Short Communication

PREGNANT HEIFER WITH CONGENITAL IMPERFORATE HYMEN

S. Satheshkumar*[1], V. Prabaharan[2], S. Prakash[2], B. Puvarajan[3] and M. Marutha Muthu[4]

Department of Veterinary Gynaecology and Obstetrics
Veterinary College and Research Institute
Tamil Nadu Veterinary and Animal Sciences University
Orathanadu - 614 625, Thanjavur, Tamil Nadu, India

ABSTRACT

A rarei ncidence of persistent hymen in a pregnant crossbred heifer is reported. Gynaeco-clinical and ultrasonographic examination of crossbred heifer brought with a history of straining and vaginal prolapse revealed presence of imperforate hymen with accumulated mucopurulent secretion. Circumferential resection of the hymen was performed by applying Foley's catheter retraction. Seven days post-surgery, animal was diagnosed to be pregnant for about 30 days. Based on the circumstantial observations the case might be considered as imperforate hymen with hydrocolpos.

Keywords: Circumferential resection, Crossbred heifer, Imperforate hymen, Pregnancy

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Introduction

The hymen is formed via the fusion of the paramesonephric ducts and the urogenital sinus, and it disappears during the foetal period or after birth in domestic animals (Roberts, 1971). The persistence of an intact hymen is regarded as a congenital reproductive anomaly which results in the blockage of the vagina in thereby preventing the outflow of genital secretions. Imperforate hymen and its correction has been reported previously in crossbred (Satheshkumar *et al*., 2020), pure bred (Kumar *et al*., 2020) and buffalo heifers (Singh *et al*., 2010). Usually persistent hymen is associated with infertility due to the failure of successful copulation or artificial insemination (AI) but this paper places on record a rare case of imperforate hymen condition in a pregnant crossbred heifer.

Case history and observation

A Jersey crossbred heifer (3 years) was brought to the Gynaecology Unit of Veterinary

* Corresponding author;email: drsatheshkumar6@rediffmail.com

[1] Professor and Head

[2] Assistant Professor

[3] Associate Professor and Head, Department of Veterinary Microbiology

[4] Undergraduate student

Clinical Complex, Veterinary College and Research Institute, Orathanadu with the history of severe straining and occasional prolapsing of vaginal mass with scanty urination for the past three days. Further it was reported that the animal was inseminated 20 days back by a lay inseminator. On vaginal examination it was found that the vaginal passage was obstructed by a thick tissue. Exploration of vaginal passage with speculum revealed complete obliteration of the vaginal canal by a thick band of tissue, about two inches cranial to the urethral orifice (Fig.1). On rectal examination massive enlargement of genitalia without any clear demarcation of contours was observed. Trans-rectal ultrasonographic investigation (Sonoscape S2V, China) revealed voluminous accumulation of fluid with hyperechoic granular specks within the enlarged genitalia, cranial to the vaginal obstruction (Fig.2). Based on the previous documentation (Sathesh kumar *et al*., 2020), the case was diagnosed as congenital imperforate hymen leading to accumulation of genital secretions and with further consequences of straining, urethral obstruction and scanty urination.

Treatment and discussion

With the application of vaginal speculum, a sterile metal intrauterine catheter was used to puncture the obstructive hymen and resulted in discharge of thick cloudy mucus started flowing out. To facilitate easy and complete evacuation, suction pump was employed and about seven litres of muco-purulent secretion was collected. Previous reports documented evacuation of four to 15 litres of accumulated mucus in crossbred heifers with imperforate hymen (Kumar *et al*., 2017; Satheshkumar *et al*., 2020). Uterine contours were palpable per rectum within the pelvic cavity after the evacuation. In order to restore normal reproductive tract, surgical excision of the obstructive hymen was the preferred restorative procedure.

Surgical correction:The animal was properly restrained and the perineal region was thoroughly cleaned and disinfected. The surgical procedure to excise the obstructive hymen was followed as described by Satheshkumar *et al*. (2020) with a slight modification. Under epidural anaesthesia (2% lignocaine hydrochloride; 3 ml; sacro-coccygeal), a vaginal speculum was passed and held in position. A two-way Foley's catheter (18G) fitted with stylet was passed through the opening (previously created for evacuation) until the balloon is placed anterior to the obstructive tissue. The balloon was inflated with 10 ml of air and thus the catheter is fixed in position. Vaginal speculum was removed and the catheter was retracted posteriorly to expose the hymen close to the vulval opening for the surgical procedure. Holding the catheter in position, circumferential resection of the obstructive tissue was performed using the BP blade (Fig.3). The incised wound was cleaned and vaginal canal was douched with potassium permanganate solution. Emollient of povid onxe iodine and cetrimide cream was applied around the entire vaginal canal. A surgical gauze tampon smeared with streptopenicillin powder (2.5 gm) was inserted and positioned at the site of excision to prevent adhesion. Antibiotics (Inj. Streptopenicillin 5gm; IM),

