

ウシ流産胎仔の腹腔内にみられた軟骨化線維肉腫の1例

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Chondrifying Fibrosarcoma in the Abdominal Cavity of a Bovine Aborted Fetus

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ABSTRACT. Chondrifying fibrosarcoma was found in the abdominal cavity of a bovine female fetus (Holstein-Friesian breed) aborted at the 8th month of gestation. Autopsy revealed several huge to small neoplasms in the abdominal cavity. Microscopically, marked proliferation of immature fibroblastic cells were noted with moderate numbers of collagenous fibers. Chondrifying foci of variable sizes and of various stages of maturation were scattered in the tumor.—KEY WORDS: bovine fetus, chondrifying fibrosarcoma.

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Fibrosarcoma is found in many animal species [4, 11], especially in mature or aged dogs and cats [6]. The skin, subcutis, oral cavity and nasal cavities are common sites of the involvement in the dog. Internal organs are not frequently involved in domestic animal species including dogs [6]. The tumor, however, has rarely been found in fetuses and newborns [2]. This report describes a case of chondrifying fibrosarcoma found in the abdominal cavity of a bovine fetus.

Clinical examination indicated that the dam was in good health after parturition. The aborted fetus was a female of Holstein-Friesian, aborted at 8th month of gestation, and death seemed to occur at parturition. The abdomen was irregularly swollen and appeared to contain tumorous masses of variable sizes. No skeletal disorder was observed other than the complicated fracture of the thoracic vertebra owing to dystocia and forced delivery.

Autopsy revealed neoplasms of various sizes in the abdominal cavity, which were markedly lobulated or cauliflower-like in shape (Fig. 1). They adhered to each other in

the dorsal side of the abdomen, and a portion of mesenterium connected. The largest tumor mass measured 42×35×20 cm and weighed 4.2 kg. They were whitish to yellowish-gray in color, and slightly hard in consistency. On the cut surface, the neoplasm was lobulated, and large or small transparent focal lesions coexisted in the fibrous tissue (Fig. 2).

No necrotic lesion was recognized. Reddish areas of hemorrhage were found in the peripheral zone of the neoplasm. A tumor of a hen's egg in size was also found on the serosal membrane of the rectum. No obvious changes were recognized in the other organs and tissues.

Tissue blocks were fixed in 10% neutral formalin solution, and embedded in paraffin. Sections were made and stained with hematoxylin and eosin (H-E). Selected sections were subjected to azan stain and Watanabe's silver impregnation method, modified Nissl's stain, or Alcian blue stain for histological examination. Electron microscopy was performed on formalin-fixed tissue of the neoplasm by the routine procedures [3].

Microscopically, the neoplasm consisted of

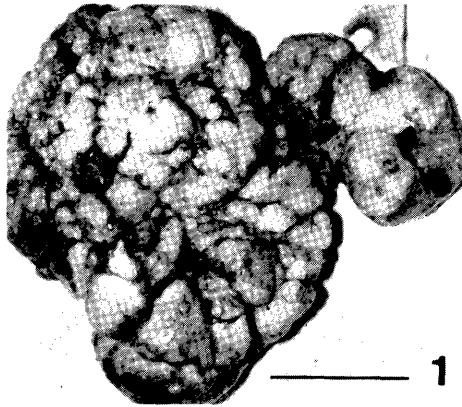


Fig. 1. Gross appearance of markedly lobulated and cauliflower-like neoplasm. Bar=10 cm.



Fig. 2. Lobular pattern is obvious on the cut surface of the neoplasm. Bar=3 cm.

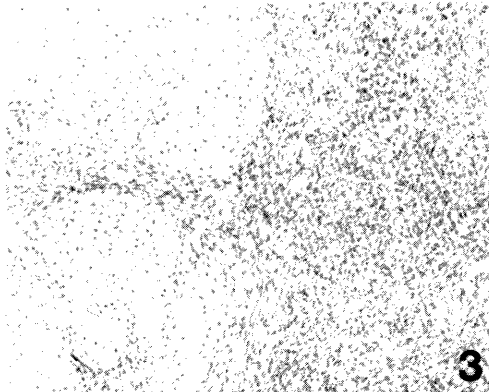


Fig. 3. Proliferation of fibroblastic cells with collagenous fibers, and scattered chondrified lesions of variable sizes. H-E stain, $\times 100$.

