

## PATHOMORPHOLOGICAL STUDIES ON MYXOSARCOMA IN THE UTERUS OF CATTLE

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**Abstract:** Four cases of myxosarcoma were diagnosed out of 23 uterine samples examined from cattle. Gross examination of the suspected uteri revealed gelatinous appearance and whitish discoloration of the endometrium. Histopathologically, loosely arranged proliferated stellate and spindle shaped cells having hyperchromatic nuclei and eosinophilic granular cytoplasm embedded in abundant mucinous stroma was observed. Myometrial invasion of the neoplastic myxomatous tissue was also clearly noticed. Based on histopathological findings, the present cases were identified as myxosarcoma.

**Keywords:** Cattle, Myxosarcoma, Uterus.

### Introduction

Mesenchymal tumours were comparatively frequent in domestic animals and were located in all organs but their incidence was different in different tissues. These neoplasms found in all species, being more frequent in adult and old animals. (Baba and Catoi, 2007). Myxosarcoma is one of the malignant neoplasms of connective tissue tumours which resembles primitive mesenchyme. Several reports on myxosarcoma were found both in humans and animals in the regions of skin and subcutaneous tissues (Madewell and Theilen, 1987 and Singh *et al.*, 2006). But reports on this tumour were very few in the uterus of cattle and buffaloes (Anusha *et al.*, 2012 and Sunny Praveen *et al.*, 2015). As per the previous studies, adenocarcinoma was the most common tumour in the uterus of cattle (Jones *et al.*, 1997 and Schlafer and Miller, 2007). The present study describes the pathomorphological features of a rare tumour, myxosarcoma in the cattle uteri.

### Materials and methods

A total of 23 cattle genitalia were collected from post mortem examinations conducted in College of Veterinary Science, Tirupati and from field mortalities. Representative tissue pieces were fixed in 10% neutral buffered formalin for

histopathological examination. Tissue sections of 5-6 $\mu$  were made and stained with hematoxylin and eosin method (Culling, 1974).

### Results

A total of four cases of myxosarcoma were diagnosed based on histopathological examination. Cut section of the uterine horns revealed whitish discoloration with gelatinous appearance on the endometrium and had soft and slimy consistency (Fig.1 and Fig. 2). Mild thickening of the myometrium were noticed in one case. Cytologically, distinct features were not observed except the presence of very few spindle shaped cells with elongated nucleus and few nucleoli.

Histopathological features revealed loosely arranged proliferated stellate and spindle shaped cells having hyperchromatic nuclei and eosinophilic granular cytoplasm embedded in abundant mucinous stroma (Fig. 3 and Fig. 4). Mild to moderate pleomorphic nucleus with few mitotic figures were found. Invasion of clusters of closely opposed neoplastic myxomatous cells were arranged in whorls in between the smooth muscle fibres in myometrium and were surrounded by vascular stroma (Fig.5). Clusters of macrophages scattered in between the neoplastic cells with numerous capillaries lined by single layer of endothelium indicated severe angiogenesis. Subepithelial infiltration of lymphocytes was observed. Mitotic figures were infrequent.

### Discussion

Myxosarcomas are rare tumors in domestic animals and they derived from primitive pleomorphic fibroblasts which produce excess mucin (Singh *et al.*, 2006). Grossly, gelatinous appearance of the endometrium with soft and slimy consistency was noticed which might be due to the production of excess mucin from the primitive pleomorphic fibroblasts. Cytopathologically, less cellularity was noticed which was in correlation with Kim *et al.* (2012). Histopathologically, embedding of loosely arranged stellate to spindle shaped cells in the abundant mucinous stroma and neovascularisation induced by neoplastic cells were noticed and it was similar to the observations of Balwant Singh and Nem Singh (1984) and Hadju *et al.* (2012). Presence of mitotic figures was not a constant feature which was supported by Balwant Singh and Nem Singh (1984) who did not find any pleomorphism and mitotic figures in buffaloes. Singh *et al.* (2006) and Von Bombhard *et al.*, (2007) noticed less than one mitotic figure per field in rabbits. In addition, whorls and bundles of pleomorphic myxomatous cells invaded into the myometrium were found as a prominent feature in the present study. The possible causes for occurrence of myxosarcoma was

unknown in domestic animals (Raval *et al.*, 2015) but said to be more frequent in adult and old animals (Baba and Catoi, 2007).

