

ATRESIA ANI AND ATRESIA ANI ET RECTI IN FARM ANIMALS

A. P. Singh., M. S. AL. Badrany, S. M. Eshoe and T. A. Abid

Department of Veterinary Surgery Obstetrics College of Veterinary Medicine,
University of Mosul, Mosul, (IRAQ)

Atresia ani is the most common congenital anomaly of the gastrointestinal tract in domestic animals (Cohrs, 1967; Jubb and Kennedy, 1970). The condition results when the membrane separating the endodermal hindgut from the ectodermal anal membrane fails to perforate (Morison, 1963). *Atresia ani* occurs more frequently in pigs and calves either alone or in association of other malformations (Cohrs, *loc cit.*, Jubb and Kennedy, *loc cit.*, Roberts, 1971). The defect has been reported in sheep (Hartley and Kater, 1964, Dennis and Leipold 1972 and 1979). The report on this condition seems to be scarce in this country (Nigam *et al.* 1984). The present paper deals with the observations made on *atresia ani* and *atresia ani et recti* in farm animals.

Material and Methods

The present report is based on 40 clinical cases of *atresia ani* and *atresia ani et recti* brought for diagnosis and treatment to the clinics of the college of Veterinary Medicine at the University of Mosul, Iraq, between July 1982 and June 1987. The cases were listed in table as per defect, involvement of other body system, sex and species of animals.

All the cases of *atresia ani* were treated under local infiltration anaesthesia using a technique described by Frank (1964) and Oehme and Prier (1976). In cases of *atresia ani et recti*, when the rectum was absent, it was retracted out after cutaneous and blunt dissection.

In cases of *atresia ani* with rectovaginal fistula, the anal opening was made patent by the technique mentioned above. To repair the fistula, a cutaneous horizontal incision was made between anus and vulva under local infiltration. The incision was further extended and the adhesions around the fistula were dissected and severed. The rectal defect was closed horizontally and the vaginal defect sutured vertically by inverted suture using chromic catgut No. 2/0.

Herniorrhaphy was performed under local infiltration anaesthesia in cases of inguinal hernia associated with *atresia ani*. The hernial sac, composed of peritomeum and skin, contained the intestine and urinary bladder,

Results and Discussion

Of the 1245 animals examined during the period under report, 40 had *atresia ani* or *atresia ani et recti* (3.2%). The incidence of the condition regardless of species involved corroborates with the report of Nigam *et al* (1984), but was higher than the incidence of 1.5% reported in lambs by Dennis and Leipold (1972). The condition had almost equal distribution in calves (45%) and lambs (47.5%) with a less frequent occurrence in buffalo calves (5%) and kids (2.5%). This confirms the findings of Cohrs (1967), Roberts (1971) and Dennis and Leipold (1979). Higher involvement of calves and lambs might be due to their large population in the area. However, Nigam *et al* (*loc cit.*) observed this condition more often in calves (14/16) than in lambs (2/16).

Cases of atresia ani and atresia ani et recti in relation to sex and species of animals.

	Calves		Buffalo calves		Lambs		Kids		Total (%)
	M	F	M	F	M	F	M	F	
1- <i>Atresia ani</i>	4	3	—	1	14	1	1	—	24 (60%)
2- <i>Atresia ani etrecti</i>	4	1	1	—	2	—	—	—	8 (20%)
3- <i>Atresia ani</i> with taillessness	1	—	—	—	1	—	—	—	2 (5%)
4- <i>Atresia ani</i> with inguinal hernia and urogenital defect	—	2	—	—	—	—	—	—	2 (5%)
5- <i>Atresia ani</i> with bilateral anophthalmia	—	—	—	—	1	—	—	—	1 (2.5%)
6- <i>Atresia ani</i> with cleft scrota and scrotal skin defect	1	—	—	—	—	—	—	—	1 (2.5%)
7- <i>Atresia ani</i> with rectovaginal fistula	—	2	—	—	—	—	—	—	2 (5%)
Total	10	8	1	1	18	1	1	—	40 (100%)

Sex ratio of occurrence of the condition was 3 males to 1 female. This agrees with the observations made in lambs and other animals (Dennis and Leipold, 1972; and Nigam *et al.* (*loc cit.*)). In 32 (80%) the defects were single and in 8 (20%), were associated with defects of other body systems. The associated defects were taillessness, inguinal hernia with urogenital defects cleft scrota with scrotal skin defect rectovaginal fistula and anophthalmia. Similar defects in association with *atresia ani* has also been reported by Dennis and Leipold, (1972 and 1979), Leipold *et al* (1984) and Samad and Hoque (1986). The associated defects

were seen more in calves (6/8) than in lambs (2/8), though the occurrence of the *atresia ani* was almost same in both the species. This difference may be due to some difference in genetic or enviromental factors in both species.