antihistaminics (Inj. Chlorpheneramine maleate 8 ml; IM) and anti-inflammatory (Inj. Flunixin meglumine 7 ml;IM) drugs were administered daily for five days. Seven days after the surgery, the tampon was removed and vaginal passage was found to be patent without any adhesions and with proper healing of the surgical site (Fig. 4).Vaginal canal was douched with potassium permanganate solution. Successful correction of persistent hymen was achieved previously by elaborate surgical procedure (Kim *et al*., 2012) or by using simple trocar puncturing along with digital pressure (Kumar *et al*., 2016). The present method of circumferential resection of the hymen by applying Foley's catheter retraction is found to be more effective and could be adopted easily under field conditions.

Postoperative ultrasonographic examination revealed that the uterus was devoid of mucus accumulation, but interestingly an amniotic vesicle pooled in clear anechioc fluid was visualized in the left uerine horn (Fig. 5a). Heart beat could be detected and was confirmed by switching over to Colour Doppler mode (Fig. 5b), which clearly indicated the embryonic viability. The crown-rump length of the embryo was 15.0 mm and the gestational stage was estimated to be around 30 days. On perusal of literature, to the best of our knowledge, this being the first report to place on record a case of congenital imperforate hymen in a pregnant heifer wherein no such reports were available in farm animals. On the other hand, spontaneous pregnancy in women patients with imperforate hymen was reported by Bharathi *et al*. (2017) and Gomathy *et al*. (2017). They attributed the possibility of pregnancy to micro perforations in the hymen or spontaneous closure of hymen during pregnancy. However, in the present case the heifer was reported to be inseminated by a lay inseminator 30 days back, who would have managed to inseminate the animal by piercing the obstructive hymen with the AI catheter. Since the embryo was viable, it was opined the voluminous purulent mucus would have been accumulated in the vaginal and cervical regions only. Previously Kumar *et al*. (2017) also reported occurrence of mucocervix and mucovagina in association with persistent hymen in a crossbred heifer. Hence, the present case could be described as imperforate hymen with hydrocolpos (Kim *et al*., 2012). The evacuated purulent mucus was subjected for microbiological culture test and the bacterial isolates were identified as *Enterobacteria* and *Klebsiella* spp. based on their morphology and biochemical characteristics (Murray *et al*., 2005).

The report documented the incidence of persistent hymen in a crossbred heifer and its successful correction by circumferential resection of the hymen by applying Foley's catheter retraction. The animal at followup was diagnosed to be pregnant with a viable embryo of around 30 days gestation.

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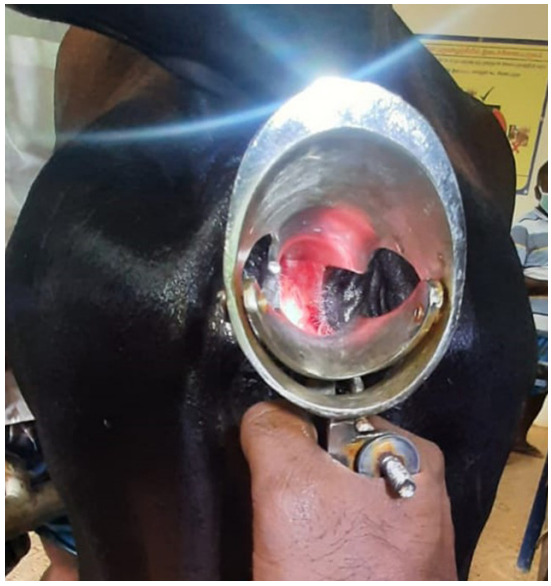


