

Congenital Dysgenesis (Brachiomelia) of the Forearm Amongst West African Dwarf Triplet Kids in Nigeria: A Case Report

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ABSTRACT

Unilateral and bilateral congenital dysgenesis (brachiomelia) of the forearm in three kid goats is reported. The animals were born with a miniature forearm/antebrachium, but the shoulder, arm and manus were apparently unaffected. Radiological examination revealed a reduced and bent morphology of the forearm.

Key words: Congenital, dysgenesis, ante-brachium, West African Dwarf, goat

INTRODUCTION

Congenital abnormalities are of interest to many researchers and to the general public, particularly to the former due to the incrimination of environmental pollution as one of the several causes of such occurrences. Factors like toxic plants, trace elements, infectious agents and physical agents such as hyperthermia have been suggested as predisposing factors for congenital abnormalities in ruminants (Cazabon and Adogwa, 2003).

Based on available data, the incidences of congenital abnormalities are low in animals, but this could be as a result of a lack of interest and reporting culture of field veterinarians and farmers. There has, however, been a recent increase in the reporting of cases of congenital abnormalities occurring in the country including that of achondroplastic syndrome in a lamb (Ajadi *et al.*, 2005) and craniothoracopagus (monocephalus, thoracopagus, tetrabrachius) in a dog (Nottidge *et al.*, 2007).

This work reports a case of congenital brachiomelia of the forearms of West African Dwarf (WAD) triplet kids in Nigeria.

Case history, necropsy and radiological findings

A two-year old WAD doe with a history of producing normal, live, healthy kids without obstetrical assistance was brought to the Veterinary Teaching Hospital of the University of Ibadan with three kids (triplet) of about a week old. One of the kids was born dead (kid A) while one of the surviving kids (kid B) could not stand but was always on sternal recumbency, the other surviving kid (kid C) was, however, standing but with abnormal gait.

Physical examination

Physical examination of the sternally recumbent and dead kids revealed short forearms giving the appearance of retracted and deformed forelimbs. The other surviving kid had the same occurrence only in the right forelimb, while the left forelimb was fully extended. In all the kids, the entire hindlimbs and the conformation of the shoulder region, the arm (brachium) and manus of the affected limbs (Fig. 1). There was no evidence of swelling at the region of the forearm and neither did palpation of the region elicit any painful reactions in the animals (kid B).

Radiological examination and necropsy studies

Radiological examination of Kid B (Fig. 2) revealed a reduced and curved morphology (brachiomelia) of the forearm/antebrachium (specifically, the radius bone) of the affected kids. The conformation of the humerus, carpal and metacarpal bones showed normal spatial orientation.

Necropsy studies on the affected limb of the dead kid corresponded with radiological evidence as the forearm

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bones were small and bent; there was also an associated reduction of the muscle mass related to the forearm. There was, however, an apparently normal development of the nerves of the brachial plexus.



Fig. 1. Gross whole carcass of West African Dwarf kid showing well developed hindlimbs and malformed forelimbs



Fig. 2. Radiograph showing trunk and forelimbs of West African Dwarf kid. Note areas of dysgenesis in the antebrachium (arrows)

DISCUSSION

Congenital malformations of the head and forearm have been reported in humans (Buck-Gramako and Habenicht, 2003) but have rarely been reported in goats. The doe in this report has had uneventful and normal births in the past. The absence of swelling and none response to pain on palpation of the forearm of the kids suggested that the animals did not have fractures during parturition. This unusual occurrence of congenital forelimb abnormality may be the result of exogenous factors such as toxins, which would have affected a region of the embryo or a stage of foetogenesis when the radius and ulna were developing. It was, however, noted that the doe had not been subjected to changes in diet nor environment during pregnancy. It was not clear why the extent of the abnormality was not evident on the left forelimb of one of the surviving kids. The absence of such a deformity in the hindlimb may also be indicative of the specific time-frame of the occurrence of the dysgenesis, since it is generally known that morphogenesis of the hindlimb occurs slightly earlier than that of the forelimb (Sadler, 2004).

To the best of the authors' knowledge, this may be the first case of congenital brachiomelia of the forearm in the goat in the electronic literature.

ACKNOWLEDGEMENTS

The authors are grateful to Mrs Adene of the Radiology Unit of the Veterinary Teaching Hospital, University of Ibadan, and to the technical staff and post-graduate students of the Department of Veterinary Anatomy, University of Ibadan, for technical assistance.

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