



Successful Management of a Spontaneous Abortion During Last Trimester in a Non-Descript Bovine Heifer-A Case Report

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Abstract

A pregnant non-descript bovine heifer with unknown breeding history was presented to Large Animal Obstetrical Unit, Madras Veterinary College Teaching Hospital, Chennai with a history of intermittent straining and serosanguinous discharge. Based on gynaeco-clinical examination, the case was diagnosed as spontaneous abortion of unknown origin. A greyish black dead fetus was delivered through pervaginum by manual traction. The aborted fetus was tightly covered by a dry thickened placental membrane and was around 8.5 months gestation based on CRL. Animal had an uneventful recovery after treatment with antibiotic, antihistamine, anti-inflammatory drugs for 5 days.

Keywords: Fetus, Heifer, Pelvimetry, Spontaneous Abortion

Introduction

Abortion is the expulsion of live or dead fetus with recognizable size from the uterus at any stage of gestation. Abortions in cattle may be spontaneous or induced, infectious or non-infectious of which abortions from non-infectious origin are more common in dairy cattle. Bovine spontaneous abortions are common in heifers bred immediately after puberty or in cows bred immediately after parturition. Economically, abortions are of great concern to the farmer where the fetus is lost and is followed by a prolonged period of uterine disease and sterility in the dam. As a sequel to some cases of intrauterine fetal death, failure of expulsion followed by fetal mummification or maceration may occur (Roberts, 1986; Hafez, 2013).

Materials and Methods

A pregnant non-descript heifer was presented to Large Animal Obstetrics Unit, Madras Veterinary College Teaching Hospital, Chennai-07 with a history of intermittent straining and was handled by a veterinarian who had given a dose of oxytocin and advised the owner to observe the pregnant heifer for calving signs. The clinical parameters and vital parameters were within normal range and continuous straining was observed. External pelvimetry (Johnson *et al.*, 1988; Coopman *et al.*, 2003; Lalrintuanga and Lallianchhunga, 2012; Perumal, 2013; Silva *et al.*, 2019) using bovine pelvimeter (Fig.1) revealed a pelvic area of approximately 132cm²(Table 1) which is sufficient to deliver a calf of approximately 28kg (Deutscher, 1996).



Figure 1: Bovine Pelvimeter

On rectal examination, fetal mass was palpable near the cervix which was devoid of fetal fluids and was tightly wrapped over by the fetal membrane and uterus. Vaginal examination revealed one finger dilatation of external os of cervix. Ultrasonography revealed absence of fetal fluids and hyperechoic fetal bony structures. Based on the observation of rectal examination and result of ultrasound examination, the case was tentatively diagnosed as spontaneous abortion of unknown origin.

Table 1: Pelvic measurements of the dam

S. No.	Measurements	Formula	Results (cm)
1	Transverse diameter of pelvic outlet	$\frac{1}{4} (A+B)$	7.075
2	Vertical diameter of pelvic outlet	$\frac{3}{4} \times C$	11.775
3	Transverse diameter of pelvic inlet	$12.2/10 \times (\text{Transverse diameter of pelvic outlet})$	8.6315
4	Vertical diameter of pelvic inlet	$13/10 \times (\text{vertical diameter of pelvic outlet})$	15.3075

Note: Distance between the external angle of the ilium (cm) : A 16.2cm; Distance between the ischial tuberosity (cm) : B 12.1cm; Distance between the summit of the croup and the hip joint (cm) : C 15.7cm; Pelvic area: Transverse diameter of pelvic inlet x Vertical diameter of pelvic inlet; $8.6315 \times 15.3075 = 132.13\text{cm}^2$

Treatment and Discussion

Animal was subjected to induction using Inj. Cloprostenol @ 500µg I/M in order to dilate the cervix which was substantiated with Inj. Calcium borogluconate @ 250ml slow I/V to counteract uterine inertia. The animal was kept under observation and after 20 hours, detailed pervaginal examination was done under epidural anaesthesia using 4ml of 2% Lignocaine hydrochloride which revealed a fully dilated cervix. On thorough pervaginal examination, no positive signs of fetal viability (withdrawal reflex or suckle reflex) was present and the presentation (P1), position

(P2), posture (P3) of the dead fetus was anterior longitudinal, dorso-sacral and extended forelimbs and head, respectively. Even though the fetus was in normal P1, P2 and P3, it could not be delivered through simple manual traction, as the fetus was completely dry, devoid of fetal fluids and tightly wrapped around by the membrane. After thorough lubrication of the birth canal with 2% Carboxymethyl cellulose gel (Sloss and Dufty, 1980), the tight membrane wrapping the foetus was ruptured and William's long obstetrical hook was applied on medial canthus of right eye orbit of the fetus for applying traction. A greyish black dead male fetus (Fig.2) wrapped with dry placental membrane (Fig. 3) was delivered per vaginam by gentle traction. The fetus was weighing around 20kg with a Crown-Rump Length (CRL) of 87.3cm which revealed that the aborted fetus would be around 8.5 months of gestation (Roberts, 1986). The animal was treated with Inj. Streptopenicillin @ 2.5g I/M, Inj. Chlorpheniramine maleate @ 10ml I/M, Inj. Meloxicam @ 10ml I/M and intrauterine Nitrofurazone bolus (2 no.s) after delivery which was followed for five continuous days. The cow had an uneventful recovery following post-delivery care.



