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Modified vulvoplasty for correction of pneumovagina in jersey crossbred cow

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Abstract
This work presents a concise report of successful surgical management of pneumovagina in Jersey crossbred cow using modified vulvoplasty. Pneumovagina was diagnosed based on clinical examination which showed stronger vulval lip movement that suck air with purring sound. Modified vulvoplasty was performed under epidural anaesthesia & local infiltration of 2% Lignocaine. Vulval labia was superficially excised and sutured using horizontal mattress. Post operatively antibiotic (Ceftriaxone - 10mg/Kg, IM) were administered for five days and NSAIDs (Meloxicam - 0.5mg/Kg, IM) administered for three days. 10 days later, suture was removed and the air sucking was completely stopped.

Keywords: Pneumovagina, Caslick operation, modified vulvoplasty, bovine, lignocaine

Introduction
Pneumovagina occurs due to faulty or improper closure of vulvar lips, which may result from poor conformation or due to traumatic injuries to the vagina and vulva during the delivery of the fetus at parturition (Morel, 2003) [5]. Cows with vulval lips oriented towards the anus are more susceptible to pneumovagina and subsequent genital infections (Dehghani *et al*., 2011) [2]. Displacement of the vulval angle towards the anus from a vertical plane may occur due tofactors such as dystocia, malhandling of fetus during parturition, recto-vaginal laceration, fistula, poor body condition score, inadequate nutrition, senility, high number of parity and recurrent prolapse making the vagina prone to sucking air, fecal materials, urine and other contaminants. In most cases of pneumovagina culling is recommended. However the present case was attempted with Modified vulvoplasty operation and its outcome was recorded.

History and Observation
A four years old Jersey crossbred pluriparous cow weighed about 310 Kg was brought to the Veterinary Clinical Complex, Veterinary College and Research Institute, Udumalpet, with the complaint of typical sucking of air into the vagina for the past 6 months and has repeat breeding syndrome. The anamnesis revealed that the cow has normal calving history on last parturition. The cow was recently treated for endometritis and has foamy estrus discharge. The clinical examination showed that all physiological parameters were within normal range. The vulval lips were angled at approximately 40-50º from horizontal plane and showed stronger vulval labia movement that suck air with purring sound. On rectal examination there was spontaneous noisy outflow of air. There was no signs of endometritis during present examination. Based on the anamnesis and above findings the present case was diagnosed as pneumovagina due to conformational defects of vulval labia. Modified vulvoplasty was recommended to manage the case of pneumovagina to prevent subsequent infections as the cow is valuable.

Treatment: The cow was restrained in trevis and the vulva and perineal area of the cow was scrubed with antiseptic solution. Caudal epidural anesthesia was achieved with 4 mL of 2% lignocaine hydrochloride. Local infiltration was done in vulval mucosa with 10 mL of 2% lignocaine hydrochloride.

The edge of two third of the vulval lips was excised about 1 cm superficially to expose the submucosa around the mucocutaneous junction of vulva. Modified vulvoplasty operation was performed to oppose the excised superficial mucosal surface sutured using horizontal mattress with silk thread size 1. Post-operative antiseptic dressing was recommended in every alternative day for ten days. The animal was treated with antibiotic (Ceftriaxone - 10mg/Kg, IM) for five days and NSAIDs (Meloxicam - 0.5mg/Kg, IM) for three days. Botropase applied immediately after surgery, topically for hemostatic purpose.

Discussion

Even though the contraction of vulva noticed after the procedure for few weeks, sucking of air was absent. After 10 days, suture was removed and the opposed labia found to be intact. Uterine lavage is advised for cows in next estrous cycle and Artificial insemination is recommended in following estrous cycle. The opposed vulval labia need to be opened and advised to create a normal passage before parturition. The condition may recur after parturition. When the vulval angle to the anus altered by various modulators, the vagina will be prone to suck air, feces or any other contaminants (Morel, 2003) [5] potentially allowing the entry of fecal material, urine and air into the vagina (Ricketts and Curnow, 1988) [7].

Another factor is ischial conformation because when the ischium is too small then the vulva tends to align on the horizontal plane (Dehghani *et al.,* 2011) [2]. The pneumovagina can lead to vaginitis, cervicitis, endometritis, urovagina, pyometra, repeat breeding and eventually resulting in infertility. It is evident that the vulval conformational defect is an intrinsic cause for pneumovagina. The ideal conformation is achieved when 80% of the labia are positioned below the pelvic floor and the labia form an angle of at least 80º to the horizontal line (Held and Blackford, 1997) [4]. Dehghani *et al*., (2011) [2] found that the cows with vulval angle of 30º had 37% and the cows with vulval angle of 45º had 62.9% incidence of pneumovagina. In the present case the angle was 40-50º from horizontal plane which lead to the condition pnemovagina. Hence, correction of the defective conformation of the vulva is the primary move to manage the case of pneumovagina and prevention of subsequent genital infections. Because of this reason, Modified vulvoplasty operation was the choice of treatment.

Fig 1: Vulva angled 40-50º from Horizontal plane

Fig 2: Modified vulvaplasty sutured vulva

Fig 3: Intake opposed labia after removal of suture

Conclusion

In conclusion for the effective management of pnemovagina and to maintain the reproductive potential of the high value cows could be achieved through Modified vulvoplasty. So that the high productive cow need not to be culled and effectively managed.

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Conflict of Interest

Authors declare that they have no conflict of interest.

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