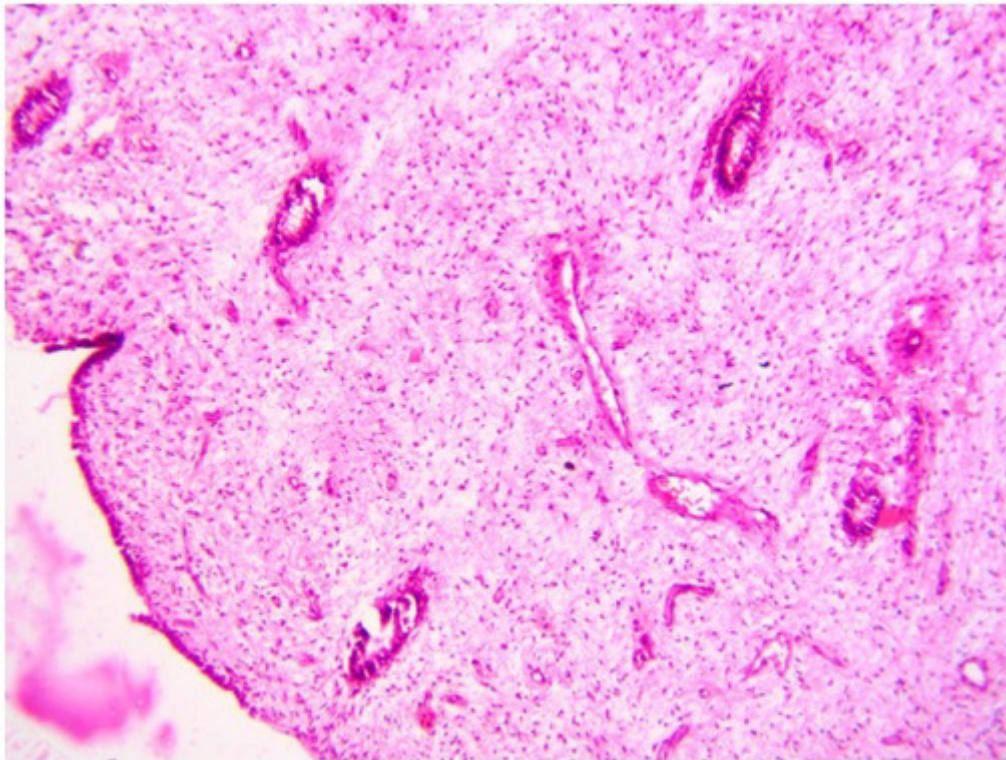
**Fig. 1 Cut section of uterine horns showing whitish discoloration in the endometrium with gelatinous appearance**



