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A Case of Aprosopia with Multiple Congenital Anomalies in a Lamb in Kassala State, Eastern Sudan

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Abstract: A case of aprosopia (facelessness) was described in a lamb at Elgash West abattoir in Kassala State, Eastern Sudan. The maxillary and mandibular bones of the deformed animal were completely absent (agnathia). There were 2 ears without external and internal orifices. Internally, the esophagus was opening in the larynx and 2 livers bilaterally were observed. The congenitally deformed lamb was hermaphrodite.

Key words: Aprosopia, multiple congenital anomalies, lamb, larynx and liver

INTRODUCTION

A variety of structural and functional defects have been described in animals and usually classified by the body system primarily affected (Susan, 1998). They can affect an isolated portion of the body system, the complete system or several systems. Commonly reported congenital and inherited defects by species include the following: In sheep- aprosopia (Dennis and Liepold, 1972b), agnathia (Dennis and Liepold, 1972a). In goats-dicephalus (Ramadan, 1996). In cattle- diprosopia (Camon *et al*., 1995; Kim *et al*., 2000; Bahr *et al*., 2004; Hind and Khaleel, 2004; Hind *et al*., 2007), cyclopia (Ozcan *et al*., 2006; Schulze and Distal, 2006). From available literature there are no reports of congenital anomalies in sheep in the Sudan. This report presents a case of aprosopia with multiple congenital anomalies in a lamb. The objectives of this work were carried out to determine the baseline information about the congenital anomalies in different animal species in the Sudan.

MATERIALS AND METHODS

Case history: A case of aprosopic lamb with multiple congenital anomalies was investigated in Elgash West abattoir in Kassala State from a ewe presented for slaughter. The deformed lamb was encountered during meat inspection in slaughter house. The previous history of the animal was not available. Aprosopia of the congenitally deformed lamb was very obvious (Fig. 1).

Post-mortem findings: Post-mortem examination of the deformed animal was done after preservation in 10% formalin. Necropsy of the body revealed abnormal growth of the skull, therefore, most of the bone structures were absent and only the posterior part of the skull was attached to the atlas vertebra. Hypoplasia was observed in the cerebral hemisphere, while aplasia was seen in the cerebellum. The esophagus was opening in the dorsal

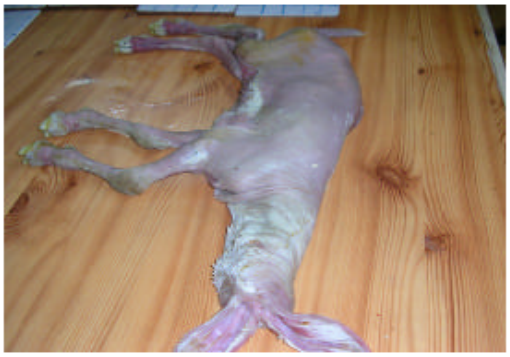

Fig. 1: Aprosopia in a lamb

Fig. 2: Esophagus opening in the dorsal side of the larynx

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side of the larynx (Fig. 2). Two livers were seen in both sides of the abdominal cavity and the right liver was slightly larger than the left one. Impressions of the kidneys on the livers were also observed.

RESULTS AND DISCUSSION

The frequency of congenital defects in sheep is difficult to assess (Saperstein *et al*., 1975). However, the incidence of these defects is estimated to range from 0.2_3.5% of all birth of calves, lams and foals (Susan, 1998). Many of these anomalies have been associated with environmental factors (Staffenberg *et al*., 2002), genetic mutations and biological agents (Moritomo *et al*., 1999). In addition to some transmissible diseases have been shown to cause deformed foetus such as *Vibrio foet*us, *Listeria monocytogenes* and para-influeza virus (Hore *et al*., 1973).

Few previous cases of congenital anomalies have been reported in the Sudan (Hind and Khaleel, 2004; Hind *et al*., 2007), therefore most of these cases either passed unnoticed or not reported. Aprosopia has been reported in a lamb in other countries (Dennis *et al*., 1972). However, the present condition appears to be the first reported case of aprosopia in a lamb in the Sudan. Although, the exact cause(s) of these defects in this lamb could not be determined since it has been sporadic case and many factors may have an essential role in such anomalies, but the genetic factors might be the cause of the defects in this lamb.

The most likely explanation is that this condition was caused by genetic factors, this may be the reason behind exclusion of this ewe from the herd to be slaughtered at full gestation period of pregnancy. This view could be supported by the fact that chromosomal alterations typically lead to anomalous syndromes rather than single malformation (Camon *et al*., 1990). However, the genetic mutations are among the known causes of congenital abnormalities in animals (Moritomo *et al*., 1999), may suggest the mutant genes to be one of the causes of this condition. Finally the mechanism(s) by which the anomalies a rose in this case is open for speculation.

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