



Dystocia and Foetal Mummification in A West African Dwarf Doe (A Case Report)

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INTRODUCTION

Dystocia or difficult parturition in small ruminants may be due predominantly (up to 68-70%) to foetal or maternal factors (Jackson, 2004; Purohit, 2006). Foetal factors which may result in dystocia include twinning, monstrosities and mal-positioning- (posture/presentation) of the fetuses while the maternal factors include over-finishing of the doe, pregnancy in immature does and ring womb (Hetherington and Matthews, 1992). Not infrequently, dystocia in does may be caused by dysfunctions of the birth process like uterine inertia, uterine rupture and ectopic pregnancies (Purohit, 2006). The occurrence of dystocia varies among animal species (Noakes et al; 2009) and between goat herds because of the differences in management practices employed by different goat rearers (Purohit, 2006). It is however more frequent in twin pregnancies than singletons except where singletons are oversized (Majeed and Taha, 1989). Its incidence in goats generally is thought to be low (Rahim and Arthur, 1982; Mehta et al., 2002) even when compared with ewes (Purohit, 2006). Its incidence in the WAD doe is not quite known. In goats, dystocia may be diagnosed based on the case history and physical examination (Kene, 1991). However, more detailed diagnosis like the position and postures of fetuses, the

presence of mummies and the viability of fetuses require radiographic and/or ultrasonography examination both of which are considered cost effective only in high yielding or valuable stocks (Jackson, 2004; Purohit et al., 2006; Purohit, 2006). Actually however, the non-availability of such diagnostic aids, lack of adequate trained personnel and the inability of clients to meet costs are real and current constraints in the use of these diagnostic aids in the field, at least, in developing countries.

Most cases of dystocia in goats including the WAD doe are best treated by Caesarean Section (CS) because foetal mutation and traction or foetotomy are often impracticable on account of the small size of the birth canal especially in primigravidae does and the ease of creating adventitious vulva lacerations in goats (Omamegbe, 1977; Majeed, 1994; Mobili et al; 2002; Purohit, 2006).

Foetal mummification occurs when the foetus dies due to genetic defects, torsion or compression of the umbilical cord, placental defects or infections during the second or third trimester of gestation after the formation of the placenta and substantial ossification has occurred but is retained in utero due to a high blood level of progesterone (Roberts, 1962). Subsequent absorption of the amniotic and allantoic

fluids results in shriveled parchment-like foetal membranes resulting in papyraceous mummification or in viscous chocolate coloured deposits on the foetal membranes in haematic mummification (Noakes *et al.*, 2009).

KEYWORDS: D y s t o c i a .
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CASE HISTORY: A three year old, WAD doe weighing 20.0 kg with dystocia of about 18 hours duration, was presented at the department of Veterinary Surgery and Theriogenology of the Michael Okpara University of Agriculture, Umudike. The doe has had three previous successful parturitions. The doe which was in a herd of six other WAD goats was managed under an extensive/ free range system, feed occasionally with cut herbage and ran freely with several other does and bucks. On physical examination, only some scanty pinkish discharges and strands of foetal membranes but no foetal parts were visible in the perineum (Fig 1). The vital parameters - rectal temperature 38.5°C, the heart and respiratory rates 100 and 48 per minute respectively were within normal values for the breed (Merks Veterinary manual, 2005) except the respiratory rate which was considered high for the species.

FIG : THE PERINEAL REGION OF THE DOE AT PRESENTATION



- NB: A) The scanty strands of foetal membranes.
B) Absence of foetal parts externally.
C) Protruding anus close to head of the tail.

At presentation, parturition efforts had ceased, the visible mucous membranes were pinkish and the capillary refill time was less than two seconds. Milk was easily expressed from the engorged udder. Abdominal palpation revealed a solid mass on the right flank of the abdomen suggesting the presence of a foetus(es). No foetal parts were palpable during a deep digital intra-vaginal exploration under a lumbo-sacral lignocaine hydrochloride epidural block (Hall and Clarke, 1991) but the cervix was dilated. No foetal heart sounds were heard when an oesophageal stethoscope was inserted per rectum up to the mid-abdominal region of the doe

A diagnosis of dystocia due to mal-presentation and/or mal-positioning with non viable foetus(es) was made. It was decided to relieve the condition through a CS.

SURGICAL PROCEDURE The doe was sedated with an intramuscular injection of Xylazine® at a dose of 0.2mg/kg body weight. The doe was placed in right lateral recumbency and the left para-lumber fossa area was shaved, disinfected and prepared for an aseptic caeserotomy. The intended incision site was desensitized with a line infiltration of 2% lignocaine hydrochloride as described by Hall and Clark, (1991) because the previously induced lumbo-sacral epidural block had waned. The CS was executed through a routine left flank para-lumber laparotomy. On exteriorizing the uterus, a fresh but apparently pre-existing tear was found on its left horn and there was a large volume of amniotic and allantoic fluids in the peritoneal cavity (Fig 2). No foetus was found extra- uterine.

