

Myxoid sarcoma or myxosarcoma in rabbits

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Caution: this file contains pictures that may be distressing for some persons.

The word "sarcoma" comes from the Greek and means "fleshy growth". Sarcoma is nowadays used to describe relatively rare a group of malignant tumors that involve the connective tissue. Although sarcomas are well-recognized tumors, their characteristics lead to confusion. Indeed, some type of sarcoma may present a combination of features of various different types of sarcoma. This lead to the widely accepted conclusion that the



Susan

Timothy, a 10 year old rabbit, after surgical removal of a myxosarcoma tumor

neoplastic

development of a primitive mesenchymal cell can lead into different direction, thus different types of sarcoma.

The tumors are found is all parts of the body: forelimbs, hindlimbs, head, neck, shoulder, chest, abdomen or hip; as well as in all types of tissues: muscle tissue, fat tissue, in the blood vessels, in the

tissue surrounding joints, and in tendons.

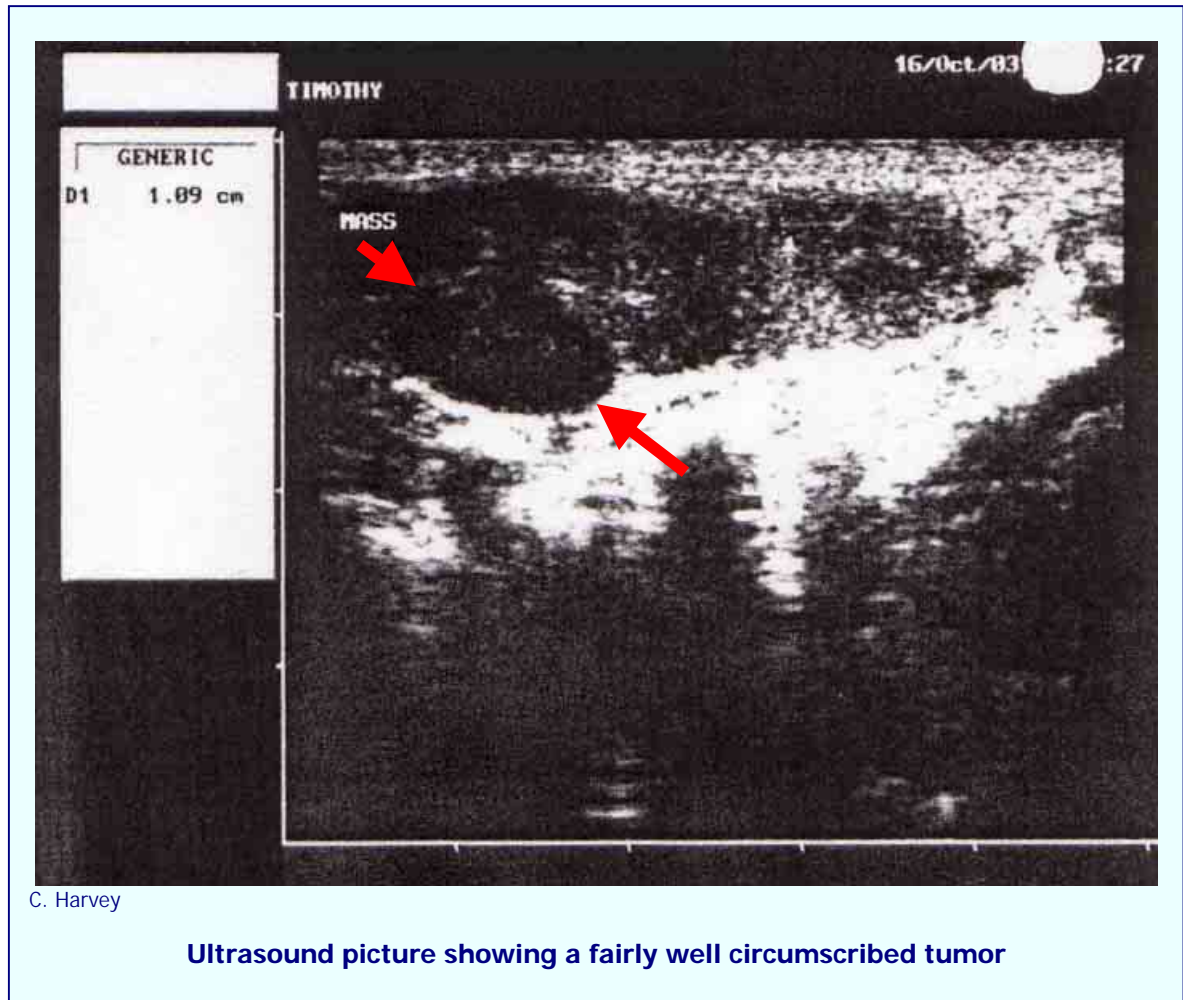
Four principles apply for sarcoma tumors:

