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Tracheal Collapse in a Beetal Goat – First Case Report in Pakistan

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ABSTRACT: A female Beetal goat, 4-years-old was brought to the Outdoor Hospital of University of Veterinary and Animal Sciences Lahore, Pakistan. The goat when presented at the hospital was noticed restless and was unable to stand. Temperature was subnormal (98°F) and respiratory stridors were evident during respiration. Signs of severe dyspnea with foamy salivation and dilated pupils were also evident. Mucous membrane and tongue were cyanotic. At postmortem, presence of foamy secretions in the cranial airways, including nostrils were observed. Lungs were congested and edematous. Most predominant finding was tracheal rings with pronounced distance between their dorsal edges with cartilage damage and totally collapsed trachea extending up to bifurcation. This finding was corresponding to tracheal collapse grade IV. This is the first published report of tracheal collapse in goats in Pakistan.

Keywords: Beetal, goat, tracheal, collapse, Pakistan.

CASE HISTORY AND CLINICAL MANIFESTATIONS

A female Beetal goat, 4-yearsold was brought to the outdoor Hospital of University of Veterinary and Animal Sciences Lahore, Pakistan. The goat had parturited and delivered two healthy kids 20 days ago. The goat was kept in clean backyard, fed green fodder and grains as concentrate, and had unknown history of deworming. The physical condition of the goat was weak with rough hair coat and dander. The owner had complaint for choking (esophageal obstruction). The animal when presented at the hospital was first seen restlessness and was unable to stand. Respiratory stridors were evident during respiration audible even at distance. There was severe dyspnea with subnormal temperature (98°F) and the Pulse rate was 68/minute. On auscultation rhonchi and stridor sounds were heard. There was foamy salivation and pupils were dilated. Mucous membrane and tongue were cyanotic.

INITIAL TREATMENT ATTEMPTED AND FURTHER INVESTIGATION

At this stage the animal was injected intravenously with Atropine sulfate 0.5 mg/kgat body weight. Following injection palpated for the choking but no evidence was found for choking. However during palpation, surprisingly, the trachea was found flattened rather circular hollow structure. It was decided to inject prednisolone and aminophylline, and then to refer the animal to the surgery clinic but goat collapsed to slaughter without giving chance to administer this treatment.

At postmortem, presence of foamy secretions in the cranial airways, including nostrils were observed. Lungs were congested and edematous. Most predominant finding was, tracheal rings with pronounced distance between their dorsal edges with cartilage damage and totally collapsed trachea extending up to bifurcation (Fig. 1 and 2). Blood clot was also recovered from lower trachea on excision. This finding was corresponding to tracheal collapse grade IV.



Fig. 1. Snapshots of grade IV tracheal collapse in Beetal goat. Notice the dislocation of cartilaginous rings from dorsal free edges.



Fig. 2. Snapshots of grade IV tracheal collapse in Beetal goat. Notice the constricted lumen of the trachea.

DISCUSSION

Beetal goat is traditional breed in Punjab province of Pakistan and is famous for milk and meat production (Iqbal et al., 2008; Ramzan et al., 2020). The salient features of Beetal goat include height at withers as 90 cm and 81 cm for adult males and females, respectively (Hasnain, 1985; Iqbal et al., 2013) and body weights 65 kg and 45 kg for adult males and females, respectively (Devendra and Burns, 1983; Eyduran et al., 2017). The milk yield is 195 kg in 224 days (Devendra and Burns, 1983; Prasad et al., 2005). Beetal goats play key role in supporting millions of people who are poor, landless and living in the rural areas. It is also called as "Poor man's cow.

Tracheal collapse is the obstruction in the wind pipe due to collapse (Hedlund, 1991; Jerran and Fossum, 1997). Initially, there is laxity of the trachealis muscle which causes coughing and sounds during breathing and as the condition progresses dorsoventral flattening takes place. This flattening dorsoventral results in appearance of more prominent and severe signs of coughing and dyspnea (Deweese and Tobias, 2014). It has been reported in dogs, cats and cattle especially in young calves (Hawkins et al., 1998). In dogs, tracheal collapse involves either the cervical or the thoracic tracheal area

(Fingland et al., 1990; Ettinger et al., 1992). In calves, the caudal cervical and thoracic sections of the trachea are most affected (Fingland et al., 1990). Different etiologies for tracheal collapse have been proposed which include congenital malformations, genetically induced tracheal weakness nutritional or deficiencies (Hawkins et al., 1998). The majority of the cases have been reported in the calves as well as dogs and cats in mid- and elderly age (Ettinger et al., 1992). The congenital form of the disease in dogs is related with malformation of the ring structure of the trachea however in the acquired form the rings lose their ability to stay firm and finally collapse (Ettinger et al., 1992). Siger et al. (1998) has also reported tracheal collapse in the horses.

The collapse is classified and graded by the degree of diminution of the lumen of the trachea Grade I (25% reduction), grade II (50%; pendulous membrane and relaxed cartilage), grade III (75%; membrane almost in contact with the ventral wall), and grade IV (lumen almost obliterated).

The typical signs of tracheal collapse are cough, dyspnea, restlessness, exercise intolerance, tachycardia and cyanosis (Rings, 1995; Jerran and Fossum, 1997). Animal is exercise intolerant and a light exercise can induce severe dyspnea and restlessness. A correct diagnosis can be achieved by tracheal palpation, radiography, and endoscopy.

Treatment may be medical and surgical or both but neither medical

nor surgical are cure of the disease (Ettinger et al., 1992; Rings, 1995; Jerran and Fossum, 1997). However the history, physical condition and severity of signs all contribute in the decision of line of treatment. According to Chisnell et al. (2015) in dogs severe cervical tracheal collapse treated with extra-luminal ring available commercially had a positive impact in overall improving quality of life

In this case initial diagnosis was chocking by foreign body which is common in goat but finding the trachea collapsed was unexpected as the animal had never shown any signs before. Macroscopically there was no deformity in the trachea which shows there was not a congenital or nutritional cause behind tracheal collapse rather it was due to increased respiratory stress.

CONCLUSION

This report is important as tracheal collapse has never been reported in adult goats in Pakistan thus establishing one more differential diagnosis in the diseases which cause severe dyspnea and cyanosis. Hence this is the first published report of tracheal collapse in goats in Pakistan.

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