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Sokoto Journal of Veterinary Sciences
ISSN 1595-093X

S. Buhari *et al.* /*Sokoto Journal of Veterinary Sciences* (2008). **7**(1): 23-24.

Monocephalus, thoracopagus and dipygus twins in Sokoto Red goat

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Abstract

A dipygus Sokoto red goat was delivered through caesarean section following protracted period of dystocia. The dipygus thoracopagus twins died shortly after the surgery and were examined radiographically and at necropsy. They were monocephalus joined at the thoracic region (thoracopagus) and had separate spinal columns.

Keywords: Monocephalus, Thoracopagus and Dipygus, Sokoto red goat.

Introduction

Conjoined twins are monozygotic twins imperfectly formed and are classified as free or attached symmetrical, or free or attached asymmetrical (Potter, 1961): Dipygus twinning is equal posterior twinning or duplication (Dennis, 1975a). Information on definitive aetiology of embryonic duplication is very rare. It is assumed to be caused by genetic or environmental factors, or by their interaction or by ageing ova (Dennis, 1975a). Until 1960 most congenital defects were considered genetic, but now environmental factors are recognized as major causes (Hatley, *et al.*, 1974; Dennis 1975b; Inaba *et al.*, 1975). Dipygus twins associated with monocephalus, tetrapus, dibrachius and cyclopia was reported in sheep by Dennis (1975a). Leipold and Dennis (1972) reported tetrapus and tribrachius in dicephali calves. Najume *et al.* (1990) reported polypia, tetrabrachius, tetrapus, monocephalus dipygus twins in red Sokoto goat. However, Nottidge *et al.* (2007) reported monocephalus, thoracopagus, tetrabrachius twins puppies.

Conjoined twins are believed to be more common in cattle than in other domestic animals (Arthur, 1956) and usually affect the anterior part of the body (Arthur, 1956; Dozsa, 1966). However, in this paper we report a case of monocephalus, thoracopagus, tetrabrachius, dipygus, tetrapus conjoined twins in red Sokoto goat with multiple congenital malformations.

Case History

Conjoined monocephalus dipygus twins were recovered following caesarean section in a red Sokoto doe, at the Large Animal Clinic of Usmanu Danfodiyo University Veterinary Teaching Hospital, Sokoto, on 18th December, 2007. The doe was physically normal, delivered one apparently healthy kid before the surgery unassisted. It had however, delivered a normal kid previously.

The conjoined twins died shortly after hysterotomy (Plate I), radiograph was taken and the conjoined twins were sent for post mortem examination. Radiographic examinations revealed fully developed skeletal system except for single head (monocephalus), some deviation of the ribs and were joined at the thorax (thoracopagus) (Plate II).

Necropsy examination confirmed that the twins were joined at the thorax and had a fully developed heart in one of the twins and a rudimentary one in the other. There were three kidneys: two in the twin

with the developed heart and one in the other twin. The twins share common liver and rudimentary lungs.

Discussion

A congenital defect results from a disruptive event at one or more stages in the complexly integrated process of embryonic or foetal development (Dennis and Leipold, 1979). Regardless of the causative agent affecting embryo, embryonic age is the predominant factor in teratogenicity. However, few cases of dipygus twins especially in goats were reported (Najume *et al.*, 1990). Similar malformations observed in this report were reported in sheep and goats previously by Dennis (1975a) and Najume *et al.*, (1990). Common liver has also been observed in conjoined calves (Gordon and Lowe, 1973). The malformations observed in this report are not compatible with life.

Plate I
The dipygus twins at delivery

Plate II
Radiograph of the dipygus twins

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