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Dystocia Due to Multiple Craniofacial Fetal Anomalies in Nilotic Zebu Cattle and the Attached Traditional Beliefs: A Case Report

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ABSTRACT

This case report paper highlights on foetal calf anomaly observed for the first time in Nilotic Zebu cattle as well as the traditional beliefs of Nilotic pastoralists attached to such anomaly. Abull calf foetus extracted via caesarean operation, sustained complex of congenital abnormalities. Of which both central nervous system and craniofacial structures not easily classified and traced to a single specific condition. The gross craniofacial abnormalities suggest agnathia, fissured head extending from cranial to caudal, hydrocephalic head, anophthalmia, single microphthalmia lateralis without eyelid, single erected ear loop, a deep fissure almost halving the skull to the exposed maxillary and mandibular bones, absence of lips, and anodontia. Chicken was sacrificed by a traditional diviner meaning to drive away diseases and prevent recurrence of similar case in the herd and the related family members. Such cases can be easily attended to. Given the current status of veterinary practice in the country, but the deeply anchored traditional beliefs attached to livestock may hamper or burry such cases in favour of the traditional diviner with an untoward outcome thus contributing to loss of potential genetic resources. Adoption of vibrant sustainable extension policies is recommended to loosen such firmly anchored beliefs attached to livestock by pastoralist communities of South Sudan.

KEYWORDS: *Foetal anomaly, Nilotic pastoralist, dystocia, traditional beliefs*

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1. INTRODUCTION

South Sudan is endowed with Nilotic zebu cattle which are mostly reared by pastoralist Dinka, Mundari and Nuer tribes. Evidence shows that pastoralists have lived close to their animals for millennia and they possess a wide repertoire of local traditional knowledge systems in the identification and addressing of both human (Fratkin, 1996) and animal afflictions (Catley, 2006). Some scholars have gone as far as comparing pastoralists diagnostic skills to that of the modern medicine (Jacob *et al*., 2004). Thus, early detection and response to illnesses are important steps towards effective interventions. Ostensibly, such traditional knowledge is important to facilitate communication between pastoralists on the one hand, and animal and human health experts on the other hand (Swai*et al*., 2010; Moritz *et al*., 2013).

Interestingly, the Maasai pastoralists in Southern Kenya and northern Tanzania are said not to distinguish between religious beliefs and empirical knowledge when it comes to seek healing (Fratkin, 1996) but prescription of the most relevant treatment has to come from understanding the source of the illness since they make a distinction between natural and supernatural caused illnesses. There are also a group of Dinka who have been believed to possess some healing powers with cows particularly in regards to infertility (David *et al*., 1996). Other types of healers are the spear masters who sacrifice chicken or sheep to drive diseases away (Schwabe and Kuojok, 1981) who further explain that a section of Dinka has believed in rituals of bad spirit as a means and ways to combat or prevent sudden death of cattle.

A magico-exorcistic treatment of diseases has been demonstrated among the Bor Dinka, (Richards, 1927) and witchcraft discussed (Lienhardt, 1951). Moreover, Buxton (1973) has dealt in some details with exorcism and other forms of faith healing among the Mundari. For many illnesses, pastoralists rely on a number of options, which include local healers, spiritual diviners, and modern medical care.

Congenital defects of bovine foetus are structural or functional abnormalities that are present at birth and may affect a single structure or function, parts of various systems or an entire system (Dennis and Leipold, 1979). Foetal anomalies of head have been subjected to analysis and are quite often reported (Healy, 1996; Kuhn, 1997; Grubbs and Olchowy, 1997; Citeket *al*., 2009). These defects concern the head itself, the eyes, brachygnathia and Schisis, Brachygnathia inferior and superior, agnathia, hydrocephalus, microphthalmia bilateralis, anodontia,

fissure cerebral is and missing nostrils. Moreover, congenital defects of Central Nervous System (CNS) and craniofacial skeleton have reported (Dennis and Leipold, 1986). Cyclopic anomaly has been observed in buffalo calf (Thippeswamy*et al*., 1996) in lambs (Binns*et al*., 1960) in goats (Chakrabarti and Pal, 1991) in piglets (Bacon and Mathis, 1983; Evans, 1987) and in man (Bacon and Mathis, 1983) .