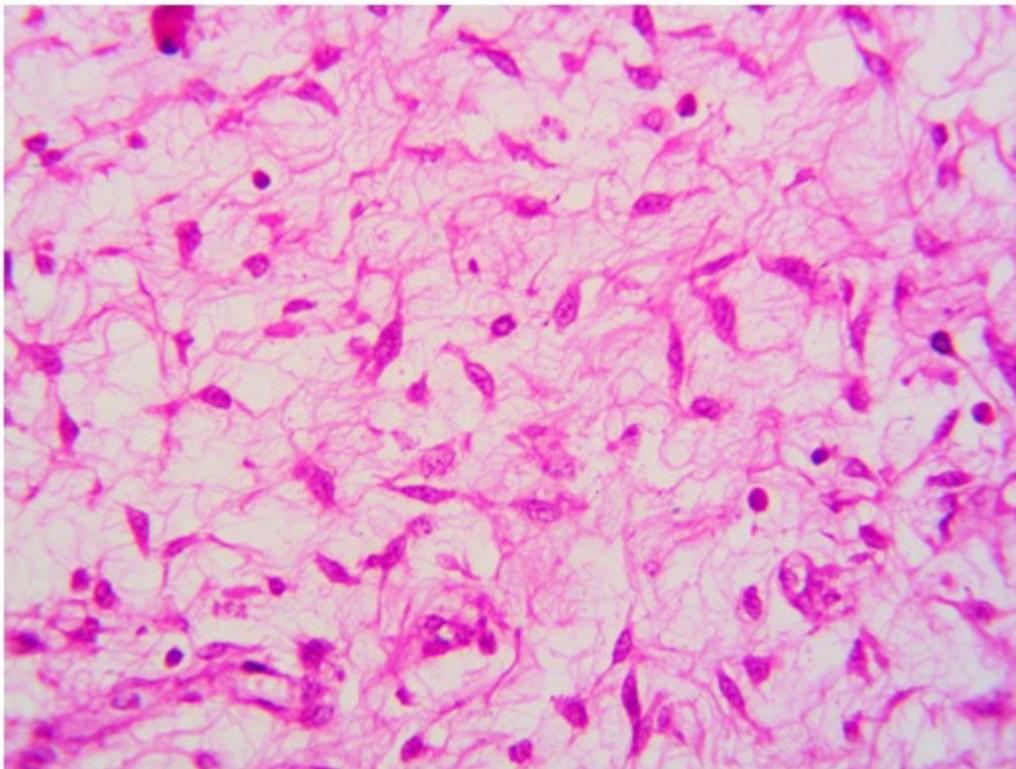
**Fig. 2 Observe gelatinous and slimy endometrium**



**Fig. 3 Note presence of neoplastic myxomatous tissue subepithelially. H&E. x 100**

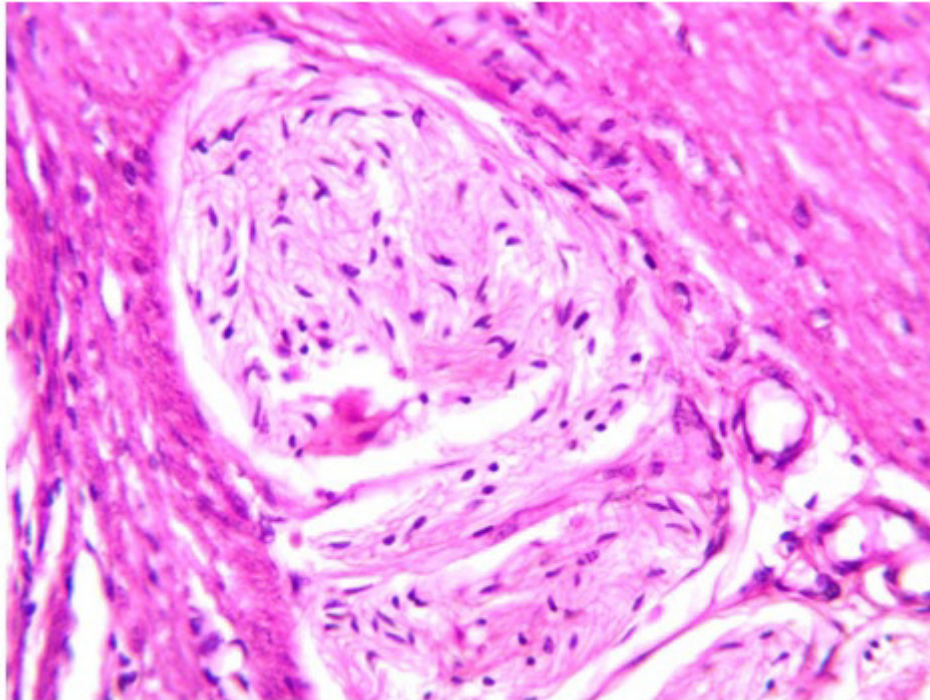


**Fig. 4 Section showing stellate to spindle shaped cells in the mucinous stroma. H&E. x 450**





**Fig. 5 Presence of pleomorphic myxomatous tissue in between the smooth muscle cells.  
H&E. x450**



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