



The Indian Journal of Animal Reproduction

The official journal of the Indian Society
for Study of Animal Reproduction
Year 2025, Volume-46, Issue-2 (June)



ISSN 0970-2997 (Print)

ISSN 2583-7583 (Online)

Right Dorso-Caudal Flank Laparohysterotomy to Manage Prolonged Macerated Fetal Retention in a Cow

Ankit Ahuja*, Pravesh Kumar, Pankaj Sood, Akshay Sharma and Amit Sharma

DGCN College of Veterinary and Animal Sciences, CSK Himachal Pradesh Agricultural University, Palampur, Himachal Pradesh, India

ABSTRACT

A six-year-old pluriparous cow was presented with a history of retained macerated fetus for 99 days. Due to the pelvic location of the uterus, surgical exteriorisation was done through right dorso-caudal flank. Bunch of fetal bones, with 25 ml of purulent exudate, from right uterine horn and two tiny bone fragments at the caudal region of left uterine horn was removed. Follow-up revealed the cow exhibited overt estrus fourteen days post-surgery.

Keywords: Cow, Fetal retention, Flank laparohysterotomy, Maceration.

How to cite: Ahuja, A., Kumar, P., Sood, P., Sharma, A., & Sharma, A. (2025). Right dorso-caudal flank laparohysterotomy to manage prolonged macerated fetal retention in a cow.

The Indian Journal of Animal Reproduction, 46(2),139-142. 10.48165/ijar.2025.46.02.27

INTRODUCTION

Optimizing annual calf yield per cow is pivotal for the economic success of dairy farming. Fetal maceration significantly prolongs calving intervals, resulting in considerable losses in farm productivity and fertility. This condition, characterized by fetal death *in utero* without expulsion, affects various species, with cows being most commonly impacted (0.13-1.8%) (Barth, 1986). It typically occurs post the third month of gestation, after bone ossification, often due to bacterial infections like *Corynebacterium pyogenes* (Noakes *et al.*, 2009). These infections progress to septic

metritis and fetal maceration within a closed uterus. Fetal maceration in cows typically follows fetal mummification, occurring when the *cervix uteri* is partially open, allowing bacteria to invade. This initiates bacterial degradation, tissue autolysis, and the formation of a mucopurulent discharge and fetal skeletal remains within the uterus. Since the cervix is not fully dilated, removal of fetal bone fragments is often challenging. Diagnosis in cows with fetal maceration includes presence of fetal bone fragments in the uterus, foul-smelling mucopurulent vaginal discharge, and intermittent straining (Ciplak *et al.*, 2023).

*Corresponding author.

E-mail address: ankit.ahuja1947@gmail.com (Ankit Ahuja)

Received: 21.02.2025, Accepted: 25.05.2025

Copyright © The Indian Society for Study of Animal Reproduction (acspublisher.com/journals/index.php/ijar)

Treatment options such as ecobolic drugs and antibiotics are commonly employed, but outcomes are generally poor due to the advanced decomposition of the fetus (Drost, 2007; Ahuja *et al.*, 2018). Therefore, effective management strategies are therefore crucial to mitigate the economic impact of this condition on livestock farms. Present communication describe the prolonged retention of macerated fetus inside uterus along with its successful management through right caudal-flank hysterectomy.

CASE HISTORY AND OBSERVATIONS

A six-year-old pluriparous Jersey crossbred cow was referred to Advanced Multispecialty Veterinary Centre (AVMC) of Veterinary College, Palampur, India, with the history of fetal maceration. The cow had conceived to an AI dated November 19th, 2023. On March 25th, 2024, the owner noticed foul smelling vaginal discharge. Transvaginal examination revealed a partially dilated cervix and the cow was administered a combination of 25 mg dinoprost tromethamine (Lutalyse; Zoetis) and 120 mg valethamate bromide (Epidosin; TTK Healthcare) for complete cervical dilatation. Forty-eight hours after administration, placenta along with few bones were removed after a gestation length of 128 days and the cow was provided an antibiotic cover (5 gm of streptopenicillin; Dicrystine®, Zenex, India) along with supportive therapy for five days. Three months after this event, the cow again exhibited odourless turbid vaginal discharge. This time the cow was examined again trans-rectally and fetal maceration was diagnosed by a veterinarian. The cow was administered 500 µg cloprostenol sodium (Pragma; Intas Pharmaceuticals), 40 mg dexamethasone (Dexasone; Cadila Pharmaceuticals) and 120 mg valethamate bromide (Epidosin; TTK Healthcare) for cervical dilatation. The cow was monitored at the field level for 24 hours and periodic transvaginal examinations were done, which revealed no progression in the dilatation at cervix. Cow was then referred to AVMC at Veterinary College.