Hydrocephalus condition is well documented in cattle (Sharda and Ingole, 2002; Purohit *et al*., 2006; Jana and Ghosh, 2010; Murugan*et al*., 2014) in Mare (Kumar *et al*., 2010; Ferris *et al*., 2011) in Buffalo (Bugalia*et al*., 1990) and in Pig (Arthur, 1975). Consequently, caesarean operation has been reported to be the common remedial intervention in most of the cases of foetal anomalies. To our best knowledge, similar condition of combination of severe congenital abnormalities affecting craniofacial structures has not been reported in South Sudan. As such, very little has been written on these subjects about the numerous Nilotic cattle-or culture of the people of South Sudan. Moreover, a similar information about traditional Veterinary beliefs and practices has even more immediate implications for animal health. Based on these beliefs, a good number of animals sustaining anomalies and diseases of unacquainted symptoms occurring in many communities in South Sudan. Accordingly, they are either culled by slaughtering, sold or killed and disposed as a result of beliefs. Many of such events have been continuing unabated without being documented.

Therefore, the aim of this case report is to highlight on foetal calf anomalies and traditional beliefs attached to in South Sudan.

2. Materials and Methods

2.1. Case History

A multiparous zebu cow was brought to the clinic of the College of Veterinary Science, University of Bahr El-Ghazal with a complain that, the cow was almost 10 months pregnant and started to show sign of labour for nearly 48 hrs. However, the intervention of the traditional pastoralists was unsuccessful.

2.2. Clinical Examination

Obstetrical examination via rectal palpation and vaginal examination revealeddorso-sacral anterior presentation, weak foetal movement, closed cervix with persistent uterine contraction. Tentatively, the case was diagnosed to be dystocia at the second stage of labor.

2.3. Intervention

Limitation of some diagnostic tools such as ultrasound or x-ray to reveal more details led to adoption of caesarean operation as the easiest fast remedial approach of choice to resolve the case (Figure 1) .The operation was carried out to extract the foetus according to procedures described by Anusha*et al*. (2016) for one-hour.

2.4. Ethno veterinary Beliefs

Following the caesarean operation, information about traditional veterinary beliefs and practices on animal health among the pastoral communities was collected from key stakeholders, records, reports and reviews of literature.

3. Results and Discussions

An abnormal, weak bull calf foetus was extracted but died shortly after the operation. Multiple gross lesions were observed on craniofacial skeleton represented by hydrocephalic head, agnathia, microphthalmia unilateral is, anodontia, deep fissure from cranial to caudal bisecting the skull to be maxillary and mandibular bones, missing nostrils, small lips, short single erected ear lope and swollen neck (Figure 2). Moreover, cases of hydrocephalus and cyclopia in cattle were described separately by several authors (Mouli, 1987; Kuhn, 1997; Grubbs and Olchowy, 1997; Balasubramanian *et al*., 1997; Venu*et al*., 2001; Sharda and Ingole, 2002; Ozcan*et al*., 2006; Citek*et al*., 2009).

Therefore, a calf cannot be easily classified and traced to a single specific condition of known foetal anomalies which is in line with a similar case reported by DiMuro *et al*. (2020). However, discrepancies in thorough description of the lesions were attributed to limitations in tools for detailed necropsy findings, radiography and computed tomography/ Magnetic Resonance Image (MRI) as done in human cases. These limitations concurred with the report of Di Muro*et al*. (2020) .

Seemingly, foetal anomalies are not uncommon among the Nilotic zebu cattle of pastoralists in South Sudan. However, the occurrence of these anomaliesis always attached to evil spirit, bad omen (Lienhardt, 1951). Such abnormalities are believed to arise from misfortune or unusual causes (Westerlund, 2006) and therefore a traditional diviner should be consulted which vividly concurred with the present case; in which a traditional healer known as spearman was summoned to the clinic to perform a ritual event that ended with sacrifice of a chicken and spraying its blood on the cow's body in a belief of driving the disease away from the herd and the immediate family or clan of the cow'sowner (Schwabe and Kuojok, 1981).

