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VACTERL ASSOCIATION IN A DAY OLD PIGLET (*Sus scrofa domestica*)- A CASE REPORT

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Abstract: A case of one day old piglet weighing 1.5 kg presented to TVCC, Mannuthy with multiple congenital anomalies include anury, amelia, atresia ani and agenesis of uro-genital structure is reported.

Keywords: Piglet, amelia, atresia ani, anury.

Introduction

Congenital abnormalities are very common in swine among domestic animals [3]. 'Abnormality' means a defect, anomaly, malformation or deformity without reference to its cause. The term 'congenital' indicates that the conditions present at birth regardless of their causation [9]. 'VACTERL' is defined as the condition which consist multi-systemic congenital abnormalities. It was first defined by the presence of vertebral defects, anal atresia, trachea-oesophageal fistula with oesophageal atresia and radial and renal dysplasia (VATER) [4]. A case report of a piglet having atresia ani, amelia (absence of limb), improper development of uro-genital system and anury (absence of tail) or vertebral defect is kept on record.

Case history and observations

A one day old piglet weighning 1.5 kg was presented to Teaching Veterinary Clinical Complex, Mannuthy with multiple congenital anomalies including anury, amelia of left hindleg, atresia ani and incomplete development of uro-genital structures. Right hindlimb appeared to be of normal in shape and size but complete absence of left hindlimb was observed. Animal exhibited normal suckling behaviour and abdomen distended gradually due to atresia ani and absence of urogenital openings. Lateral whole body radiograph revealed gas filled stomach and intestinal loops and the gastro intestinal tract ended cranial to the pelvic

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inlet suggestive of atresia ani et recti and the border of urinary bladder was not well defined. Absence of caudal vertebrae and bones of left hindleg were also evident.

Fig. 1. Piglet on the day of presentation

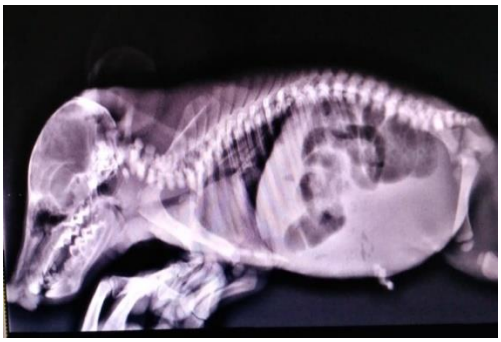

Fig. 2. Radiograph showing absence of Caudal vertebrae and bones of left hind leg

Treatment and Discussion

Any medical or surgical interventions were not done due to the reduced chance of survivability. Animal succumbed to death on second day of life.

Fig.3. Anury, Amelia, Atresia ani and agenesis of external uro genital system

VACTERL acronym stands for vertebral, anal, cardiac, tracheal, oesophageal, renal and limb abnormalities. The diagnostic criteria for VACTERL association is the presence of at least three of these congenital anomalies [7]. Defect in the differentiating mesoderm in the early first trimester is one of the possible aetiology for VACTERL association [5]. According to mouse model of vertebral anomalies, environmental factors such as short term gestational

hypoxia and notch signalling haploinsufficiency were shown to increase susceptibility to vertebral defects [8]. Another cause of the VACTERL association proposed by Siebel and Solomon, 2013 is that the excessive reactive oxygen species and free radicals produced in early embryonic development due to mitochondrial anomalies.

The absence of tail is mainly congenital or hereditary in origin. The genetic basis of tailless mice is that the mice contained two alleles, each of which was lethal when homozygous resulting in anury [2]. Atresia ani in piglets is due to an autosomal recessive gene (Harkin *et al.,* 1982). In a survey conducted in piglets by Mulley and Edwards (1984) it was observed that the defects of the musculoskeletal, digestive and urogenital systems contributed 85% of the total defects. Myofibrillar hypoplasia, anal atresia and cryptorchidism were the most common defects and contributed 60% of the total abnormalities.

In the present case, the requirement for VACTERL association is fulfilled and due to the improper development of anal and urinary system the animal did not survive.

Summary

A case report of VACTERL association in piglet is reported.

Acknowledgment

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