DYSTOCIA IN A TEN MONTH OLD WEST AFRICAN DWARF GOAT SEQUELAE TO FAULTY BREEDING PRACTICE

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Received *March 19, 2022;* ***Revised*** *April 05, 2022;* ***Accepted*** *April 08, 2022*

ABSTRACT

Breeding of underage animals, though not encouraged in animal husbandry is still very common due to poor management systems in local settings in Nigeria. Although the worldwide incidence of dystocia in small ruminants is low (<4 %), it is still one of the most presented cases in veterinary clinics. A ten month old female West African Dwarf (WAD) goat was presented at the Veterinary Teaching Hospital, University of Ibadan with complaint of difficult labour noticed two days prior to presentation. No medication or assistance was given before presentation at the clinic. It was reported that the animal was primiparous and was kept a under semi-intensive management system with other goats. On clinical examination, an oversize foetal head was stuck in the cervix with a left-lateral deviation of the head complicated by unilateral shoulder flexion. The fetus was dead as a brownish pungent smell was dripping from the nose and mouth. This article describes emergency caesarian section in an underage doe due to absolute fetal oversize.

Keywords: WAD goat, Dystocia, Caesarean section, Foetal oversize, Incessant breeding, Management system

INTRODUCTION

Dystocia, also known as difficulty in birth plays a major role in the mortality of newborns and dams due to several factors including impairment of the birth canal and excessive traction forces during fetal manipulation (Brounts *et al*., 2004; Scott, 2005). Overall, dystocia in goats can be from the foetal or maternal background, it is important to recognise kidding difficulty promptly to treat dystocia (Noakes *et al*., 2009). Foetal factors related to dystocia as reported by Noakes *et al*. (2009) include oversize, abnormal disposition and monsters while maternal dystocia is traceable to factors such as the narrow pelvis, uterine inertia and insufficient cervical dilatation (also known as ringwomb). Foetal oversize is commonly seen in sheep; even in multiparous ones, while the incidence is seldomly recorded in goats as increased frequency of multiple kids reduce foetal oversize (Purohit, 2006a; Noakes *et al*., 2009). Most incidence of dystocia (20 – 30 %) is traceable to ringwomb (Noakes *et al*., 2009; Hussain and Zaid, 2010; Ali, 2011). The cause of ringwomb has been reported to be insufficient hormonal stimulation of cervical collagen or absence of response of collagen to hormonal stimulation (Palliser *et al*., 2006). Uterine inertia, one of the causes of dystocia has been reported to be occasionally seen in underage and inexperienced ewes (Ali, 2011). The second important cause of dystocia is the narrow pelvis as a result of a faulty

management system, particularly mating age and selection for easy parturition. Most of the time, the female may not have a fully developed pelvis and mature enough to carry heavy breed foetus (Hussain and Zaid, 2010; Ali, 2011).

In most developing countries such as Nigeria, there is great interest in small ruminant production as part of the solution to meet the demand for animal protein in an ever-growing population (Chiejina *et al*., 2015; Fasae *et al.,* 2015). Thus, goats are kept in various households and rural areas for various reasons, as the requirement for keeping them is relatively cheap (Olatunji-Akioye and Adeyemo, 2009). They are kept under a semi-intensive management system where they roam around most of the time for forage and the owners provide small food supplements (Purohit, 2006b; Abu *et al*., 2013). This management system encourages indiscriminate mating among underage goats, as there is no chance of selection and monitoring of the breeding process (Kosgey, 2004). To avoid financial implications associated with professional intervention, local farmers when faced with such cases often tend to keep the dams unnecessarily hoping for vaginal delivery, which eventually affects the case outcome. This practice can be detrimental to goat production as dystocia often results in the death of kids and dams when needed interventions are not promptly administered, most of the time these cases are presented late to the veterinary clinic (Otaru and Iyiola-Tunji, 2015; Underwood *et al*., 2015). This paper presents one of such cases of underage primiparous doe, presented 48 hours after labour started which led to the death of the foetus and emergency caesarean section.

MATERIALS AND METHODS

Case Description

Signalment and history: A ten month old primiparous female West African Dwarf (WAD) goat weighing 11 kg was presented to the Veterinary Teaching Hospital (VTH), University of Ibadan, Oyo State, Nigeria with difficulty in labour. As at time of presentation, no medication had been administered or any assistance given. Doe was dull, reluctant to move with evident intermittent and unproductive straining with swollen vulva (Figure 1).

Figure 1: Image of gravid West African Dwarf goat with signs of labour and pain presented to the Veterinary Teaching Hospital (VTH), University of Ibadan, Oyo State, Nigeria

History taken from the owner revealed prolonged labour which had lasted for 24 hours. He was hoping the goat would eventually have vaginal birth when given more time. He was later advised to present the goat at the veterinary clinic when the dam was becoming weak.

