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BILATERAL PARACERVICAL HYDROPIC TERATOLOGICAL SKIN OUTPOUCHING IN A MONSTER CALF (A CASE REPORT)

(With 3 Fig.)

By

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جيب خارجي رقبي مائي في عجل غريب الخلقه

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أحضرت بقره من السلاله المحليه عمرها حوالى ٨ سنوات متعثره فى الولاده إلى مستشفى الكليه وبعد فحصها تقرر إجراء عملية قيصريه لتعذر تعديل وضع الجنين عن طريق مجرى الولاده.

وعندما استخرج الجنين تبين أنه أنثى كاملة النمو غريبة الخلقه حيث وجد بها جيبين كبيرين بهما سائل على جانبى الرقبه كما أن الأذن اليسرى كانت عباره عن صيوان خارجى طبيعى ومتصل به صيوان خارجى أصغر حجماً ، هذا بالأضافه إلى تصلب المفصل المعقوف بالأرجل الخلفيه للجنين. وبتحليل السائل الموجود بالجيب بيوكيميائياً تبين أنه يشبه فى تركيبه مكونات مصل الدم. أظهر الفحص الهستوباثولوجى لجدار الجيب وجود زيادة واضحه فى سمك طبقة الأدمه كما تبين أن الانابيب الكلويه بالكلى اليسرى كانت منقبضه تماماً وليس بها تجويف هذا إلى جانب ظهور باقى الأعضاء الداخليه بصوره طبيعيه. تمت مناقشة النتائج مقارنة بالمراجع العلميه المتاحه.

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INTRODUCTION

Monstrosities or foetal congenital abnormalities most often cause dystocia in dairy cattle (*ARTHUR et al., 1986*). They added that the commonest example of such abnormalities is schistosoma reflexus, followed by ankylosed calves including perosomus elumbis, double monsters, dropsical foetuses as anasarcous and hydrocephalic calves and anchondroplastic monsters.

Concerning the relative incidence of foetal monstrosities between species of animals, *ROBERTS (1971)* revealed that out of 101 collected monsters, 92 were delivered by cows, 3 by mares, 2 by ewes, 2 by goats and 2 by sows. *LEIPOLD and DENNIS (1986)* pointed out that the frequency of congenital defects in cattle is not a fixed proportion of all births but varies as they caused by either heriditary or environmental factors or by the interactions of both. They classified the congenital defects in cattle according to the principle body system involved.

The present report describes a case of bilateral paracervical skin outpouching in a monster calf that was delivered by caesarean section in the Veterinary Clinic.

History and Clinical Findings:

An 8 years-old Local-breed cow was presented to the Clinic of the Faculty suffering dystocia. The case history revealed that she started parturition 10 hours earlier and that trials to extract the foetus had failed. Moreover, the cow was in the fullterm of her fifth pregnancy and she gave four normal full-term calves before.

Clinical examination of the case revealed that she was normally-prepared for parturition with complete relexation of pelvic Ligaments, dilatation of cervix and vagina. The whole tract was dry and foetal bags were ruptured and the uterus was contracted arround the foetus. Foetal examination revealed that it was presented posteriorly with bilateral hip-flexion (Breech Presentation) and right dorso-iliac position. Trials for correction did not succeed and caesarean section was decided to save the life of the mother animal.

Handling of the case:

A uterine incision of 25 cm in length was made. The two fore-Limbs were fixed by obstetrical chains and the head was supported by the operator's hands. Traction by two assistants failed to extract the foetus due to obstacle in the neck. The

uterine incision was increased to 40 cm in Length to permit foetal extraction.

Gross Findings:

The foetus was female calf, freshly dead and signs of foetal rippeness were obvious. The total Length of the foetus was 163 cm, its CVR was 112 cm, circumference of chest was 64 cm and the foetal weight was 34 kg. A circumscribed fluctuating big swelling was found on the left side of neck (Photograph 1) extending anteriorly from the base of the left ear and lateral aspect of maseter muscle up to the base of scapula posteriorly. The ventral border of the swelling was at the level of the brachio-cephalic muscle. A similar pouch, with the same dimentions, was found on the right side of the foetal neck but empty with no fluctuation. Moreover, the left ear of the foetus was in the from of a normal-sized concha to which another smaller concha is attached . The hind legs were ankylosed at the level of the hook Joint.

