Faculty of Veterinary Medicine, Department of Anatomy

A CASE OF SCHISTOSOMUS REFLEXUS ASSOCIATED WITH THE UNIFACATION OF THE RIBS IN A CALF*

Eşref Deniz**

Introduction

According to JOEST (1929), schistosomus reflexus, characterized by the flexion of the vertebral column (lordose) and the unification of the ribs, is rather common in the calf. BARBARINO [2] reported 221 cases in calves. He also cited cases in the horse, sheep, goat and dog. It has also been reported in the pig (JOEST, NOTTER and KITT, [2])

Uncomplicated schistosomus reflexus exists as an abdominal fissure resulting in evisceration. More complicated cases show skeletal malformations. This report describes an additional case of schistosomus reflexus complicated by unification of ribs in a female calf, born dead with assistance.

Fig. 1 – General view of a calf with schistosomus reflexus

* The author thanks the Dept. of Gynecology and Obstetrics for supplying of the calf.

** Dr. Med. Vet., Faculty of Veterinary Medicine, Dept. of Anatomy, Univ. of Ankara. Ankara-Turkey.

Anatomical Findings

Superficial examination of the malformed animal indicated that the abdominal and thoracic organs were abnormally displaced due to the abdominal fissure. The abdominal and thoracic cavities were continuous due to the absence of the diaphragm (fig.1).

The vertebral column twisted from right to left resulting in the animal's tail lying next to its head. Skin covered the body as far as the arcus costarum, then it inflexed to the internal surfaces to the ribs forming a hairless cutaneous layer. The most striking defect in this case was the deformation of the thoracic and lumbal parts of the vertebral column. The spinous, transverse and articular processes of all thoracic vertebrae were deformed or undeveloped. Also, the first three lumbar vertebrae did not have transverse processes.

The pelvic cavity was not identifiable because of the malformation. A tabula ischiadica was absent. The ischiadic bones overlaped each other, causing the obturator foramen to be situated one on top of the other. The rectum and female genitalia were located at the dorsal surface of the right ischiadic bone. The sciatic nerves did not pass through the greater sciatic foramen.

Due to the lordokyphosis of the vertebral column, the sacrum and the pelvis were located at the right ventral aspect of the body. The ribs also accompanied this flexion. The first pair of ribs were normally placed, but the other ribs were twisted forming the costal arch at the level of withers. Ribs became thinner, rounder and fused together. The right scapula was located between the neck and the costal mass.

The sternum, composed of only three sternebrae, was 5 cm. long and 1,8 cm. wide. It articulated with the costal mass described above. In addition, a cartilaginous-osseous structure united the sternum with the forth rib.

The right pelvis was normal in size and shape. The left ilium had a normal apperance, but it united with the transverse processes of last 2–3 lumbar vertebrae. The left acetabulum faced dorsal. The obturator foramen was as big as a turkish ten kuruş or a quarter (ca. 2 cm. in diamater).

The coccygeal vertebrae were situated to the left, the tail located next to the ear. The left scapula was normally located.

Abdominal muscles were mostly atrophied and formed an unidentifiable mass. The number of vertebrae of the thoraco-lumbar column was normal eventhough it was deviated abnormally. All vertebral articulations were immovable.

With the exception of the right deviated tarsus, all other anatomical structures of the animal were normal.

Fig. 2 – In a right view of the calf deviation of the vertebral column (A) and the unification of the ribs (B) are visible.

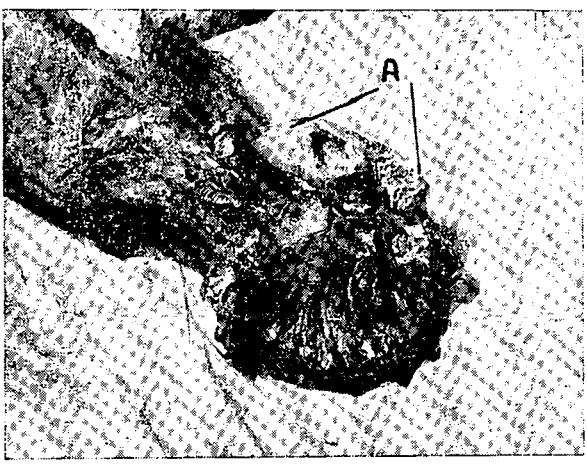

Fig. 3 – A view of the malformed calf shows the defective pelvic bones (A).

Discussion

The defects associated with this congenital malformation were lordokyphose of the vertebral column, abdominal fissure and the absence of the diaphragm. The defective formation resulted in a total folding of the animal's body and evisceration. JOEST [2] cited several factors responsible for schistosomus reflexus in particular: influence of the vesica umblicalis, the genesis of the abdominal fissure resulting a primary developmental failure of the vertebral column. Recently, GROTH [1] explained the significance of the invoremental influences and genetic factors which are known to cause the malformations. According to him disturbed development of the embryo may be caused by mechanical, hormonal, alimentary, metabolic or chemical influences and by infections. The form and degree of the malformations do not depend upon the nature of environmental factors, but upon the time at which they act on the embryonic metabolism.

The cause of this birth defect was not determined since the history of the calf was unknown. However, it might be a mechanical factor.

Summary

A case of schistosomus reflexus was observed in a female calf, born dead. The diaphragm was absent. Malformations of the vertebral column, ribs and pelvic bones were described.

Zusammenfassung

Ein Fall von Schistosomus reflexus in Verbindung mit der Verschmelzung der Rippen bei einem Kalb

Ein Fall von Schistosomus reflexus wurde bei einem totgeborenen weiblichen Kalb beobachtet. Bei diesem Fall fehlte das Zwerchfell. Die Missbildungen der Wirbelsaeule, Rippen und Beckenknochen wurden beschrieben.

Özet

Bir danada costa'ların da birleşimile şekillenen schistosomus reflexus olayı

Ölü doğmuş bir dişi danada "schistosomus reflexus" olayı izlenmiştir. Bu olayda diyafram (diaphragma) şekillenmemişti.

Columna vertebralis, costa'lar ve ossa coxae'nin oluşum bozuklukları betimlendi.

References

1. **Groth, W.:** *Über die Aetiologie von Missbildungen beim Tier.* Berliner und Münchener Tierärztliche Wochenschrift. 73. Jahrgang, Heft 4, pp. 64-66 u. Heft 5, pp. 88–90 (1960).

2. **Joest, E.:** *Handbuch der speziellen pathologischen Anatomie der Haustiere.* Bd. V. pp. 704-706, (1929).

Received 17 Feb. 1965