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A Case of Complete Pseudodiphallia with Pseudoscrotum, Atresia Ani and Recti and A Double Tail in an Awassi Lamb

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Abstract: Pseudophallus or double penis is a rare congenital anomaly. The anomaly is frequently concomitant with other defects involving various body systems such as intestinal atresia, duplication of the urinary bladder, scrotum and vertebral malformations. This is a unique case of double penis, double scrotum, atresia ani et recti and double tail in a 5 day old, 3.8 kg, Awassi male lamb. The lamb was presented to the Veterinary Health Center with a complaint of not passing feces since birth. The lamb underwent surgery to perform colostomy to bypass absent intestinal segment and died 24 hours after surgery. This collection of congenital anomalies is unusual to be seen in the same animal and has not been reported previously in sheep.

Key words: Duplication · Congenital anomaly · Phallus · Awassi sheep · Atresia

INTRODUCTION

Organ duplication is a kind of congenital embryonic developmental defect [1, 2]. The etiology of such embryonic defects is not very well identified. However, faulty fetal development due to genetic mutations or prenatal infections has been incriminated [1-3]. Duplication defects are usually present in monozygotic conjoined twins. The extent of the defects and their classification vary from minor to complete duplication of a single or multiple organs [4, 5]. According to the location of the defect, it can be referred to as thoracopagus, craniopagus, or abdominopagus [6, 7]. The case presented here is the first of its kind in sheep. It describes a case of double penis, double scrotum, atresia aniet recti and double tail in a 5 day old, 3.8 kg, male Awassi lamb.

MATERIALS AND METHODS

Case History: A 5 day old, 3.8 kg, male Awassi lamb was presented to the Veterinary Health Center at Jordan University of Science and Technology for not passing feces since birth. The lamb maintained good appetite and was reported to be normal except for the previous presenting complaint. The dam of the lamb is 4 years old, was born in the flock and gave birth to this single lamb without assistance. Her previous offspring was reported to be normal. The lamb belongs to an Awassi sheep flock that consists of 200 ewes and 8 rams. Around third of the ewes lambed till the time of presentation with no obvious abnormalities beside the fact that few of the newborn lambs were smaller than what the owner would have expect them to be. The flock is fed oats, bran and chopped straw. The flock was dewormed and vaccinated regularly for foot and mouth disease, peste des petits ruminants and clostridial diseases.

Physical Examination: On presentation, the lamb was bright alert and responsive. He was active and ambulating normally. His heart and respiratory rates were within normal limits. Closer examination of the perineal area and the abdomen revealed the presence of atresia ani, 2 penes and prepuces, 3 scrotums, 2 of which has 2 testicles while

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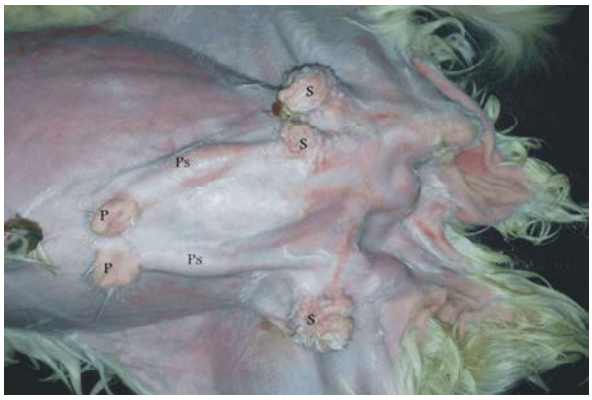

Fig. 1: Embryonic duplications consisted of 2 penes (Ps), 2 prepuces (P) and 3 scrotums (S) in a 5 days old male Awassi lamb.

Fig. 2: Dorso-ventral radiograph of a 5 days old male awassi lamb showing missing *os pubis*and a double coccygeal vertebral segment (double tail).

Fig. 3: Sacro-coccygeal vertebral segment. S= sacrum; Co1= first coccygeal segement (first ail 1); Co2= second coccygeal segment (second tail).

the third was empty (Figure 1). The lamb was reported to urinate normally and examination of the perpetual area revealed wet and urine-stained preputial orifices.

Hematology Analysis: Complete blood cell count revealed normal hemogram.

Ultrasonographic Examination: Ultrasonographic examination of the abdominal and pelvic cavities revealed distended loops of small and large intestines in addition to a single normal urinary bladder.

Radiographic Examination: Radiographic examination of the caudal abdomen, pelvic cavity and hind limbs revealed absence of the pubic bone (*os pubis*) (Figure 2 and 3).

Colostomy: The owner was informed that the lamb has multiple congenital anomalies. In spite of the poor prognosis of the lamb, the owner elected to perform exploratory laparotomy. On abdominal exploration, the lamb was found to have atresia recti and coli in addition to atresia ani. Colostomy was performed to bypass the absent segment of the lower gastrointestinal tract. Twenty four hours after the surgery, the lamb died.

DISCUSSIOIN

Congenital developmental anomalies are reported in a wide range of animal species [6-11].While information regarding the etiology of congenital defects is lacking in the veterinary literature, such defects still occur in ruminants causing significant loss of productivity. Genetic and environmental factors as well as their interaction are implicated. In addition, other factors such as copper deficiency, blue tongue virus infection and ingestion of *Veratrum californicum* are also implicated [1]. In a 3-year study of causes of perinatal lamb mortality in Western Australia, 4,417 dead lambs were examined. Of those 401 had congenital malformation and 27 had embryonic duplication [1]. In that study atresia ani was associated with many cases of embryonic duplication. Furthermore, there were no breed predisposition or evidence to suggest environmental or genetic causes of congenital duplication and there were no correlation between congenital duplication and time of conception or lambing. However, more male lambs seemed to be affected in the same study, with 3:2 male to female ratio seen.

This case represents an unusual collection of anomalies that affected 3 main systems; the gastrointestinal, genital and skeletal systems. This collection of anomalies has not been reported in sheep before and was not observed in the same animal of different other breeds examined in the previous study of embryonic duplication [1]. History of the flock does not

suggest any concurrent disease process and feed offered is rather known. However, in sheep it is extremely difficult to determine the etiology of congenital defects since they usually occur months after exposure and sheep farmers do not routinely keep records of breeding, diet, pedigrees and disease status [8-10]. Congenital anomalies and duplication mostly remain of unknown etiology and further studies are warranted in this field.

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