Post Mortem Findings:

Blunt dissection of the swelling on the left side of the neck revealed the presence of skin outpouching filled with serous fluid. The fluid was aspirated using a large syringe and a wide gauge needle. Its volume was 4 litres, slightly thick, clear with yellowish colouration . Three transparent capsulated ovoid bodies (1.5 X 2 cm) were found floating inside the fluid (Photograph 2). After complete turning over of the skin pouch, no connection between it and any of the surroundings was observed. Moreover, the two pouches on both sides of nick were completely independant. The amount of the fluid inside the swelling of the right side was very scanty, however a leak to outside was observed at the base of the swelling which may suggesst the escape of the fluid during manipulation.

On the other hand, both the thoracic and the abdominal cavities were filled with blood-tinged fluid. All the visceral organs were apparently normal except the right kidney which was enlarged and very flabby

Histopathological Findings:

Microscopical examination of the skin wall of the pouch showed thickened dermis to about 3 times normal dermal thickness. there was vein thrombosis, leaded to congestion and oedema of the dermis and clearly in the subcutis. This was indicated by dilatation of lymphatics, cappillary congestion and fluid dissection and widening of the collagen fibers of subcutis.

At the inner surface lining the fluid content, there was dense condensation of C.T. layer (photomicrograph 1). The three floating ovoid bodies were consisting of a fibrous capsule with a serus fluid in the lumen. The sections of the right foetal kidney revealed that the renal tubules were collapsed with very narrow lumen giving the impression of a non-functioning kidney. The left kidney, liver and lung appeared normal.

Biochemical Findings:

The biochemical analysis and the electrophoretic pattern of the aspirated fluid showed that the contents were similar to bovine serum specially with regard to water content, minerals (Ca,P, Mag), sugars (glucose) and nature of proteins.

DISCUSSION

Identifying etiologic agents of bovine congenital defects is often difficult and in many cases, there is no clearly established cause (*LEIPOLD and DENNIS, 1986*). They added that most cases are caused by environmental or genetic factors or environmental-genetic interaction. The reported environmental teratogenic factors include toxic plants, viruses, drug, trace elements and physical agents such as irradiation, hyperthermia and pressure during rectal examination. On the other hand, genetic or heriditary defects are pathologic or pathophysiological results determined by mutant genes or chromosomal aberrations. *NOAKES (1986)* added that infectious agents such as BVD, Blue tongue virus or Akabane virus are also involved in induction of congenital abnormalities.

Unfortunately, previous reports describing cases similar to the present case are not available in the literature. The accumulation of such serum-like fluid, skin outpouching, bifurcation of ear and ankylosis of legs, might be attributed to the exposure of the foetus, at early stages of embryonic life, to some of the above mentioned teratogenic factors. *SMITH et al., (1978) and GERMAN (1984)* revealed that any of the several agents capable of inducing the heat-shock response that can reach the embryo during its period of differentiation and organogenesis would result in teratogenic changes. They added that specificity of the defects produced by a given teratogen would be imparted by the period during embryonic or foetal life when the insult occurred and by its duration, rather than by the nature of the insult itself.

EDWARDS (1986) revealed that hyperthermia or acute febrile episode during pregnancy is also frequently followed by embryonic death, abortion, growth retardation or malformation. Moreover, NILSEN (1985) and UPFOLD et al., (1989) reported that two basic pathologic processes due to excessive heating have been indentified, microvascular disruption and death of proliferating cells. NILSEN (1985) and EDWARDS (1993) added that microvascular disruption causes vessel leakage, perivascular oedema, umblical hernia, hypodactyly and cerebral nerve plasis. These findings can be considered in the explanation of the escape, accumulation of the fluid and outpouching formation on both sides of the neck of the present calf. Moreover, the histopathological findings including the thoracic and abdominal oedema, dermal vein thrombosis, congestion and dermal oedema would give a further support to the idea of formation of this skin outpouching as a result of microvascular disruption with fluid accumulation. The remarkable dermal thickening could be attributed to replacement fibrosis of the oedamatous dermis.

