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J. R. Glaister

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What is This?
Rhabdomyosarcoma in a young rat

J. R. GLAISTER

Hazleton Laboratories Europe Ltd, Harrogate, North Yorkshire, HG3 1PY, United Kingdom

Summary
A spontaneous rhabdomyosarcoma was observed in a female Sprague Dawley-derived rat at 8 weeks of age. Histopathological examination when the rat was killed at 5 months of age revealed marked differences from experimentally-induced tumours.

Rhabdomyosarcomas are uncommon in most animal species including the rat (Carter, 1973; Moulton, 1978; Squire et al., 1978), although they can be readily induced with certain viruses and chemicals (Grice & Mannel, 1966; Perk, Shachat & Moloney, 1968; Yamashiro, Gilman, Basrur & Abandowitz, 1978).

This report describes the spontaneous occurrence of a well-differentiated rhabdomyosarcoma in a young female Sprague Dawley-derived rat.

Observations
The tumour was first noted at 8 weeks of age as a small, firm swelling adjacent to the left foreleg. When the rat was killed about 3 months later the mass extended from the cervical to the posterior axillary region.

At necropsy the tumour presented as a large mass lying subcutaneously in the left axillary region, measuring 7 x 5 x 3 cm and weighing 44·5 g. The mass was attached to the chest wall and appeared to involve the clavicle. When the tumour was cut it was seen to consist of firm tissue with several areas of varying colour and texture. The overall appearance was that of muscle tissue. On opening the thorax, a firm, cream, multilobular mass of approximately 2 cm diameter was found in the anterior mediastinum. This mass had a similar texture to the axillary tumour.

Histologically, the axillary tumour consisted largely of interlacing bundles of well-differentiated muscle fibres with prominent cross-striations when stained with phosphotungstic acid-haematoxylin (Fig. 1). Scattered throughout were large areas of more pleomorphic cells in which elongated, plump, often multinucleate cells with large amounts of cytoplasm that was either faintly eosinophilic or basophilic predominated (Fig. 2). Other cells commonly found in these areas were large, multinucleate, round or strap-like cells, and small spindle cells with scanty cytoplasm. Mitotic figures were common in these pleomorphic areas. The mediastinal mass was histologically similar to that in the axilla, with well-differentiated muscle fibres predominating.

Discussion
The histological appearance of this tumour was in marked contrast to that of pleomorphic tumours produced experimentally (Carter, 1973; Perk et al., 1968; Yamashiro et al., 1978) and, in the author's
experience, to that of spontaneous tumours of older rats in which fibrils and cross-striations are difficult to demonstrate. A well-differentiated tumour in a young animal is more comparable with the tumours found in children, which are postulated to arise from embryonic myoblasts (Willis, 1967).

References


Ein Rhabdomyosarkom bei einer jungen Ratte

J. R. GLAISTER

Zusammenfassung

Bei einer weiblichen Sprague Dawley-Ratte im Alter von 8 Wochen wurde ein Rhabdomyosarkom festgestellt. Die histopathologische Untersuchung des gestützten Tieres im Alter von 5 Monaten ergab deutliche Unterschiede zu einem experimentell induzierten Tumor.