General clinical examination indicated that the animal to be in good bodily condition. Blood samples were collected from the jugular vein for routine analysis. The blood was tested for haematological (TLC, TEC, Hb, platelets count and mean corpuscular volume using an animal blood counter BC-5000 Vet, Mindray, China), biochemical (glucose, total bilirubin, creatinine, aspartate aminotransferase, gamma-glutamyl transferase, alkaline phosphatase using a Agappe Mispa CXL fully automatic biochemistry analyser, Switzerland), and certain electrolytes (calcium,

sodium, potassium and chloride with an electrolyte analyser; Microlyte, Microlab Instruments, India). The analysis showed no significant abnormalities in the selected parameters. Trans-vaginal examination revealed a closed and hard external cervical os, along with some turbid and odourless vaginal secretions. On trans-rectal palpation, the right uterine horn indicated a crepitus among the fetal bones with approximately four finger distension (6.8 cm). Left horn was quite normal and was approximately one third the size of the gravid horn. Careful examination revealed gritty palpation at the distal end of left horn just near to the start of fallopian tubes. Trans-rectal ultrasound (Mindray Z5, 75L50EAV, China) examination revealed hyperechogenic fragments of fetal bones and hypoechogenic liquid, with areas of more echogenic pus without any luteal tissue on both the ovaries. Entire genitalia along with the horns was placed intra-pelvic. Due to pelvic location of uterus, it was decided to exteriorise it surgically through right dorso-caudal flank region.

TREATMENT AND DISCUSSION

Epidural anaesthesia was achieved by injecting 4 ml lignocaine hydrochloride (Lox 2%; Neon; containing 21.3 mg lignocaine hydrochloride per ml), into the sacrococcygeal space. With the cow standing, the incision site was anaesthetised by superficial and deep infiltration of 60 ml lignocaine hydrochloride. A 10.2 cm long oblique incision was made through the skin dorso-caudally in the right flank incising the fat, muscular layers and peritoneum. An 8.0 cm long incision was made along the dorso-longitudinal surface of right uterine horn and a bunch of fetal bones, along with 25 ml of purulent exudate, was removed. Subsequent exploration with fingers enabled the removal of two tiny bone fragments at the caudal most region of contralateral horn just near to isthmus. After ensuring the absence of fetal remnants, the uterine mucosa was flushed with 500 ml of normal sterile saline solution. The uterus was sutured in a Cushing suture pattern with braided coated polyglactin 910 no 2 (Vicryl; Ethicon) and repositioned back in the pelvic cavity. Peritoneum and muscular layers were sutured in an interrupted lock stitch pattern with same suture followed by cross mattress pattern at the skin level using black braided silk, respectively. Immediately after surgery, cow was injected intramuscularly with a combination of 3 g of amoxicillin sodium and sulbactam sodium (Amoxyrum forte; Virbac), and 75 mg meloxicam (Melonex; Intas Pharmaceuticals); the treatment was repeated once a day for the next seven days. A follow-up telephonic conversation with the owner one month after the surgery was done and it was observed

that the cow exhibited overt signs of estrus day after the removal of skin suture (day 14 post-surgery) suggesting an uneventful recovery.

Prolonged maceration and decay of fetus often impact the overall health of the animal (Drost, 2007). In the present case, while the macerated fetus was confined to uterus for 99 days, cow's general health remained unaffected. Notably, no significant gross uterine thickening was observed, and both cervix and uterus retained their resilience, as evinced by overt estrus with clear genital discharge two weeks post-surgery (Fig. 1). Prostaglandin administration is the go-to conservative approach in cases of incompletely dilated cervix. In some instances, after

cervix dilation, only the liquid content is expelled, leaving fetal bones behind. Failure of hormonal therapy to dilate the cervix in cases of fetal maceration, as seen in this case, is typically due to an indurated cervix (Noakes *et al.*, 2009) or the structure less nature of the macerated fetus (Sood *et al.*, 2009). In such cases, manual removal of the bones is recommended (Kumar *et al.*, 2021). In our case, the last resort was a laparo-hysterotomy, which carries a high risk of abdominal contamination and subsequent peritonitis (Purohit *et al.*, 2012). Despite this, some experts argue that surgical removal of macerated contents is the best option for cow, though future fertility remains uncertain. Indeed, Newman and Anderson (2005) found that less than 25% of cows return to successful breeding after such surgery.