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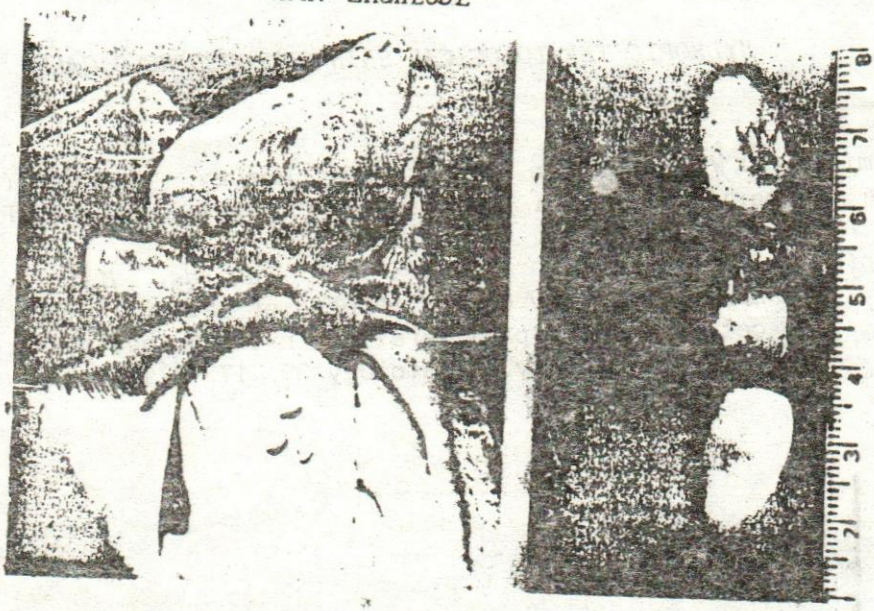
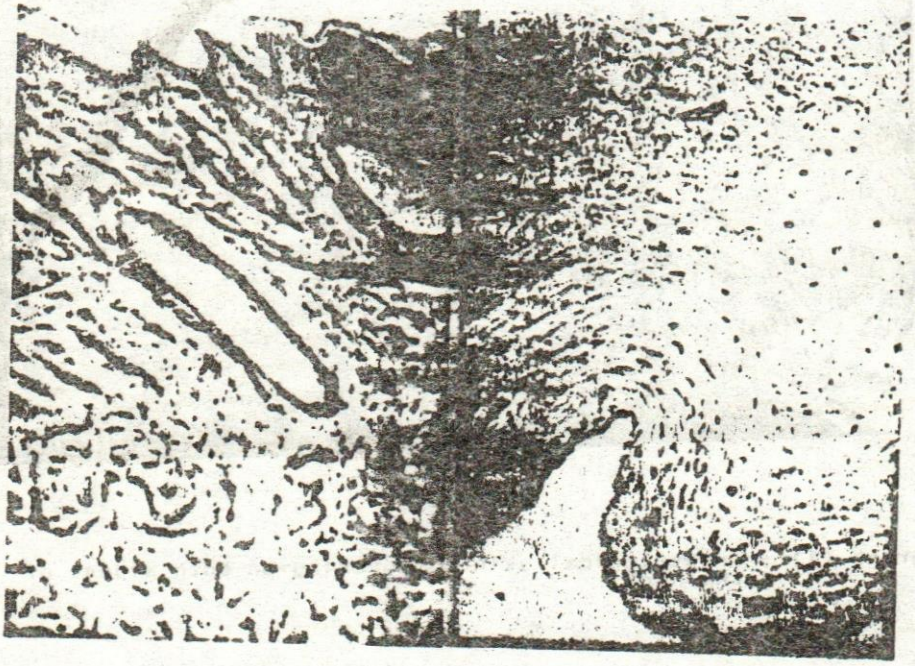
Photograph (1) : Treatological skin outpouching on both sides of the neck.



Photograph (2): Ovoid bodies found floating inside the dissected outpouch.



Photomicrograph (1): The skin forming the wall of the outpouch with dermal thickening (left X 250) and hyperaemia and oedema of C.T. with condensation toward the pouch cavity (Right H & E X 125).