CASE REPORT

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Cartilage and bone containing benign mesenchymoma of the thigh and popliteal fossa

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Abstract We report a case of a large cartilage and bone containing mesenchymoma of the thigh and popliteal fossa in a 56-year-old man. Mesenchymomas are rare tumors with a histologically benign pattern. They may be associated with morbidity as a result of local infiltrative growth.

Résumé Nous rapportons le cas d'un grand mésenchymome de la cuisse et du creux poplité contenant du cartilage et de l'os chez un homme de 56 ans. Ces mésenchymomes sont des tumeurs rares avec une histologie bénigne. Ils peuvent être cause de morbidité à cause de leur croissance avec infiltration locale.

Case report

A 56-year-old man presented with a painless mass in the distal part of his left thigh and popliteal fossa, which had grown slowly and continuously for 5–6 years. There was nothing of relevance in his previous medical history and in particular there was no history of blunt or penetrating trauma or of any signs of osteoarthritis. Examination revealed a large fixed mass and there were no other physical abnormalities. Laboratory examinations were normal, and radiographs failed to outline the mass but they did reveal a small area of calcification in the soft tissue. Magnetic resonance imaging showed a well-encapsulated soft tissue mass consisting of areas of fat and tissues, which contained cartilaginous elements (Fig. 1a, b). Arteriography was not performed.

A wide local excision was performed and 2 masses measuring 13×6×3 cm and 9×6×3.5 cm were removed. Their combined weight was 297 g. Histologically the masses were composed of different tissues including islands and cords of hyaline cartilage, spongy bone, striated muscles and surrounding fibrous tissue containing patchy areas of adipose tissue. There was neither myxoid tissue nor necrosis nor mitosis (Fig. 2a,b). There were no postop-

erative complications, and after 2 days the patient started full mobilization. After 14 months there was no evidence of recurrence.

Discussion

In describing a soft tissue mass removed from a 23-year-old woman in 1943, Gilmour [3] coined the term “mesenchymoma”. The histological description he quoted is in fact more in keeping with what we would now regard as a myxoid liposarcoma. In 1948 Stout [10] defined the entity of malignant mesenchymoma as a tumor composed of at least 2 mesenchymal elements not ordinarily found together in the same lesion. He also mentioned the occurrence of a benign variety. Initially mesenchymomas were described predominantly in infants and children, but later on examples were reported in older patients [6,10].

Mesenchymomas are rare tumors, but this histologically benign entity can be associated with morbidity because of the local infiltrative growth that occurs. Fat, blood vessels and smooth muscle are most commonly encountered, although cartilage bone, skeletal muscle and myxomatous tissue have also been described occasionally. The variety of different mesenchymal tissues is microscopically obvious and gives rise to a spectrum of confusing nomenclature, e.g., angiomyolipoma or chondrolipoangioma. Angiomyolipoma is a term generally reserved for lesions located in the kidney [8,9]. We agree with Stout [9,10] that the best descriptive term for those tumors arising from mesenchymal tissues and differentiating into a composite of tissue elements seems to be “benign mesenchymoma”.

The most frequent sites are in the musculoskeletal system. Examples arising in the spinal cord and lumbar vertebrae have also been described [2,3,5,7,8]. In contrast, “malignant mesenchymomas” are sarcomas composed of 2 or more differentiated and distinctive mesodermal phenotypes, which may include osteosarcoma and/or chondrosarcoma, liposarcoma, rhabdomyosarcoma, leiomyosarcoma, neurogenic sarcoma or angiosarcoma.

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Fig. 1a,b MRI showing a well-encapsulated soft tissue mass with areas of fat intermixed with tissue, consistent with cartilaginous elements

Fig. 2a,b Histological sections (original magnification 5/2.5 and 10/2.5). Nodular mesenchymal neoformation with different tissue components. Amongst regressive changed musculature, nodular partitioned adipose tissue as well as groups of thick-walled vessels with round cell infiltration can be seen. Additionally there is a desmoplastic component with cellularity and involvement of mature cartilage, osteoid and spongy bone substance is evident. A myxoid component is not present. There is no marked increase in mitotic activity

ma. It is recommended that this term be reserved for sarcomas meeting these specific criteria [7].

The differential diagnosis of mesenchymoma can include a wide variety of benign and malignant tumors with calcified or ossified components and other entities such as soft tissue osteoma, melorheostosis, fibrodysplasia ossificans progressiva and myositis ossificans [7].

Physical examination usually reveals a large fixed mass. Preliminary radiographs may occasionally show focal calcification or ossification. This is helpful in distinguishing a mesenchymoma from other soft tissue sarcomas that ossify or calcify in a specific pattern such as calcifying liposarcomas (punctate calcification), synovial sarcomas (peppered calcification) or myositis ossificans.

Cases without evidence of focal calcification have been described [1]. None of the reported cases of benign mesenchymomas showed recurrence or progression of the disease [8]. The treatment of choice for a benign

mesenchymoma is surgical excision. The benign form does not undergo malignant transformation [4].

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