Interestingly, similar beliefs inthe rites of evil spirit which is regarded as a means and ways to combat or prevent death of cattle or preventive measures arecommonly shared among sections of the Dinka tribe, Mundari and Maasai pastoralists (Buxton, 1973; Fratkin, 1996) .

4. Conclusions

This case repots reveals the observation of a foetal calf anomaly for the first time in Nilotic Zebu cattle in South Sudan. Although a few pastoral communities begin to adopt modern veterinary medical practices, yet the deeply cultivated mind set of possessing cattle for prestige can help much in cementing such beliefs attached to the animals. Therefore, adoption of vibrant policies for providing quality extension services to loosen these beliefs should be rigorously instituted for sustainable development of livestock sector in South Sudan.

Figure 1: Nilotic Zebu Cow in post-operation condition

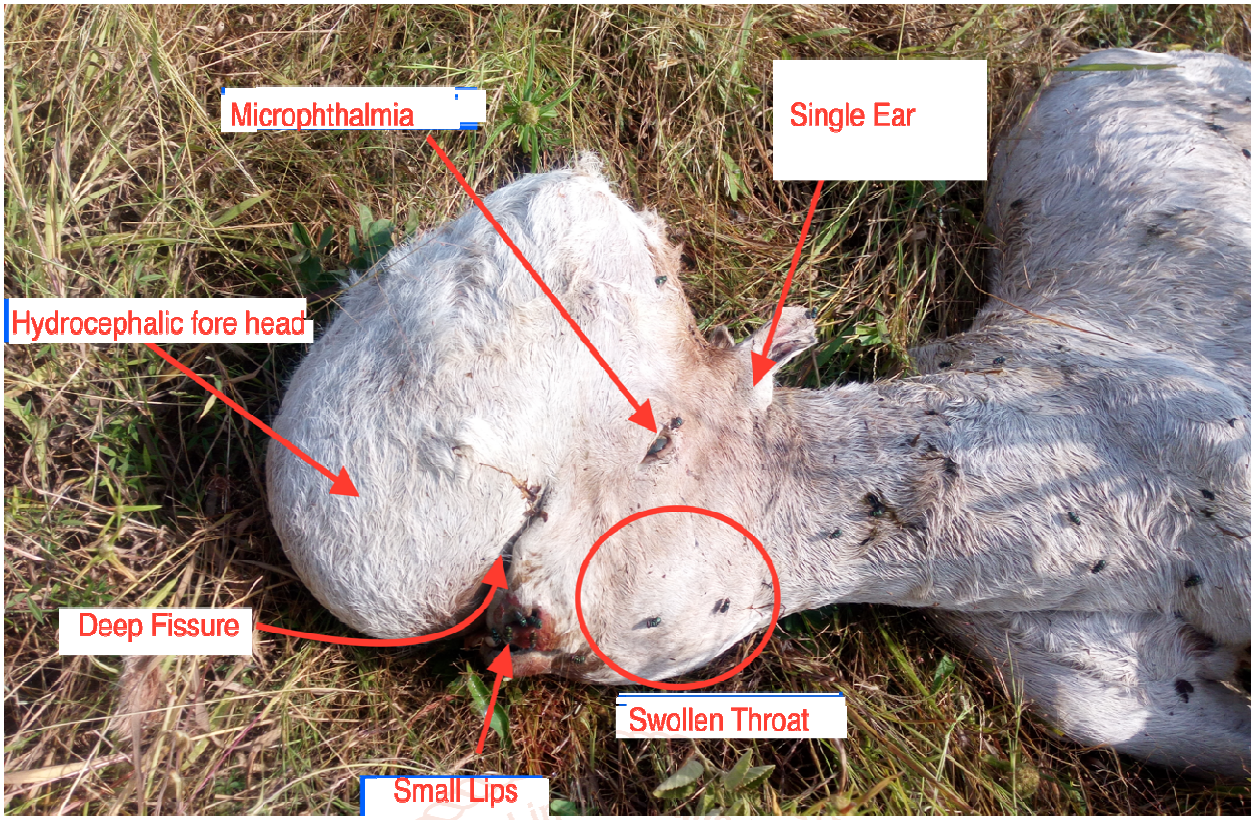

Figure 2: Caesarean Extracted Nilotic ZebuFoetus showing anomalie

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