Surgical correction of anal opening was successful in all cases of *atresia ani* and *atresia ani et recti* (figs 1 and 2) except in two calves with *atresia ani et recti*. The failure was due to severe segmental aplasia and abesence of rectum from the pelvic cavity.

Inguinal hernia was associated with mal position of vulva. The vagina was long and tubular. (fig. 3). Herniorrhaphy was successful to repair the hernia, however, malformation of urogenital system could not be corrected (fig. 4). The cases of *atresia ani* with rectovaginal fistula were reported later than other conditions of anus and rectum. The affected animals did not exhibit any marked clinical manifestation, which agrees with the observations of Dennis and Leipold (1972),

Surgery was not feasible in cases of associated defects like bilateral anophthalmia, taillessness and cleft scrota with scrotal skin defect.

Atresia ani is reported to be inherited malformation and is caused by sigle autosomal recessive gene (Fischer and Adinata, 1957; Roberts, 1971). However, present study could not provide any evidence to suggest whether these defects were genitically or enviromentally induced.

Summary

Atresia ani and *atresia ani et recti* were observed in 40 animals (3.2%) with a more frequent involment of calves (18/40) and lambs (19/40) than buffalo calves and kids. The condition was associated with defects of other body systems like taillessness, inguinal hernia with urogenital abnormalities, bilateral anophthalmia, rectovaginal fistula and cleft scrota. Animals were affected at a sex ratio of three males to one female (3 : 1). Surgery was successful in most cases of *atersia ani* and associated defects except in two cases of *atresia ani et recti* and urogenital defects.

Acknowledgement

Authors are thankful to the chairman. Department of Surgery and Obstertrics and to the Dean, College of Veterinary Medicine, Mosul University, Mosul. Iraq, for providing necessary facilities to carry out this work.

REFERENCES

- Cohrs, P. (1967) ... *Nieberle and coh's* Textbook of special pathological anatomy of domestic animals. Pergamon Press. Oxford.
- Dennis, S.M. and Leipold, H.W. (1972) ... *Vet. Rec.*, **91** : 219.
- (1979) ... *Vet. Bull.*, **49** : 233.
- Fischer, H, and Adinata, M.M. (1957) ... *Hemera, Zoa*, **64** : 98.

Atresia ani and Atresia ani et recti in farm animals—A. P. Singh et al



Fig. 1 *Atresia ani* in a calf



Fig. 2 Same after surgery



Fig. 3 *Atresia ani* with inguinal hernia and urogenital defects

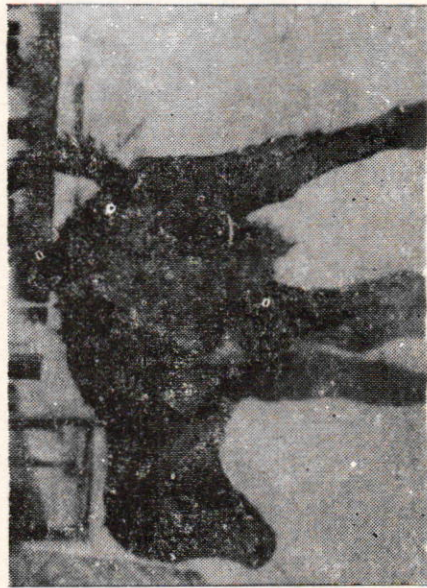


Fig. 4 Same after surgery

- Frank, E.R. (1964) ... *Veterinary Surgery* 7th Ed. Minneapolis, M.N. Burgess Publishing,
- Hartley, W.J. and Kater, J.G. (1962) ... *N. Z. Vet. J.*, 10 : 128.
- Jubb, K.V.F. and Kennedy, P.C. (1970) ... *Pathology of domestic animals*. 2nd-Ed. Vol. 2, Academic Press. New York. P. 88,
- Leipold, H.W., Huston, K. and Dennis, S.M. (1983) ... *Adv. Vet. Sci. Comp. Med.*, 27 : 198.
- Morison, J.E. (1963) ... "Foetal and Neonatal Pathology" 2nd Ed. Yearbook Medical Publishers, Chicago, p. 357,
- Nigam, J., Misk, N. A and Rifat, J.F. (1984) ... *Agri Pract.*, 5 ; 38.
- Oehme, F.W. and Prier, J.E. (1976) ... *Textbook of large animal Surgery*. Baltimore, Williams and Wilkins Co. P. 447,
- Roberts, S.J. (1971) ... *Veterinary Obstetrics and genital diseases* 2nd Ed. New York. P. 49.
- Samad, M.A., and Hoque, M.E. (1986) ... *Vet. Med. Review.*, 86 : 110,