

Congenital Malformations in ruminants and its surgical management

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Abstract

A survey was undertaken to analyse the congenital malformation in ruminants reported to the Large Animal Surgery Out Patient Unit of Madras Veterinary College Teaching Hospital from April 2005 to March 2009. A total of 26 cases of congenital malformation (including atresia ani -10, dermoid cyst - 8, contracted tendon - 7 and urethral diverticulum - 1) were reviewed in this study. Incidence of atresia ani was more in male calves, dermoid cyst and contracted tendon were more common in females. Animal with congenital malformation, surgical correction could be attempted, but breeding of these animals should be avoided.

Keywords: Congenital, Malformation, Ruminant, Surgery, Atresia ani, Dermoid Cyst, Contracted tendon, Urethral diverticulum.

Introduction

Congenital defects, abnormalities of structure or function present at birth, may be caused by genetic or environmental factors or a combination of both and in most cases the cause is unknown. Developmental defects may be lethal, semi-lethal, or compatible with life causing aesthetic defects or having no effect on the animal. Susceptibility to agents that affect development varies with fetal stages, but in general decreases with gestational age (Johnson et al., 1985).

Atresia ani, (imperforate anus) is a congenital abnormality characterized by persistence of the anal membrane resulting in a thin membrane covering the normal anal canal (Noden and Lahunta, 1985). Dermoid cyst is a skin or skin-like appendage usually arising on the limbus, conjunctivae, and cornea (Ismail, 1994). Contracted flexor tendons are the most prevalent abnormality of the musculoskeletal system of newborn calves. An autosomal recessive gene causes this condition. Urethral diverticulum is the accumulation of urine in the diverticulum below the penile urethra. Hypospadias is associated with urethral diverticulum (Horst and George, 1996).

Materials and Methods

This study was conducted in Large Animal Surgery Out Patient Unit of Madras Veterinary College Teaching Hospital, during the five year period between

April 2005 to March 2009. The cases presented with the history and clinical sign suggestive of congenital abnormalities were selected for this study. Atresia ani was recorded in 9 males (5 cattle calves, and 5 kids) and 1 female cattle calf. Dermoid cysts were recorded in 3 males and 5 female calves. Contracted tendons were recorded in 6 calves (3 males calves and 4 females calves) and 1 female kid. Urethral diverticulum was recorded in 1 kid.

Surgery was performed under local infiltration anesthesia using Lignocaine HCl 2%. In all atresia ani cases the abdomen was compressed initially and the animal developed a bulge at the perineal area. A circular skin incision was made on the perineal region (bulge) and the blind rectal cul-de-sac was identified, exteroverted and opened, which voided feces and air. The rectal walls were sutured with the skin.

In all dermoid cyst cases, auriculopalpebral and retrobulbar nerve blocks were induced along with local infiltration around upper and lower eyelids. The eyes were prepared aseptically and a thumb forceps was applied on the cyst. With no. 11 BP blade the cyst was peeled off along with the dermal layers containing the follicles as close as possible to the cornea by partial keratectomy and from the bulbar conjunctiva. Temporary keratotomy was performed allowing application of Chloramphenicol ointment. In moderate contracted tendon cases, a splint was applied to force the animal

Table-1. Different Malformations recorded in Calves, Lambs and Kids during the study.

Malformation	Calves		Lambs		Kids		Total
	Male	Female	Male	Female	Male	Female	
<i>Atresia ani</i>	4	1	-	-	5	-	10
Dermoid cyst	3	5	-	-	-	-	8
Contrated tendon	2	4	-	-	-	1	7
<i>Urethral diverticulam</i>	-	-	-	-	1	-	1
Summation	9	10	-	-	6	1	26

to bear weight on its toes. In severe cases tenotomy of one or both flexor tendons were performed and padded PVC cast was applied.

For urethral diverticulam, a linear skin incision was made on the ventral aspect of the diverticulum and the urine was drained out. Sac like skin was trimmed off. The fistulas orifice was located and a simple interrupted suture was placed to appose the urethral mucous membrane using PGA 6-0. Adjacent fascia was mobilized over the sutured orifice and sutured using 5-0, PGA.

Results and Discussion

The most congenital malformations recorded was atresia ani. *Atresia ani* was most frequent in males (Merei et al., 2001), as recorded in this hospital. Affected calves initially will stand and suckle normally after birth. The time to onset of clinical signs of disease may vary from 1 to 3days. The principal clinical signs of disease are depression, anorexia, abdominal distention and not passing meconium. Calf having atresia ani needed immediate surgical intervention (Dreyfuss and Tulleners, 1989).

Dermoids are islands of skin that are histologically normal but misplaced to an abnormal location, usually the lateral canthus or limbus, third eyelid, medial canthus and eyelid. It is due to heritable autosomal recessive and polygenic trait. The dermoid should be removed surgically as they cause irritation and interfere with vision. It should be dissected carefully from the underlying cornea to avoid penetrating the anterior chambers of the eye (Roberts and Lipton, 1975).

In case of mildly affected contrated tendon, the animal recoved without treatment. In moderate cases, a splint might be applied to force the animal to bear weight on its toes. The pressure from the splint must not compromise the circulation, or the foot may undergo ischemic necrosis. Frequent manual extension of the joints, attempting to stretch the ligaments, tendons, and muscles, aids in treating these intermediate cases.

Severe cases require tenotomy of one or both flexor tendons. A PVC splint may also be indicated in some cases. Extreme cases may not respond to any treatment. In the present study for 4 severe cases tenotomy followed by PVC splint application were performed.

Urethral diverticulum and hypospadias occurs sporadically in kids and lambs. Surgical correction was not recommended when the anomaly coexists with other malformation (Sharma and Jit singh, 2002). The authors also suggested that when urethral diverticulum is not associated with other malformation, surgical correction could be attempted. Sliding fascial flap technique found to be a successful procedure in the surgical management of congenital urethral diverticulum.

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