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## Surgical management of atresia ani complicated with rectovaginal fistula in a sahiwal calf

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**Abstract**

Atresia ani is a common congenital abnormality of the digestive system in bovine calves in which the anal opening is not developed. Constant straining for defecation and increased abdominal pressure can create a rupture in the rectum forming a rectovaginal fistula and such conditions require immediate surgical intervention. A day-old Sahiwal cow was diagnosed with atresia ani complicated with rectovaginal fistula. Under epidural anaesthesia the anal opening was reconstructed and the fistula was closed. The surgical correction, postoperative management and recovery is reported.

**Keywords:** Atresia ani, rectovaginal fistula, reconstructive surgery

**Introduction**

Congenital defects, abnormalities of structure and function present at birth may be caused by genetic or environmental factors or a combination of both and in many cases the causes are unknown (Bademkiran *et al.*, 2009) [1]. The most common bovine environmental teratogens include toxic plants consumed by the dam and maternal-foetal viral infections during gestation and the majority of the genetic defects in cattle are inherited as recessives (Newman *et al.*, 1999) [7]. Atresia ani may develop when the dorsal part of the cloacal plate fails to form and in females this is occasionally accompanied by rectovaginal fistula (Dubey *et al.*, 2015) [3]. Several anatomical variations of atresia ani have been classified from type I to type IV but all result in an abnormal anal outlet and/or rerouting of faeces from the rectum to another outlet (Veena *et al.*, 2016) [12]. Rectovaginal fistula is an abnormal opening between ventral wall of rectum and dorsal wall of vagina in female calves due to increased faecal pressure inside the rectum due to absence of anal opening. In such condition's vulva if normal acts as a common orifice for both digestive and urogenital tract (Shakoor *et al.*, 2012) [10]. This permits defecation via the vulva (Norrish and Rennie, 1968) [8]. This condition needs early correction to avoid infection of urogenital system like pneumovagina, cystitis, vaginitis, cervicitis, endometritis etc. (Farhoodi *et al.*, 1987) [4].

**Case history and observations**

A one-day old female Sahiwal calf was brought to Veterinary Clinical Complex with the complaint of defecation via the vulval orifice. The calf was constantly straining and during each bouts of effort, faeces were being passed out from the vulvar orifice (Fig. 1). Clinical examination revealed the absence of anal opening, tenesmus and bulging of the anal region as the calf strains for defecation. On per vaginal examination a small fistulous opening between rectum and vagina was observed through the meconium was coming out (Fig. 2). The condition was diagnosed as a case of Atresia ani complicated with rectovaginal fistula and immediate surgical intervention was performed.

**Surgical management**

The perineal region below the tail was prepared for aseptic surgery and the calf was restrained in lateral recumbency. The surgical site was desensitized with epidural administration of lignocaine 2% lignocaine hydrochloride followed by local infiltration. A circular incision was given on the anal bulging and the blind end of the rectum was identified by blunt forward dissection. The rectal defect and the vaginal defect forming the fistula was identified and was closed using absorbable catgut no: 1-0 by simple continuous sutures.

The rectal opening was reconstructed by suturing the rectal mucosa to the skin using silk no: 1 with simple interrupted suture pattern. The newly constructed anal opening was kept patent by inserting a 5ml syringe barrel into the rectum and sutured to the skin such that it permitted uninterrupted defecation (Fig. 3).

A course of antibiotics and analgesics were administered postoperatively for five days. Daily wound dressing of the surgical site with povidone iodine and application of fly repellent spray was also advocated. Owner was advised to keep the calf away from the mother unless during milking and other adult animals to avoid mutilation of the surgical site for a period of three weeks. Skin sutures were removed 14 days postoperative and the calf was reported to have normal appetite and defecation.



**Fig 1:** Atresia ani with rectovaginal fistula through which faeces are voided



**Fig 2:** Ruptured vaginal wall showing the recto-vaginal fistula



**Fig 3:** Surgically reconstructed anal opening

## Discussion

Atresia ani is the failure of the anal membrane to break down to make an anal orifice and it has been reported as the most frequently encountered anomaly in calves (Das and Hashim, 1996) [2]. Occasionally rectum becomes ruptured due to abdominal straining of animals forming a rectovaginal fistula that allows the excreta to pass out through vulvar opening (Muhammad *et al.*, 2015) [6]. In the present case also, there was a rupture between the rectum and vagina forming a fistulous opening which might be due to constant straining by the animal for defecation. The resulting fistula connects the dorsal wall of vagina with the ventral portion of the terminal rectum and provides a path for defecation (Veena *et al.*, 2016) [12]. Atresia ani may be a condition on its own or associated with atresia or agenesis of other parts like atresia recti, rectovaginal fistula, rectocystic fistula, vaginourethral agenesis, taillessness, hypospadias and cleft scrota (Tyagi and Singh, 1993) [11]. No other abnormalities were found associated with atresia ani in the present calf. Four major types of anal and rectal atresia are reported. Congenital anal stenosis (Type I), imperforate anus alone (Type II) or combined with more cranial termination of the rectum as a blind pouch (Type III) and discontinuity of the proximal rectum with normal anal and terminal rectal development (Type IV) (Remi- Adewunmi *et al.*, 2007) [9]. Rectovaginal fistula is usually associated with type II atresia ani in which the rectum ends as blind pouch immediately cranial to the imperforated anus (Bademkiran *et al.*, 2009) [1]. Reconstructive surgery is the only treatment for correcting atresia ani and rectovaginal fistula and moreover breeding of such surgically treated animals should be discouraged (Kamalakar *et al.*, 2015) [5]. In the present case also, the anal opening was surgically reconstructed and owner was advised not to breed the calf in the future. Congenital malformations sometimes lead to prenatal mortality and it may also decrease the maternal productivity and reduce the value of defective neonates (Bademkiran *et al.*, 2009) [1].

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