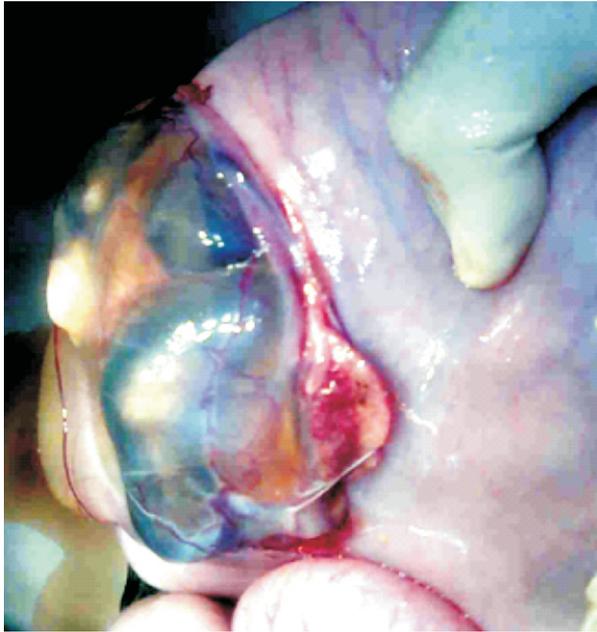


Fig 2: THE TORN PART OF THE LEFT UTERINE HORN.

Notice: A. Torn edges of the uterine horn,
B. Fresh haemorrhages on the torn edges of the uterus
C. foetal membranes with a foetal digit on the right side at about the 10.0 o'clock position

A dead but fully developed foetus in a transverse dorsal presentation and a right cephalo-iliac position was extracted from the left uterine horn after an extension of the tear on the uterus (Fig 3). A second but much smaller and mummified foetus in the right uterine horn was removed through the uterotomy incision on the left uterine horn. A large corpus luteum (CL) was found in the left ovary.

FIG 3: THE DEAD MATURED (A) AND MUMMIFIED (B) FOETUSES



The easily detachable foetal membranes were gently extracted from the uterus and the uterotomy incision was closed with double layers of inverting sutures using number 0 chromic catgut suture materials. The peritoneum and the muscles and then the skin incisions were closed sequentially in routine fashions with size 0- chromic catgut and size 0- silk sutures materials respectively in simple interrupted suture and continuous interlock suture patterns (Vandeplassche, 1981). The doe made steady and uneventful recovery under penicillin and streptomycin antibiotics, multivitamin complexes injections and ketorolac analgesic therapy until the fourth post operative day when the owner opted to slaughter it for meat against professional veterinary advice.

DISCUSSION

This case of dystocia in a WAD doe, like most previous reports (Omamegbe 1987; Majeed and Taha, 1989; Purohit, 2006), was apparently due solely to foetal factors. It seems that the uterus ruptured not as a result of surgical manipulation but during

parturition efforts because of continual contraction of the gravid uterus when the foetus(es) had not properly engaged the birth canal which, itself had been blocked by the mal-positioned and mal-presented matured foetus. In our experience, the fully grown and certainly the mummified foetuses were not over sized for the doe. It could not be determined when the matured foetus actually died but its mal-positioning would have been the main cause of the dystocia. This agrees with the observations of Mehta et al., (2002), Jackson (2004), Purohit et al., (2004) and Purohit, (2006) that foetal mal-positioning account for most cases of dystocia in small ruminants. It is not however known if the mummified foetus would have been delivered normally if the fully developed foetus had not obstructed the birth canal.

Foetal mummification is rare in goats but appears, like dystocia, to be more common in twin pregnancies than singletons (Matthew *et al.*, 1980; Tutt, 1991). In twin pregnancies, a mummified foetus could, as in this case, be a twin to a foetus that is carried to term. Foetal mummification in cows and goats are associated with a persistent CL because in both species pregnancy or retention of mummies is sustained by progesterone produced solely by the CL. (Matthew *et al.*, 1980). However, the presence of a normally developing foetus may well be the cause for the persistence of the CL which may have resulted in the retention of the dead foetus and its subsequent mummification in this case. In contrast, pregnancies in primates, the ewe, mare, guinea pig and queen are sustained by progesterone produced by the placenta and the CL (Martal and Cedard, 1993). In such species, the regression of the CL may not necessarily terminate a pregnancy of normal, mummified or mixed (mummified and normal) fetuses. Foetal mummification, defective

hypothalamo-pituitary-adrenal dysfunctions, viral diseases and toxicities are the common causes of protracted pregnancies or prolonged anaestrus in the doe (Jackson, 2004). Foetal mummification may be differentiated from the others radiographically and/or ultrasonographically only. Unfortunately, such diagnostic aids may not be readily available in the field locally and may not be considered economical (Kene, 1991) except in very valuable highly fecund twin; triplet or quadruplet bearing does (Oyedipe, 2007- personal communication; Purohit et al., 2006).