Physical examination: The patient was dull and anorexic. Swollen vulva with foetus head visible through the birth canal, intermittent straining and distended abdomen were also observed. The mucous membrane was slightly pale. Rectal temperature was 37.8°C, heart and respiratory rates 93 beats/minute and 35 breath/minute respectively were within the range of normal values for the breed (Kahn, 2005). Diagnosis of dystocia due to mal-posture and absolute foetal oversize was made and an emergency caesarean section was therefore recommended to save the life of the dam and prevent sepsis.

Anaesthesia: The patient was sedated with 2 % Xylazine (Xylased 1 Bioveta, Czech Republic) at a dosage of 0.05 mg/kg intramuscularly to ensure calmness and easy positioning. Epidural anaesthesia was administered by clipping and surgically preparing the site. The needle was inserted at a 45° angle to the skin into the epidural space. 4 ml of 2 % lignocaine solution

was injected into the space and this was given time to take effect.

Aseptic protocol: The goat was positioned on right-lateral recumbency, while the left lateral side was prepared for aseptic surgery by clipping, scrubbing and sterilization with povidone-iodine, and draped for the procedure.

Surgical technique: Following positioning and draping, a size 10 scalpel blade was used to make an incision through the skin of the paralumbar fossa as shown in Figure 2 (Fubini *et al*., 2002; Fubini and Ducharme, 2004; Brounts *et al*., 2004).

Figure 2: Caesarean section in goat in right-lateral recumbency under sedation and epidural anaesthesia with 2 % lignocaine

After surgically opening the abdominal wall, the uterine horn was exteriorized and a long incision was made on the less vascularized part of the greater curvature (Kumar *et al*., 2013). Thereafter the dead but fully developed fetus was extracted from the uterus into a sterile bowl (Figure 3) and the uterus was copiously lavaged with warm sterile saline solution.

Figure 3: Evacuated dead fetus from the caesarean section of ten month old goat

The uterus was sutured with 0 chromic catgut suture using Lembert suture pattern, the peritoneum and muscle layers were sutured using a simple continuous pattern size 1 chromic catgut. The skin was sutured with sine 1 nylon suture in a horizontal mattress pattern (Figures 4 and 5).

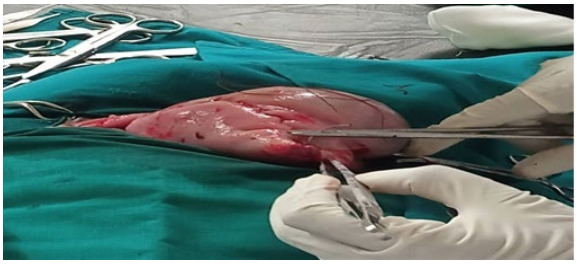

Figure 4: Suturing of the uterus using Lembert suture pattern

Figure 5: Sutured skin of goat with horizontal mattress pattern

Post-operative care: Post-operative antibiotic penicillin-streptomycin combination 0.75 ml IM was administered at 1 ml/25kg body weight, Oxytocin 10IU/kg IM. Analgesia (5 % Tramadol, Tramaden, Labrate Pharmaceutical, India) was administered IM at 5 mg/kg. The surgical wound was sprayed with oxytetracycline spray and thereafter on alternate days. Healing was uneventful and the sutures were removed 14 days post-surgery.

RESULTS AND DISCUSSION

Dystocia is one of the most presented cases in small ruminants and most prolonged cases are often successfully managed surgically with caesarean section (Fubini and Ducharme, 2004; Bhattacharyya *et al*., 2015). This case in a 10-month old doe was due to maternal factors. The viable mature fetus was stuck in the narrow immature birth canal during labour. It is important that breeders and animal owners present goats with unnecessarily prolonged dystocia cases in the clinics to save both the

fetus and dam no matter the cause of prolonged labour. It has been reported that the survival rate of goats undergoing caesarean section is as high as 94 % (Bhattacharyya *et al.*, 2015). Although there is a paucity of information on the empirical evidence of the mortality rate of goats indiscriminately bred without proper selection and age consideration, it is not an uncommon practice among local farmers and households keeping goats in many developing countries. It is very important to create awareness among local breeders of small ruminants of the importance of monitored breeding in spite of any management system practice adopted. This is because losses as a result of dystocia translate to eventual economic loss and decline in the targeted animal protein output at large. Also, once a gravid doe is experiencing unnecessary prolonged labour, such animal should be presented promptly for medical and surgical intervention to avoid fatal outcomes.

Post-operative assessment of the dam revealed impressive healing of the incision site and no complication was noticed from the caesarean section. Skin sutures were removed after 14 days. The dam can be bred in the nearest future, as the uterus integrity was intact without tear or damage thus viable for future pregnancy. The client was advised to separate the dam from other goats to assist in full recuperation and attainment of full reproductive capacity.

Conclusion: Breeding among immature goats is becoming too popular among local farmers in Ibadan, more awareness about animal husbandry and welfare is needed to eradicate this act. The farmers should be educated on proper breeding selection and how to separate the young from the mature animals to prevent indiscriminate breeding.

ACKNOWLEDGEMENTS

The authors appreciate the animal handlers and staff of the Departments of Veterinary Surgery and Theriogenology who assisted during the surgical procedure.