Figure 2: Greyish black dead male foetus



Figure 3: Dry placental membrane

Last trimester spontaneous abortions in bovine evolves around a number of infectious and non-infectious causes. The common bacterial cause is Brucellosis (*Br. abortus*) where the aborted dead fetus exhibits some autolytic changes of edema and hemorrhages of the tissues and body cavities with edematous, leathery, hemorrhagic, necrotic fetal membranes (Poester *et al.*, 2013). Diagnosis of *Br. abortus* from such aborted fetuses can be done through a number of tests like RBPT, PCR and cELISA (Leishangthem *et al.*, 2019). Secondly, the common viral cause for abortion in cattle is Infectious bovine rhinotracheitis and infectious pustular vulvovaginitis, caused by Herpes virus. In case of abortion due to IBV-IPV, the aborted dead foetus exhibits autolytic changes with reddish-brown subcutaneous edema and dark red watery fluid in body cavities with yellow, brown amniotic fluids (Kennedy and Richards, 1964). The diagnostic techniques for IBRT in case of bovine abortion are virus culture, ELISA, IHC and PCR using samples from aborted fetus (Mahajan *et al.*, 2013). Common nutritional causes for last trimester bovine abortion are Vitamin A and Iodine deficiencies (Roberts, 1986). But in the present case, neither the aborted foetus nor the placenta exhibited any significant features of above said infectious diseases. From the feeding history and normal clinical parameters, nutritional deficiencies and signs of poisoning (toxic plants) too were ruled out. Hence the presented case was categorised under the section of spontaneous abortion of unknown origin and was treated for the same.

Conclusion

The present report describes a case of spontaneous abortion of unknown origin in a heifer, its diagnosis and management. The treatment was successful in removal of dead fetus with negligible degree of damage to the dam's reproductive tract and health status where the sole credit lies on the timely diagnosis substantiated by the use of pelvimetry. Hence this treatment method can be adopted in case of abortions in bovine for a guaranteed breeding status of the animal in future.

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Conflict of Interests

There is no conflict of interest.

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References

1. Coopman, F., De Smet, S., Gengler, N., Haegeman, A., Jacobs, K., Van Poucke, M., Laevens, H., Van Zeveren, A. and Groen, A. F. (2003). Estimating internal pelvic sizes using external body measurements in the double-muscled Belgian Blue beef breed. *Animal Science*, 76(Part 2), 229-235. doi:10.1017/s1357729800053480
2. Deutscher, G. H. (1996). *Pelvic measurements for reducing calving difficulty*. Cooperative Extension, Institute of Agriculture and Natural Resources, University of Nebraska--Lincoln.
3. Hafez, E. S. E., & Hafez, B. (Eds.). (2013). *Reproduction in farm animals*. John Wiley & Sons.
4. Johnson, S. K., Deutscher, G. H., & Parkhurst, A. (1988). Relationships of pelvic structure, body measurements, pelvic area and calving difficulty. *Journal of Animal Science*, 66(5), 1081-1088. doi:10.2527/jas1988.6651081x
5. Kennedy, P. C., & Richards, W. P. C. (1964). The pathology of abortion caused by the virus of infectious bovine rhinotracheitis. *Pathologia veterinaria*, 1(1), 7-17. doi:10.1177/030098586400100103
6. Lalrintuanga, K., & Lallianchunga, M. C. (2012). Pelvimetry in local breed of cows in Mizoram. *Indian Journal of Animal Research*, 46(2).
7. Leishangthem, G., Mahajan, V., Filia, G., & Bal, M. (2019). Detection of Brucella abortus in Cattle and Buffaloes with Spontaneous Abortion from an Organized Dairy Farm. *International Journal of Livestock Research*, 9(3), 164-171. doi:10.5455/ijlr.20180910025922
8. Mahajan, V., Banga, H. S., Deka, D., Filia, G., & Gupta, A. (2013). Comparison of Diagnostic Tests for Diagnosis of Infectious Bovine Rhinotracheitis in Natural Cases of Bovine Abortion. *Journal of Comparative Pathology*, 149(4), 391-401. doi:10.1016/j.jcpa.2013.05.002
9. Perumal, P. (2013). Pelvimetry in swamp buffalo cows of Nagaland. *Indian Journal of Animal Sciences*, 83(9), 932-933.
10. Poester, F. P., Samartino, L. E., & Santos, R. L. (2013). Pathogenesis and pathobiology of brucellosis in livestock. *Rev Sci Tech*, 32(1), 105-15. doi:10.20506/rst.32.1.2193
11. Roberts, S. J. (1986). *Veterinary Obstetrics and Genital Diseases, 3rd Edition*. Retrieved from <https://vetbooks.ir/veterinary-obstetrics-and-genital-diseases-3rd-edition/>
12. Silva, R. L. S., Oliveira, W. D., Biagiotti, D., & Ferreira, G. J. B. (2019). Pelvimetry of multiparous Nellore cows in the cycling and early puerperal stages. *Pesquisa Veterinária Brasileira*, 39(5), 348-354. doi:10.1590/1678-5150-pvb-5466
13. Sloss, V. and J.H. Dufty (1980). *Handbook of Bovine Obstetrics*. Williams and Wilkins, Baltimore, U.S.A.