Losses of fetuses due to dystocia or mummification are relatively of more economic importance in the WAD goats which are raised mainly for meat than in milk producing cows and goats. This is because such losses translate to a total loss during the production period whereas in milking animals, the farmer may still make some reasonable revenue from milk sales during the milking period of the animal.

If a singleton or both twins in a pregnancy is/are both mummified, and are detected early, the medical treatment of choice would appear to be the administration of dexamethasone and prostaglandins to regress the CL so that the pregnancy terminates (Puohit et al., 2006). If one foetus of a twin or multiple pregnancies is mummified, such medical treatment would seem inappropriate except if administered very close to term. Such animals should be allowed to carry the pregnancy to term if detected early but should be watched very closely for any signs of prolonged or difficult delivery. Such cases should be delivered quickly by CS.

REFERENCES

HALL, L. W. and CLARKE, K. W. (1991):
Anaesthesia of the Sheep, Goat and

- other herbivores -Epidural and sub-arachnoid block In: *Veterinary Anaesthesia* 9th Ed. Bailliere and Tindall. London. 260-274.
- HETHERINGTON, L. and MATTHEWS, J. G. (1992). All about goats. Farming press books. 3rd Edition. Warefadale Road, Ipawich, IPI 4LG. U.K. 121-122.
- JACKSON, P. G. G (2004). Handbook of veterinary obstetrics. W. B. Saunders Co. Philadelphia.
- KENE, R.O.C. (1991): Radiographic investigation of dystocia in West African dwarf goat. *Br. Vet. J.* 147: 283-289.
- MAJEED, A. F. (1994): Obstetrical problems and their management in Iraqi goats. *Small Rumin. Res.* 14: 73 – 79.
- MAJEED, A. F. and TAHA, M. B. (1989): Dystocia in local goats in Iraq. *Small Rumin. Res.* 2: 375 – 381.
- MARTAL, J. and CEDARD, L. (1993): Endocrine functions of the Placenta, In: *Reproduction in mammal and man.* Thibault, C., Le Vasseur M.C. and Hunter, R. H. F. Eds., Ellipses, Paris, 435-459.
- MATTHEW, J., MADHAVEN, E. and TYAR, C. P. N. (1980): *Livestock Adviser* 80: 61.
- MEHTA, V., NAGAR, D., YADAV, R C., GARG, N and PUROHIT, G N (2002). Obstetrical problem in goats. V National Seminar. Indian Society for Sheep and Goat Production. Jaipur. Pp 151.
- MOBILI, S., HEALTH, A. M. and PUGH, D.G. (2002). Theriogenology of sheep and goats. In: *Sheep and Goat Medicine.* Pugh, D. G. Edition. W. B. Saunders Co. Philadelphia. 129-186.
- NOAKES D.E., PARKINSON, T. J. and ENGLAND, G.W. (2009): *Veterinary Reproduction and Obstetrics.* 9th Ed. Elsevier Ltd. London. 139-141, 209- 210, 367-368.
- OMAMEGBE, J. O. (1977): The incidence of dystocia in sheep and goats in the Nsukka area. *Nig. Vet. Journ.* 7: 51-57.
- OYEDIPE, P. N. (2007). Personal communication
- PUROHIT, G. N. (2006). Proceedings National Seminar on Innovations and Recent Advances in Small Ruminants Production. Avikanagar, Jaipur, India p 227-231
- PUROHIT, G. N, GUPTA, A. K., GAUR, M., SHARMA, A. and BIHANI, D. K. (2006). Periparturient disorders in goats- Aretrospective analysis of 324 cases. *Dairy goats J.* 84:24 - 33.
- RAHIM, A. T. A. and ARTHUR, G. H. (1982). Obstetrical conditions in goats. *Cornell Vet.* 72:729.
- ROBERTS, S. J. (1962): The enigma of fetal mummification. *J. Am. Vet. Med. Assoc.* 140: 691–698.
- THE MERCK VETERINARY MANUAL (2005). Ninth edition. Ready reference guide. 905- 914.
- TUTT, C.L.C. (1991). Postpartum mummification of a co-twin fetus in a Cameroon dwarf doe. *Vet. Rec.* 40: 229–231.
- VANDEPLASSCHE, M. (1981). Emryotomy and cesarotomy. In *The Textbook of Large Animal Surgery.* Oehme F. W. and Price J. E. Edition. Waverly Press Inc. Baltimore. USA 521-539.