REFERENCES

ABU, A. H., MHOMGA, L. I. and AKOGWU, E. I. (2013). Assessment of udder characteristics of West African Dwarf (WAD) goats reared under different management systems in Makurdi, Benue State, Nigeria. *African Journal of Agricultural Research*, 8(25): 3255 – 3258.

ALI, A. M. H. (2011). Causes and management of dystocia in small ruminants in Saudi Arabia. *Journal of agricultural and Veterinary Sciences*, 4(2): 95 – 108.

BHATTACHARYYA, H. K., BHAT, F. A. and BUCHOO, B. A. (2015). Prevalence of dystocia in sheep and goats: a study of 70 cases (2004 – 2011). *Journal of Advanced Veterinary Research*, 5(1): 14 – 20.

BROUNTS, S. H., HAWKINS, J. F., BAIRD, A. N. and GLICKMAN, L. T. (2004). Outcome and subsequent fertility of sheep and goats undergoing caesarean section because of dystocia: 110 cases (1981 – 2001). *Journal of the American Veterinary Medical Association*, 224(2): 275 – 281.

CHIEJINA, S. N., BEHNKE, J. M. and FAKAE, B. B. (2015). Haemoncho-tolerance in West African Dwarf Contribution to sustainable, anthelmintic-free helminth control in traditionally managed Nigerian dwarf goats. *Parasites*, 22: 7. https://dx.doi.org/10.1051%2Fparasite%2F2015006

FASAE O. A., AMOS A. O., OWODUNNI A. and YUSUF A. O. (2015). Performance, haematological parameters and faecal egg count of semi-intensively managed West African Dwarf sheep to varying levels of cassava leaves and peels supplementation. *Pertanika Journal of Tropical Agricultural Science*, 38(1): 1 – 12.

FUBINI, S. L. and DUCHARME, N. (2004). *Farm Animal Surgery*. WB Saunders Company, St Louis, United States.

FUBINI, S., HEATH, A. M. and PUGH, D. G. (2002). *Sheep and Goat Medicine*, Saunders, Philadelphia, USA.

HUSSAIN, S. O. and ZAID, N. W. (2010). Dystocia in goats, causes and treatment. *AL-Qadisiya Journal of Veterinary Medical Science*, 9(1): 23 – 28.

KAHN, C. M. (2005). *The Merck Veterinary Manual*. Whitehouse Station, New Jersey, USA.

KOSGEY, I. S. (2004). *Breeding Objectives and Breeding Strategies for Small Ruminants in the Tropics*. Ph.D. Thesis, Animal Breeding and Genetics Group, Wageningen University, The Netherlands.

KUMAR, V., TALEKAR, S. H., AHMAD, R. A., MATHEW, D. D. and ZAMA, M. M. S. (2013). Delayed cases of dystocia in small ruminants – etiology and surgical management. *Indian Journal of Veterinary Science*, 1: 47 – 54.

NOAKES, D. E., PAKINSON, T. J. and ENGLAND, G. C. W. (2009). *Veterinary Reproduction and Obstetrics.* 9th Edition, Saunders, Edinburg, London.

OLATUNJI-AKIOYE, A. O. and ADEYEMO, O. K. (2009). Live weight and chest girth correlation in commercial sheep and goat herds in south-western Nigeria. *International Journal of Morphology*, 27(1): 49 – 52.

OTARU, S. M. and IYIOLA-TUNJI, A. O. (2015). Small ruminant production and management techniques. *In: Strategies for Improving Livestock and Fisheries Extension Service Delivery for Sustainable Productivity in Nigeria.* Ahmadu Bello University, Zaria.

PALLISER, H. K., HIRST, J. J., RICE, G. E., OOI, G. T., DELLIOS, N. L., ESCALONA, R. M. and YOUNG, I. R. (2006). Labor-associated regulation of prostaglandin E and F synthesis and action in the ovine amnion and cervix. *Journal of the Society for Gynecologic Investigation*, 13(1): 19 – 24.

PUROHIT, G. N. (2006a). Dystocia in the sheep and goat – a review. *Indian Journal of Small Ruminants*, 12(1): 1 – 12.

PUROHIT, G. N. (2006b). Parturition related disorders in sheep and goats. Pages 227 – 231. *In: National Seminar on Innovations and Recent Advances in Reproduction for Augmenting Small Ruminant Production.* CSWRI, Jaipur, Rajasthan, India.

SCOTT, P. R. (2005). The management and welfare of some common ovine obstetrical problems in the United Kingdom. *Veterinary Journal*, 170(1): 33 – 40.

UNDERWOOD, W. J., BLAUWIEKEL, R., DELANO, M. L., GILLESBY, R., MISCHLER, S. A. and SCHOELL, A. (2015). Biology and diseases of ruminants (sheep, goats, and cattle). Pages 623 – 694. *In*: FOX, J., ANDERSON, L. C., OTTO, G. M., PRITCHETT-CORNING, K. R. and WHARY, M. T. (Eds.). *Laboratory Animal Medicine.* Academic Press, London.