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Congenital recto –vaginal fistula with *Atresia ani* in a lamb: A case report

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Abstract
A fifteen days old lamb was presented with the history of voiding small quantity of faeces through vaginal opening with tenesmus since birth. Clinical examination revealed slight abdominal distension, absence of anal opening and bulged in the perianal region along with faeces in the vaginal opening. Based on history and clinical findings, the case was tentatively diagnosed as a rectovaginal fistula with atresia ani. Surgical correction was done under caudal epidural analgesia with lignocaine hydrochloride (2%). The animal recovered uneventfully without any serious complications.

Keywords: *Atresia ani*, rectovaginal, lamb

Introduction
Congenital malformations of gastro-intestinal tract involving rectum and anus are quite common in all species of animals with an estimated incidence of about 4.3% (O'Connor, 1998; Leipold *et al*., 1971) [15]. Congenital defects including structural and functional abnormalities present at birth might be due to genetic or environmental factors or a combination of both or in many cases, the causes are unknown (Shukla *et al*., 2007; Bademkiran *et al*., 2009) [21, 2]. Rectovaginal fistula associated with atresia ani have been reported in calves (Shakoor *et al*., 2012; Mahesh *et al*., 2014) [20, 11], lambs (Kamalakar *et al*., 2015; Devi Prasad, 2016; Amith *et al*., 2017; Mana *et al*., 2019) [6, 3, 1, 12] and piglets (Monsang *et al*., 2014) [13]. Congenital rectovaginal fistula is characterized by presence of communication between the floor of rectum and dorsal roof of vagina, so that the vulva functions as common opening of urogenital and gastrointestinal tracts (Farhoodi *et al*., 1987) [4]. Usually the abnormality is associated with atresia ani, in which the rectum ends as a blind pouch immediately cranial to the imperforated anus (Bademkiran *et al*., 2009) [2]. Diagnosis is straightforward and easy and based on history, clinical signs, and physical examination. However, radiographic examination using contrast medium infused through the vagina or fistula may be useful for determining the position of the fistula and terminal rectum (Wykes *et al*., 2003) [22] for efficient surgical reconstruction of the defects. This paper communicates surgical management of congenital recto-vaginal fistula with atresia ani in a lamb.

Case History and Observations
A fifteen days old lamb was presented with the history of voiding small quantity of feces through the vaginal opening with tenesmus since its birth. On clinical examination, all the parameters were within the normal physiological limits, however, presence of feces in the vaginal opening, slight abdominal distension, bulged in the perianal region and absence of anal opening was noticed along with presence of communication between the floor of the rectum and vaginal roof (Fig.1). Based on history and clinical findings, the case was tentatively diagnosed as a rectovaginal fistula with atresia ani and hence planned for immediate surgical correction.

Treatment and Discussions
For surgical repair of both the conditions, aseptic measures were followed as per the standard protocol under caudal epidural analgesia using lignocaine hydrochloride (2%). In case of atresia ani, a cruciate skin incision was made over the approximate site of anus just over the bulged portion of the anus. Following blunt dissection, the subcutaneous tissues were removed and identified the rectal cul-de sac and exteriorized to the level of the skin.

A stab incision was given over the rectal loop and through the incision the muconium was evacuated. For anal reconstruct, the rectal mucosa was everted and sutured to the perineal skin with black braided silk (no.2) in simple interrupted pattern holding full thickness layer of rectal wall with the full thickness of perineal skin to ensure good contact between them and allowed voiding of the faeces normally (Fig.2a). Thereafter, about 30 ml of warm water was infused through the rectum in forward motion for complete evacuation of the impacted muconium. In the second step, the communication between the floor of rectum and vaginal roof was identified and reconstructed by suturing with synthetic suture material (Polyglactin 910) in simple continuous suture pattern (Fig.2b). Post- operatively, a course of antibiotic (Ceftriaxone @ 20 mg/kg bw, IM) and analgesics (Meloxicam @ 0.2 mg/kg bw, IM) were given for 5 and 3 days regularly along with regular antiseptic dressing. On subsequent telephonic follow up conversation, the animal was reported to have normal defecation with good recovery without showing any serious complications.

Numerous congenital abnormalities have been reported in various species of animals which generally result from a genetic defect (spontaneous or inherited) or in utero environmental exposure of the fetus to various agents including number of viruses, toxic plants, and teratogenic drugs (Loynachan *et al*., 2006) [8]. The congenital abnormalities involving anus and rectum are not uncommon in farm animals (Nixon, 1979) and the number is increasing at a very rapid rate. Such conditions require early diagnosis and treatment as they are fatal when left undiagnosed and untreated. Recto-vaginal fistulas are usually noticed at birth, however, in some cases, it may usually be diagnosed at a later age. As reported, the increase in the faecal abdominal pressure might have caused an abnormal opening between rectal wall and vagina forming recto-vaginal fistula and thus causing defecation via vulva (Norrish and Rennie, 1968) [14]. On the other hand, atresia ani usually arises during the embryonic period from autosomal recessive gene (Loynachan *et al*., 2006) [8] and some other environmental or unknown factors (Bademkiran *et al*., 2009) [2]. In the present case, the reason could not be ascertained as reported by Johnson *et al*. (1980) [5]. Clinical signs varying from absence of anal opening, abdominal distention, tenesmus and faeces in the vaginal opening are common findings in our case as reported by other authors (Mallesh, 2017; Amith *et al*. 2017) [9, 1]. Diagnosis of certain congenital anomalies can be made easily based on the history, clinical signs and physical examination exhibited by each individual during the presentation. However, radiography is sometimes considered useful in order to determine the position of the fistula and to differentiate the 4 types of congenital atresia ani (Rahal, 2007) [17] for efficient reconstruct of the defects. The success rates following surgical intervention depends on the extent of rectal development (Roberts, 1971; Martin and Aitken, 1991; Rebhun, 1995) [19, 10, 18] and time of initiation of surgery, as delayed cases may lead to deterioration of the physical condition, irreversible megacolon, and possible ascending urinary tract infection (Prassinos *et al*., 2003) [16]. In the present case, no complication was reported after one month post operative follow up which might be because of early diagnosis of condition and lesser tissue handling during surgery.

Conclusion

Like many other congenital abnormalities in lamb, rectovaginal fistula with atresia ani can be treated by anal reconstructive surgery successfully under caudal epidural analgesia using lignocaine hydrochloride (2%).

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Fig 1: Absence of anal opening at the anatomical site (atresia ani)

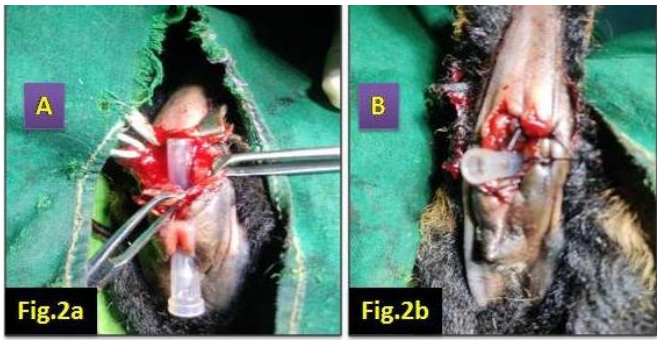

Fig 2a, b: Communication between the rectal floor and vaginal roof (rectovaginal fistula); anoplasty by suturing the rectal mucosa to the skin by interrupted suture pattern using black braided silk.

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