- **location:** a superficially located tumor is less likely to be malignant than a deeper located tumor.
- **size:** bigger tumors are more likely to become malignant than small tumors.
- **growth:** rapid growth tumors are more likely to be malignant than slow growing ones.



- **Vascularization:** malignant tumors are rich in blood vessels, whereas benign tumors are avascular or poorly vascularized.

Sarcoma tumors are locally invasive into the surrounding tissues. Although their metastatic rate is low, they can metastasize through the bloodstream to other organs.

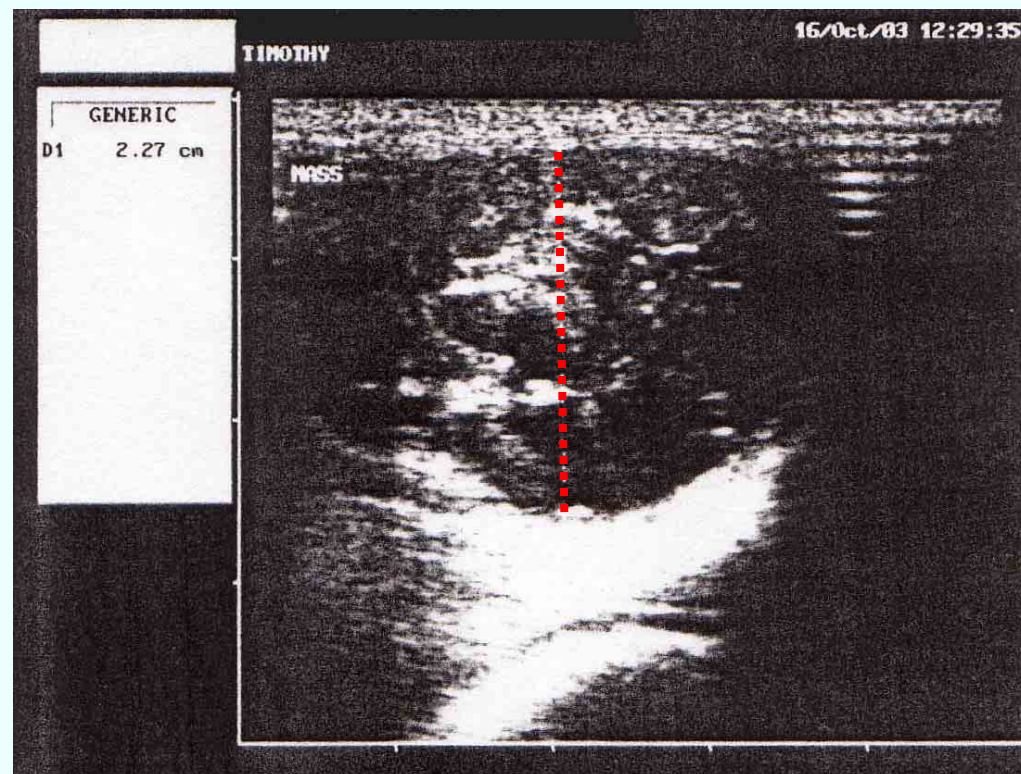
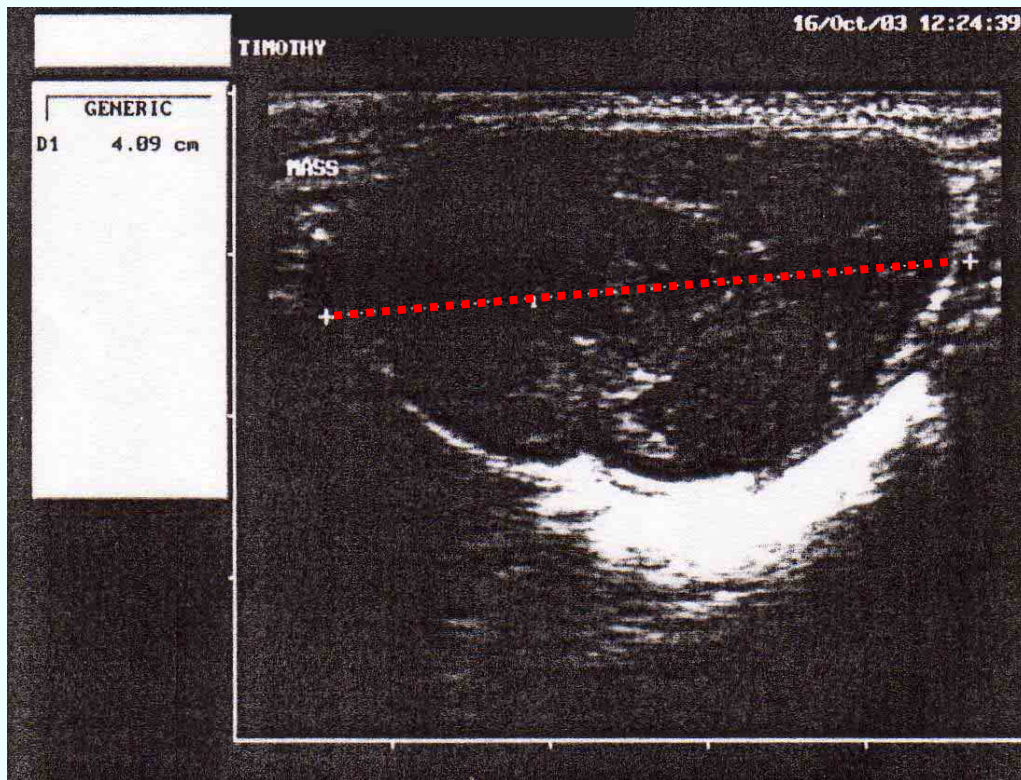