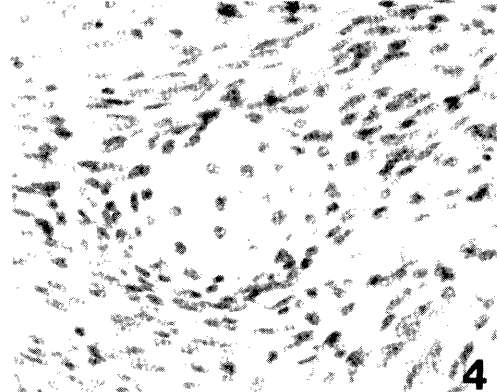


Fig. 4. Fibroblastic cells around the focus of chondrified lesion in the center. H-E stain, $\times 400$.

marked proliferation of immature fibroblastic cells with moderate numbers of collagenous fibers. The pattern of the proliferation was irregular, and fibroblasts were interwoven each other. The fibroblastic tumor cells commonly showed fusiforms in shape and possessed abundant cytoplasm. The nuclei, oval or elongated in shape, contained 2 or 3 small but prominent nucleoli, which had scanty chromatin network. Mitotic figures were recognized. Chondrifying foci of variable sizes and various stages of maturation were recognized in the tumorous tissue. The chondroblastic cells varied in size and shape (Figs. 3, 4). These foci had variable amounts of mu-

cinous ground substance which presented metachromasia by modified Nissl's stain and stained with Alcian blue.

The fibroblastic tumor cells infiltrated the peripheral adipose tissue and were partially encapsulated by collagenous fibrous tissue. No metastasis was recognized in the other tissues except one on the rectal serosa.

Examination by electron microscopy disclosed that the fibroblastic tumor cells were spindle-shaped with invaginated nucleus. Well developed, rough-surfaced endoplasmic reticulum and microfibrils were found in the cytoplasm, and abundant collagenous fibers were in the interstitium (Fig. 5). The chondroblastic tumor cells were round or oval in

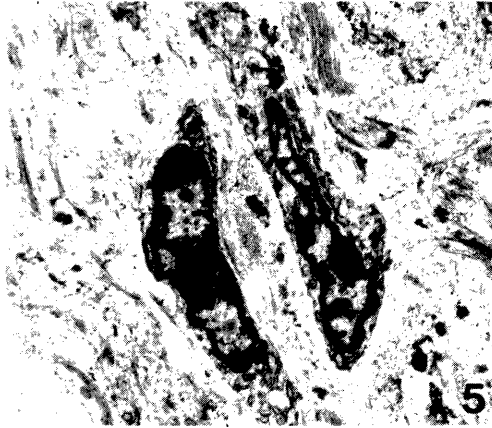


Fig. 5. Electron micrograph of the fibroblastic tumor cells. Spindle-shaped cells with irregular shaped nucleus, and abundant collagenous fibers in the interstitium. $\times 4,200$.

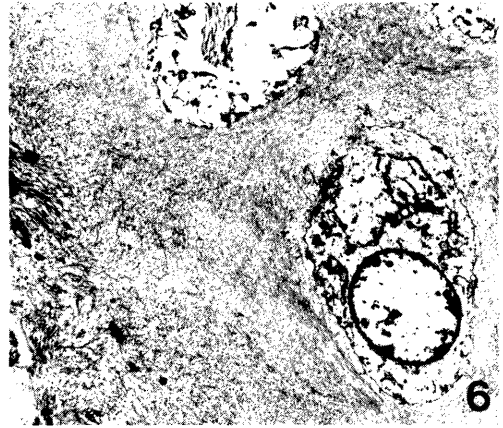


Fig. 6. Electron micrograph of the chondroblastic tumor cells. Oval cells have round nucleus and cytoplasmic spikes protrude into the matrix of microfilaments. The cytoplasmic organelles are poorly developed. $\times 4,200$.

shape, having cytoplasmic spikes, and the cells were laid within the matrix of microfilaments which were shifted to the interstitium of collagenous fibers. The nucleus was round in shape, and the cytoplasmic organelles were poorly developed. The cytoplasm had microfilaments and clear glycogen area made of a trace of dissolved glycogen in water (Fig. 6).

Primary tumors of the mesenchymal tissues are rarely reported in bovine fetus and calf [2]. From the above findings the present case is diagnosed as congenital chondrifying fibrosarcoma [8–11]. The neoplasm probably originated from the abdominal mesenchymal tissues, such as mesenterium or omentum [7]. Enlargement of the fetal abdomen by the neoplastic masses apparently disturbed normal parturition. Chondrifying fibrosarcoma can be differentiated from other tumors such as myxoma [8, 9], nephroblastoma [2] and aponeurotic fibroma [1, 5, 12] based on cellular morphology and arrangement.

要 約

ウシ流産胎仔の腹腔内にみられた軟骨化線維肉腫の1例(短報): 佐藤 繁・大島寛¹⁾・岡田幸助¹⁾(宮城共済, ¹⁾岩手大)——症例はホルスタイン種, 雌, 妊娠8カ月の流産胎仔で, 腹腔内に数個の巨大, ないし小型の新生物が認められた。新生物は未熟な線維芽細胞と線維細胞および膠原線維の著明な増殖からなり, 移行部を含む種々の大きさの軟骨化巣が認められた。

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