

NOTOMELIA IN GOATS AND A CALF

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INTRODUCTION

Notomelia which refers to a limb growing from the back of an animal constitutes an interesting form of embryonic duplication since a normal individual may live for a considerable period of time carrying extra limb(s). The anomaly may be defined by several terms such as "dipygus" when the accessory hind limb is attached to the normal pelvis; or pygomelia; when the embryonic limb duplication is located on the rump or perineomelia, when the extra limb is found in the perineum. Notomelia is not uncommon in cattle (Leipold *et al.*, 1972; Iyer, 1987; Roberts, 1986, Kenawy and Kassem, 1992). However, it is considered rare in other species such as caprine (Mohan and Reddy, 1992). The following article describes three cases of notomelia in animals (two goats and one calf) which is considered as the first clinical report in Saudi Arabia.

CASE HISTORY

Case One

A month old female goat was presented because she was born with extra hind limbs which were attached to the left perineal region (Fig. 1). Apart from this she look normal. Radiographic examination was conducted of the pelvic region. This revealed extra-pelvic bones, a femur; a rotated tibia, metatarsal bones, tarsus and four digits (Fig. 2,3). The femur was slightly misshapen distally and was facing to the opposite direction. The fibular tarsal bones had two articular facets through which each metatarsal bone articulates. The tibia tarsal bone was missing.

The animal was sedated with xylazine (Rompun 2%, Bayer) at a dose of 0.1 mg/kg body weight given intravenously. This was supplemented with epidural analgesia using 3 ml of 2% lignocaine hydrochloride injected through the limb's acral space. The extra limb was thus disarticulated and the animal discharged.

Case Two

A one day old female kid was presented because of the presence of two extra limbs attached to the left

ventrolateral part of the abdomen caudal to the costal arch (Fig. 4). The kid was exhausted and exhibited postural defects of both hind limbs characterized by joint laxity of the tarsal and fetlock joints. The extra-limbs were abducted and formed 180 degree angle. They were tightly fixed at this posture and were difficult to abduct even after disarticulation. The perineal region of the extra-limbs bear external vulvar opening and had anal opening (atresia ani).



Fig. 1: A month kid bearing a conjoined extra-hind limb at the perineum of the left side.



Fig. 2: Anterio-posterior radiograph of the extra-hind limb of case 1 showing two metatarsal bones and four digits.

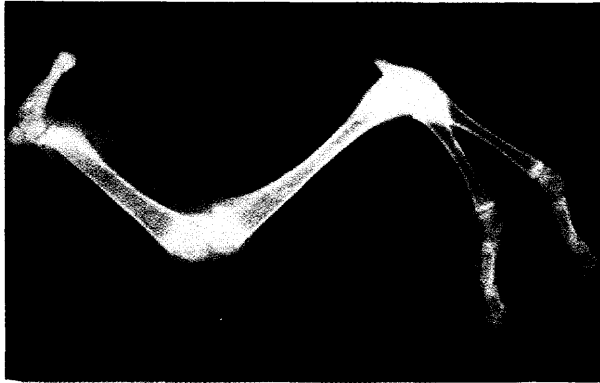


Fig. 3: Lateral radiograph of the extra-hind limb of case 1 showing backward rotation of the tibia.



Fig. 4: A one day old goat bearing two extra-hind limb situated at the abdomen.

Radiographic examination revealed that pelvic bones were vestiges measuring 42 x 7 mm each and right half of the pelvic bones were separated from the left one by a 3 mm space. There was no evidence of vertebral column. The femoral heads were truncated. The extra limbs were amputated under sedation with xylazine together with local analgesia using lignocaine hydrochloride and because of the presence of other associated defects the kid was not allowed to recover from anesthesia.

Pathology

There were duplication of the rumen abomasum and small intestines (Fig. 5). The rectum and anus was single organs.

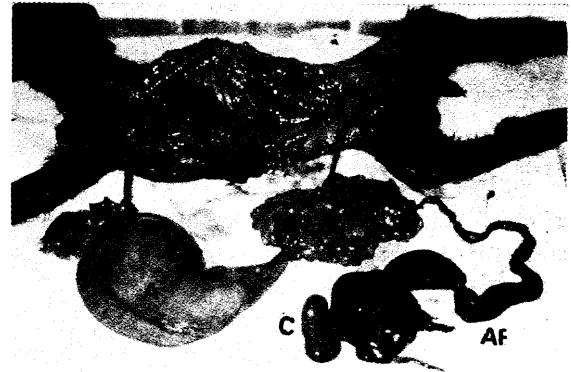


Fig. 5: Necropsy of kid in Fig. 4. A = abomasum; AF = abomasum; C = caecum; R = diverticulum; I = intestines common to both. Arrow = terminal part of colon and rectum (AF, C, R were connected to the parasitic limb).

Case Three

A day old male calf was born without assistance but he had extra hind limbs attached to the perineal region (Fig. 6). The calf had atresia ani and hyper extension of left tarsal joint and a crooked twisted tail. Radiographic examination showed that the femoral condyles were facing backwardly, the tarsal bones were represented by two short nearly flat bones situated in two rows. The bones on the first row bears a caudal projection. Distal to the tarsus a slender metatarsus was supported by a single row of phalanges "ectrodactyly" (Fig. 7). An anal opening was created under local analgesia but the owner refused to amputate the extra limb.

DISCUSSION

Statistical data on the frequency of notomelia in goats is lacking. It is interesting to note that all of our three cases possessed radiographic evidence of pelvic bones and the calf had an atresia ani as well. This is in going with the findings of other authors in cattle (Noden and deLahunta, 1985; Hossain and Rohman, 1988). The extra limbs observed in all the animals were small in size when compared to the normal animal and this may suggest that their new situation produced

retardation or arrest in their nutrition and growth at any time during organogenesis.



Fig. 6: Hind quarters of day old calf bearing extra limbs.



Fig. 7: Lateral radiographic projection of the extra-limbs.

The aetiology of congenital duplication are still controversial. They may be considered as being a multifactorial agent where genetic and environmental facts interact (Hiraga and Dennis, 1993). Notomelia may result from the formation of a limb field in an atypical site (Noden and deLahunta, 1985).

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