Myxosarcoma is defined as a fibrosarcoma rich in connective tissue proteoglycans (mucins). This kind of tumor is therefore also sometimes called myxoid fibrosarcoma. In veterinary medicine, the term "myxosarcoma" remains, however, a general term for otherwise specific sarcoma tumors like myxofibrosarcoma, liposarcomas or malignant fibrous histiocytomas.

A virus called "malignant rabbit fibroma virus" has been isolated in rabbits, which can lead to fibrosarcoma, and perchance to fibrosarcoma derived myxosarcoma.

See: "[Fibrosarcoma in rabbit](#)"





C. Harvey

Determination of the size of the tumor, using ultrasound technique.



Diagnosis and Histology

The nature of the mass and the presence of metastases must be determined, by means of X-ray, ultrasound, and a biopsy.

Myxosarcoma differentiate between low-grade, intermediate and high-grade lesions. The tumors can be either small and (multi)nodular, or large. Their degree of malignancy is generally low, but increases with successive recurrency. All have invasive properties in surrounding tissues.

A tumor typically has a myxoid matrix containing spindle- to polyhedral cells. The neoplastic cells can have various shapes: round, ovoid or elongated; their nuclei is hyperchromatic. Sheets of interdigitated cells, rich in myxoid matrix can be present. Pseudolipoblasts are commonly observed. Vascularization of the tumor is typical, with curvilinear capillaries.

A low-grade myxosarcoma must be differentiated from a benign myxoid lesion.

Histopath Report:

SOURCE: Mass from right body wall behind axilla - a 6 cm skin biopsy.