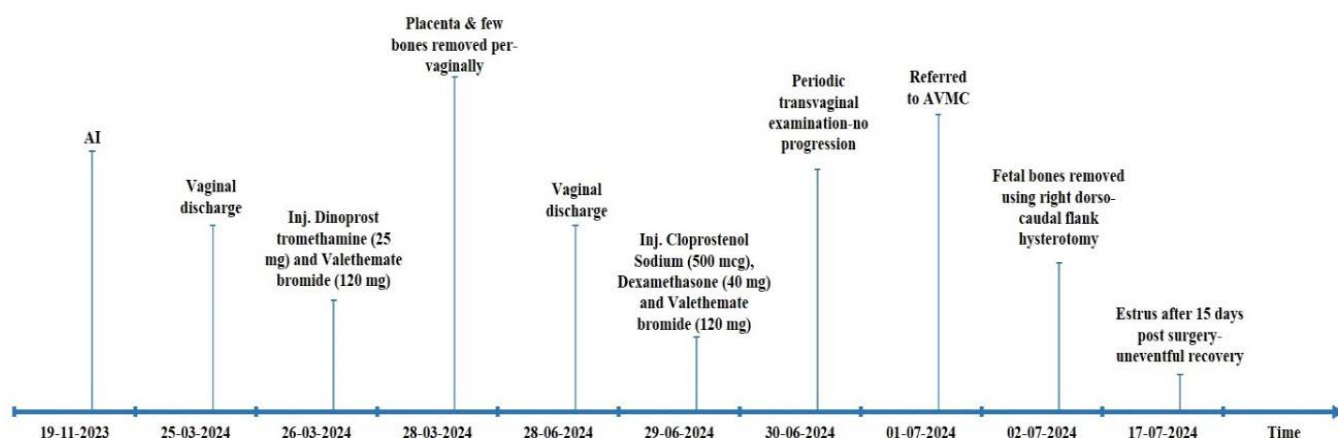


Fig 1. Estimated timeline of the maceration process from conception (Chandore *et al.*, 2013).

The success of hysterotomy often hinges on the precise placement of incision into the abdominal cavity (Chandore *et al.*, 2013). Several incisional techniques have been explored (Ciplak *et al.*, 2023). Given the high risk of contamination and potential peritonitis, the most common surgical approaches for removing a macerated fetus are performed with the animal in lateral recumbency. However, there are reports of similar surgeries conducted on standing animals (Prakash *et al.*, 2017). Vermunt (2008) described two incisional approaches for animals in lateral recumbency: ventrolateral and low-flank methods. The left ventrolateral oblique approach is frequently used (Abd-Albari *et al.*, 2014) for its effectiveness in exteriorizing the contaminated uterus and safely evacuating the pathological content. This method is advantageous as it avoids the risk of intestinal loops entering the surgical field, a common issue with caudal paramedian or right-sided incisions (Chandore *et al.*, 2013). In our case, the left ventrolateral oblique approach was unsuitable due to the relatively small size of the uterus with the macerated content that

too in right horn. This size limitation was due to the fetus not being as advanced in gestation or recently macerated. Also, the uterus, positioned close to the pelvic cavity with the affected right horn situated centrally in the abdominal cavity, required careful surgical planning. To minimize complications and reduce the risk of peritonitis, we opted for a vertical dorso-caudal incision in the right flank (Fig. 2). This incision site offered better access and exteriorization of the uterus, facilitated easier wound healing, and improved conditions for postoperative stitch removal. The future breeding prospects for cows with a history of fetal maceration are uncertain, as extensive endometrial damage can severely impact their ability to conceive again. In this case, fetal maceration occurring early in the second trimester (at 127 days) and the timely surgical intervention (approximately 99 days after the initial signs of a few bones and placenta removal) likely helped prevent severe uterine damage and improved the chances of better reproduction following surgery.

