus. Based on the anamnesis, clinical and ultrasound

examination the case was diagnosed as hydrallantois and it was decided to perform trans-cervical allantocentesis to remove the excessive allantoic fluid and also to terminate the pregnancy.

TREATMENT

The pregnancy was terminated with Cloprostenol sodium (500µg, i/m) and Dexamethasone (40mg, i/m). Further, the animal was stabilized with the intravenous fluids at 12 hours interval. The animal was examined for every 24 hours to assess the extent of cervical dilatation. After 48 hrs of termination, 18G Foley's catheter was inflated and fixed transcervically (Fig. 2) at the level of internal os of the cervix so as to facilitate slow release of fetal fluids to prevent hypovolemic shock. After 72 hrs of Cloprostenol

administration, cervix was fully dilated and a dead female fetus with fetal ascites was delivered by traction. Examination of the fetus revealed fetal ascites (Fig. 3) with fluid accumulation in the peritoneal cavity (Fig. 4). The necropsy of the fetal showed cystic fetal kidneys (Fig. 6) and cystic fluid oozed out upon incising the kidneys (Fig. 7). Examination of placenta revealed adventitious placentation (Fig. 6). The cow was administered with Inj. Ringers lactate (5 lit, i/v), Inj. DNS (5 lit, i/v), Inj. D25% (2 lit, i/v) Inj. Calcium borogluconate (450 ml, i/v), Inj. Oxytocin (40 IU), Inj. Enrofloxacin (5 mg/kg, i/m), Inj. Meloxicam (15 ml, i/m) and Inj. Chlorpheniramine maleate (0.5 mg/kg, i/m) for three days and the dam recovered uneventfully.

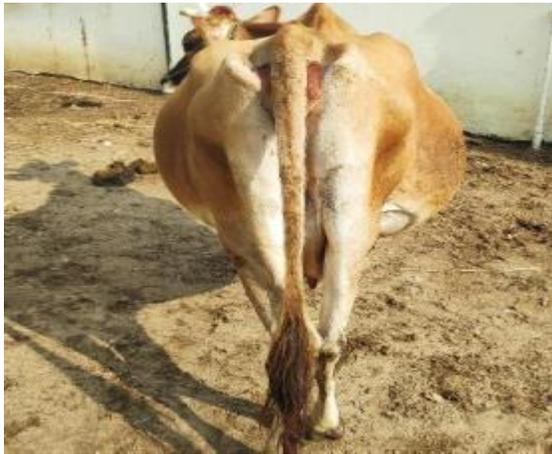


FIGURE 1: Bilaterally distended abdomen



FIGURE 2: Transcervical allantocentesis using 18 G Foley's catheter



FIGURE 3: Fetal ascites

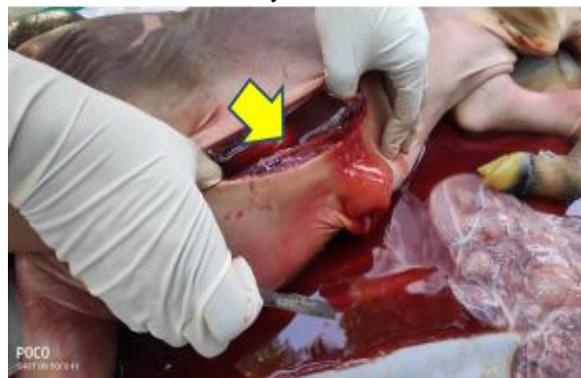


FIGURE 4: Fluid accumulation in the peritoneal cavity



FIGURE 5: Adventitious placenta



FIGURE 6: Cystic fetal kidneys



FIGURE 7: Fluid on incising the fetal kidney

DISCUSSION

Hydroallantois could usually be associated with a diseased uterus in which most of the caruncles in one horn were not functional and atrophied and rest of the placentomes were enlarged, edematous and possibly diseased which led to formation of adventitious placenta (Drost, 2007). Sometimes, the adventitious placentae are formed due to congenital lack of maternal caruncles (Roberts, 1971). The polyurea resulted from the hydronephrosis of fetal kidneys was also a cause for excessive accumulation of the fluid inside the allantoic cavity. Decreased active transport of sodium across the chorioallantoic membrane, hormonal imbalances increased permeability of the chorioallantoic membrane, multiple foetus in the uterus, fetal liver disease, fetal renal disease, uterine torsion or twisting of the umbilical cord, deficiency of vitamin A causing decreased endometrial resistance to infections, malnutrition conditions and heart or renal diseases may contribute the hydroallantois process (Morin *et al.*, 1994). Excessive volume of fluid is observed accompanied by the presence of a poorly viable, small or defective fetus. Increased hydraulic pressure on diaphragm due to massive abdominal enlargement causes difficulty in breathing there by treatment should be directed towards evacuation of uterus and termination of pregnancy by use of prostaglandins or caesarean. If a large volume of allantoic fluid in the uterus is expelled rapidly, circulatory shock can develop (Misri, 2001). Bhattacharyya *et al.* (2012) and Morin *et al.* (1994) preferred caesarian section for relieving severe abdominal discomfort and respiratory distress. In the present case, it was decided to terminate the pregnancy of the dam using Cloprostenol (Synthetic PGF₂) and corticosteroid Dexamethasone and further to remove the excessive allantoic fluid in a slow manner to prevent hypovolemic shock trans-cervical allantocentesis using 18 G foley's catheter was performed. At the same time to avoid shock due to sudden expulsion of allantoic fluid, trans-cervical allantocentesis was performed with Rusch catheter (Manokaran *et al.*, 2011). Simultaneous fluid replacement through intravenous route helped to avoid the shock due to fluid loss. Various methods to induce parturition in cattle suffering from hydrallantois were reported in the literature including use of natural or synthetic PGF₂ preparation (Manokaran *et al.*, 2011). The common sequelae of hydrallantois are septic metritis and

retention of fetal membranes immediately after fetal delivery.

CONCLUSION

The present case reported the occurrence of hydrallantois due to combination of causes like fetal ascites with cystic fetal kidneys and adventitious placenta. Hence it was decided to terminate the pregnancy. At the same time to avoid shock due to sudden expulsion of allantoic fluid, trans-cervical allantocentesis was performed with Foley's catheter. This led to slow removal of excessive allantoic fluid. Simultaneous fluid replacement through intravenous route helped to avoid the shock due to fluid loss. The continuous treatment following removal of fetus resulted in uneventful recovery of the cow.

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Clinical management of hydrallantois

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