DESCRIPTION:

The sections of haired skin examined had a discrete nodular neoplastic process consistent with myxosarcoma . It was characterized by large variably sized cystic cavitations which contained abundant amphophilic proteinaceous secretions alternating with neoplastic proliferation of spindle to polyhedral cells which formed closely packed sheets of interdigitating fascicles with abundant myxomatous stroma effacing normal architecture. The neoplastic cells had round, ovoid to elongate, hyperchromatic nuclei with finely stippled chromatin and inapparent nucleoli. The cytoplasm is scant to moderate, pale eosinophilic and fibrillar, with indistinct cell borders. Mitoses were infrequent.

MICROSCOPIC FINDINGS: MYXOSARCOMA, LOW GRADE MALIGNANCY.

E. Kufuor-Mensah



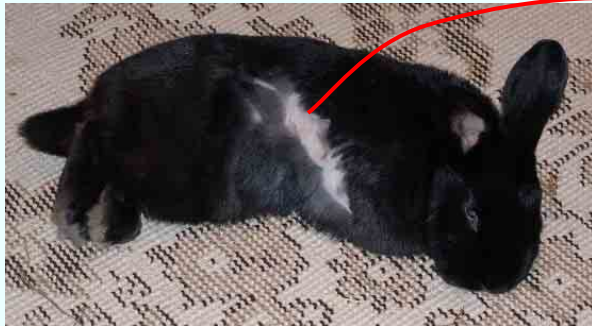
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Left: Excerpt from the histopathology report
Right: Excised myxosarcoma tumor

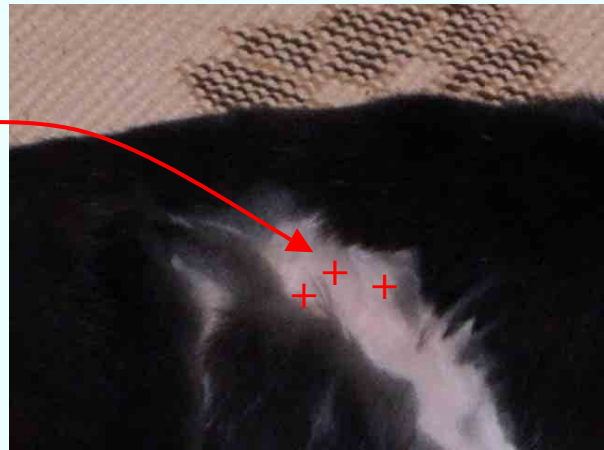
Treatment

The complete excision of the myxosarcoma lesions is necessary. Indeed, a characteristic of myxosarcoma and myxofibrosarcoma tumors is their high rate of recurrence (according to species, up 70% within year of surgical removal). At recurrence, these lesions gain a higher grade of aggressiveness and an increased potential to become malignant. The prognosis is therefore guarded.





Susan



Myxosarcoma tumor have a high rate of recurrence: re-growth of three nodules, three months after surgical removal.

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Further information

1. Flecknell P., editor Gloucester, BSAVA Manual of Rabbit Medicine and Surgery, UK: British Small Animal Veterinary Association 2000.
2. Hillyer E.V. and Quesenberry K.E., Ferrets, Rabbits, and Rodents: Clinical Medicine and Surgery, New York: WB Saunders Co. 1997.
3. Janssens G, Simoens P, Muylle S, Lauwers H. Bilateral prolapse of the deep gland of the third eyelid in a rabbit: diagnosis and treatment. Lab Anim Sci. 1999; 49(1):105-9.
4. Manning P.J., Ringler D.H., Newcomer C.E., The Biology of the Laboratory Rabbit, New York: Academic Press 1994.
5. Richardson V., Rabbits: Health, Husbandry and Disease, Blackwell Science Inc 2000.
6. Schaff Z, Grimley PM, Michelitch J, Banfield WG. Spontaneous myxosarcoma in a cottontail rabbit (*Sylvilagus floridanus*): observation of tubular structures in the endoplasmic reticulum of tumor cells. J Natl Cancer Inst. 1973; 51(1):293-7.
7. Strayer DS, Sell S, Skaletsky E, Leibowitz JL. Immunologic dysfunction during viral oncogenesis. I. Nonspecific immunosuppression caused by malignant rabbit fibroma virus. J Immunol. 1983; 131(5):2595-600.

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