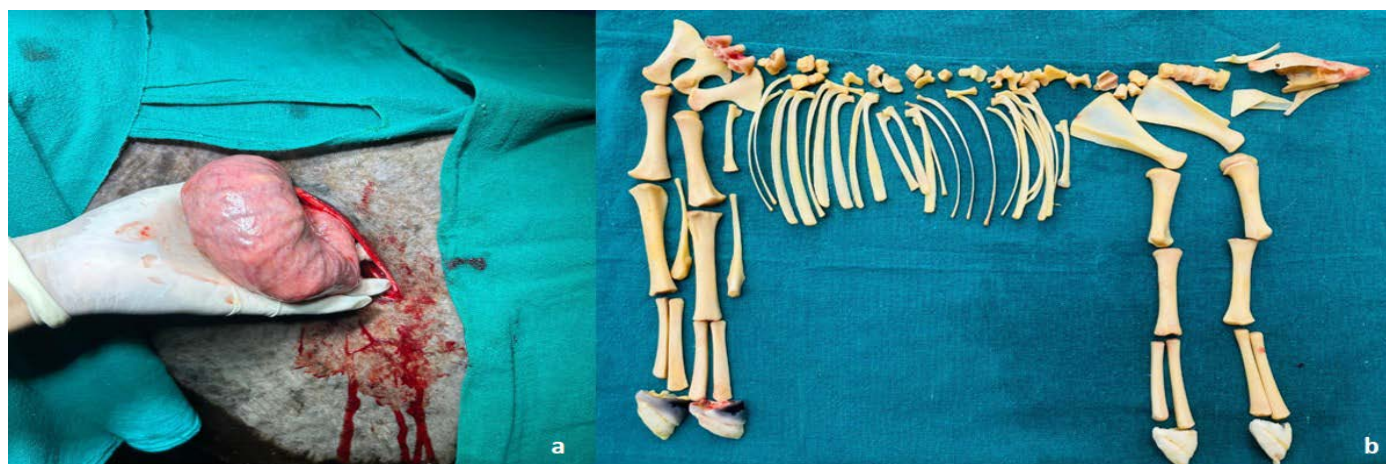


Fig. 2. a. Exteriorised uterus via dorso-caudal right flank oblique incision, **b.** Details of fetal bones found after clearing.

CONCLUSION

In conclusion, it is quite rare to encounter a case of prolonged intrauterine fetal putrefaction with no noticeable alterations in genital or general health status. Additionally, the analysed blood parameters showed no significant variations. Given the confirmed pathological uterine content, we opted for surgical intervention. Selecting the appropriate abdominal approach requires careful consideration of various factors, including the anamnesis and clinical examination. The right dorso-caudal-flank approach, performed with the animal standing, is one of several viable methods for accessing the abdominal cavity.

CONFLICT OF INTEREST

The authors do not have any conflict of interest.

REFERENCES

- Abd-Albari, A. A., Taher, A. F., and Baqer, J. H. (2014). Comparison between rolling and surgical treatment of uterine torsion in buffaloes (*Bubalis bubalis*) in Basrah province. *J. Vet. Med. Anim. Health*, **6**(2): 67-68.
- Ahuja, A. K., Singh, N., Singhal, S., Singh, R. and Singh, P. (2018). Surgical management of dystocia in non-descript cow due to sterno-omphalopagus conjoined twin. *Res. J. Chem. Env. Sci.*, **6**(2): 89-91.
- Barth, A.D. (1986). Induced abortion in cattle. In: Morrow D.A. (Edt.) *Current Therapy in Theriogenology*. (2 Edn.), Philadelphia. WB Saunders, pp. 205-208.
- Chandore, G. G., Meshare, S. P., and Ingawale, M. V. (2013). Comparative evaluation of different surgical approaches of caesarean sections in buffaloes under field conditions. *Buffalo Bullet.*, **32**, 327-334.
- Ciplak, A., Aydin, S. and Kiliclioglu, M. (2023). Fetal Maceration in a Heifer: Case Report. *Large Anim. Rev.*, **29**(6): 279-282.
- Drost, M. (2007). Complications during gestation in the cow. *Theriogenology*, **68**(3): 487-491.
- Kumar, P., Sharma, V., Sharma, A., Singh, M., and Ananya, A. (2021). Progesterone administration in aborting bovines: An etiology of fetal maceration. *Indian J. Anim. Sci.*, **91**(1): 25-27.
- Newman, K. D. and Anderson, D. E. (2005). Cesarean section in cows. *Vet. clinics: Food Anim. Prac.*, **21**(1): 73-100.
- Noakes, D., Parkinson, T. and England, G. (2009). Dystocia and other disorders associated with parturition. In: Noakes DE, Parkinson TJ, England GCW (ed.), *Veterinary Reproduction and Obstetrics*. **9**(3): 207-305.
- Prakash, S., Selvaraju, M., Ravikumar, K., Manokaran, S., and Palanisamy, M. (2017). Hysterotomy through colpotomy combined with cervicotomy for the treatment of fetal maceration in cattle. *Indian J. Anim. Reprod.*, **38** (1): 60-61.
- Purohit, G. N., Kumar, P., Solanki, K., Shekher, C., and Yadav, S. P. (2012). Perspectives of fetal dystocia in cattle and buffalo. *Vet. Sci. Dev.*, **2**(1): e8-e8.
- Sood, P., Vasishta, N. K., and Singh, M. (2009). Use of a novel surgical approach to manage macerated fetus in a crossbred cow. *Vet. Rec.*, **165**(12): 347.
- Vermunt, J. J. (2008). The caesarean operation in cattle: A review. *Iranian J. Vet. Surgery*, **2**: 82-100.