Fig.1. Complete obliteration of the vaginal canal by persistent hymen

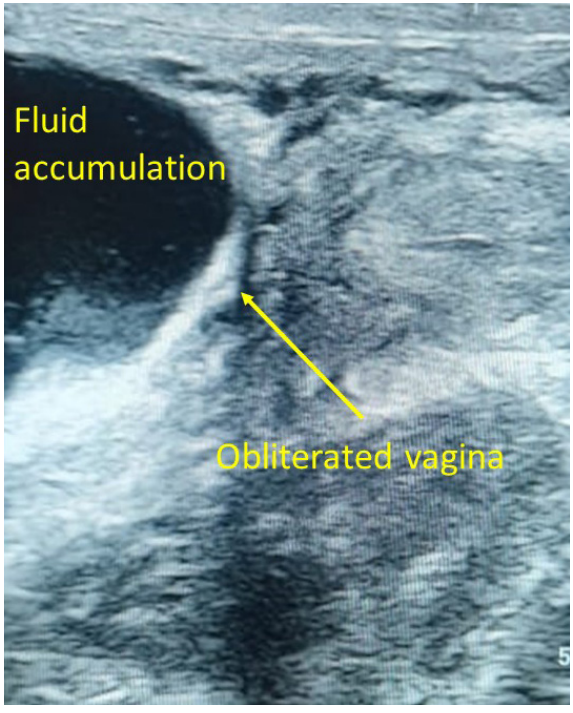
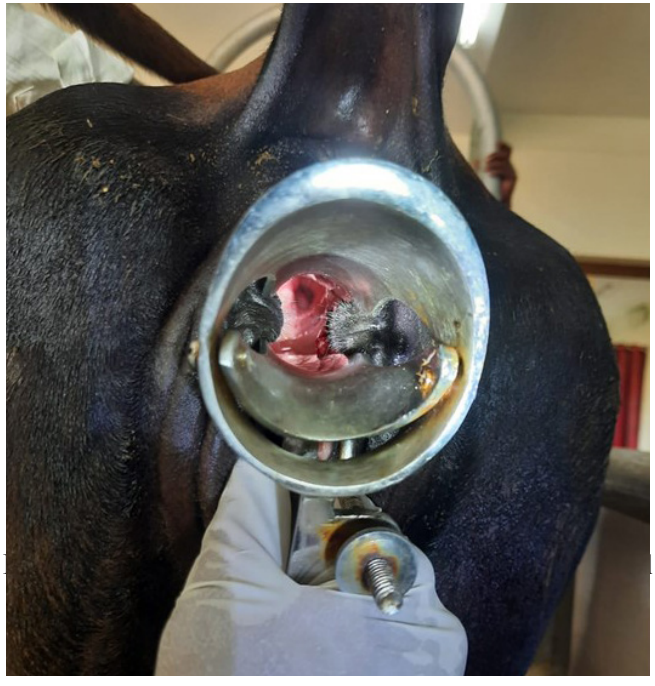


Fig.2. Ultrasonographicevidence of accumulated genital secretions

Fig.3. Circumferential resection of hymen by applying Foley's catheter retraction



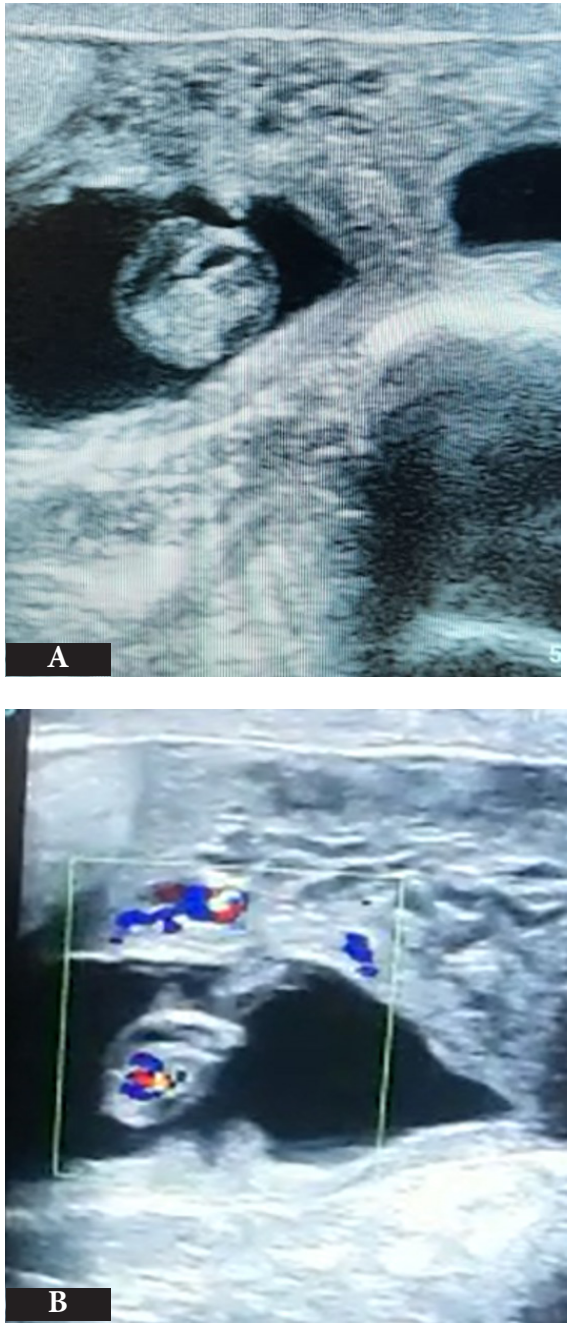


Fig. 5. a) Embryo within amniotic sac b) Blood flow indicating heart beat

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