NODULAR FASCIITIS OF THE HALLUX : DIFFICULTIES IN DIAGNOSIS

G. SPAGNOLLI, M. P. PASQUALI, M. ROSATI, M. LISANTI

Nodular fasciitis or proliferative fasciitis is currently classified as a tumor-like hyperplastic lesion of soft tissues. Histological characteristics of this lesion have often caused diagnostic problems since it can be mistaken for a malignant mesenchymal neoplasm. To highlight this we report a case of nodular fasciitis that was difficult to diagnose because of its atypical radiographic and clinical features.

Keywords : infiltrating fasciitis ; proliferative fasciitis ; pseudosarcomatous fasciitis ; benign tumor-like hyperplastic lesion.
Mots-clés : fasciite infiltrante ; fasciite proliférative ; fasciite pseudo-sarcomateuse ; lésion hyperplasique bénigne pseudo tumorale.

INTRODUCTION

Nodular fasciitis (proliferative fasciitis, infiltrating fasciitis, pseudosarcomatous fasciitis, pseudosarcomatous fibromatosis) is a benign tumor-like hyperplastic lesion. It affects soft tissues and is commonly found in the upper limb ; it is characterized by rapid growth and by densely packed cells consisting of fibroblasts and myofibroblasts, sometimes with mitotic figures. Because of these characteristics great care must be taken to differentiate between nodular fasciitis and malignant neoplasms such as fibrosarcoma and malignant fibrous hystiocytoma (1, 2, 4, 5).

CASE REPORT

D. L. B., a 25-yr-old-female complained of pain and soreness for about two months at the distal phalanx of the right hallux ; medical history revealed a number of previous injuries to the right foot which had occurred during sports activities (karate).

Physical examination showed a small painful hyperemic tumefaction on the anteromedial side of the right hallux. A small dyschromic bluish area of indistinct outlines was visible in the lunula. Xrays showed an osteolytic area of distinct outlines affecting about one third of the distal phalanx with interruption of the dorsal bone cortex (fig. 1a).

The patient was admitted to hospital and underwent surgery ; after lifting the nail by a longitudinal incision in the nail bed (neither the nail nor its bed showed any macroscopic alterations) we discovered an osteolytic cavity full of soft greyish-white brain-like material with cortex perforation. The lesion was curetted, and the material removed was sent for histological examination. This revealed a tumor consisting of spindle-shaped cells. The cells had a large amount of acidophilic cytoplasm with some evidently polymorphous nuclei, slack chromatin and prominent nucleoli. There was no evidence of neoplastic infiltration surrounding the tumoral tissue. The histological findings also included an inflammatory process of lymphoid type.

Despite the absence of mitotic activity our first diagnosis was malignant fibrous hystiocytoma of bone. Subsequent immunologic and histochemical analyses confirmed the suspected mesenchymal origin of the tissue examined, using Vimentina's

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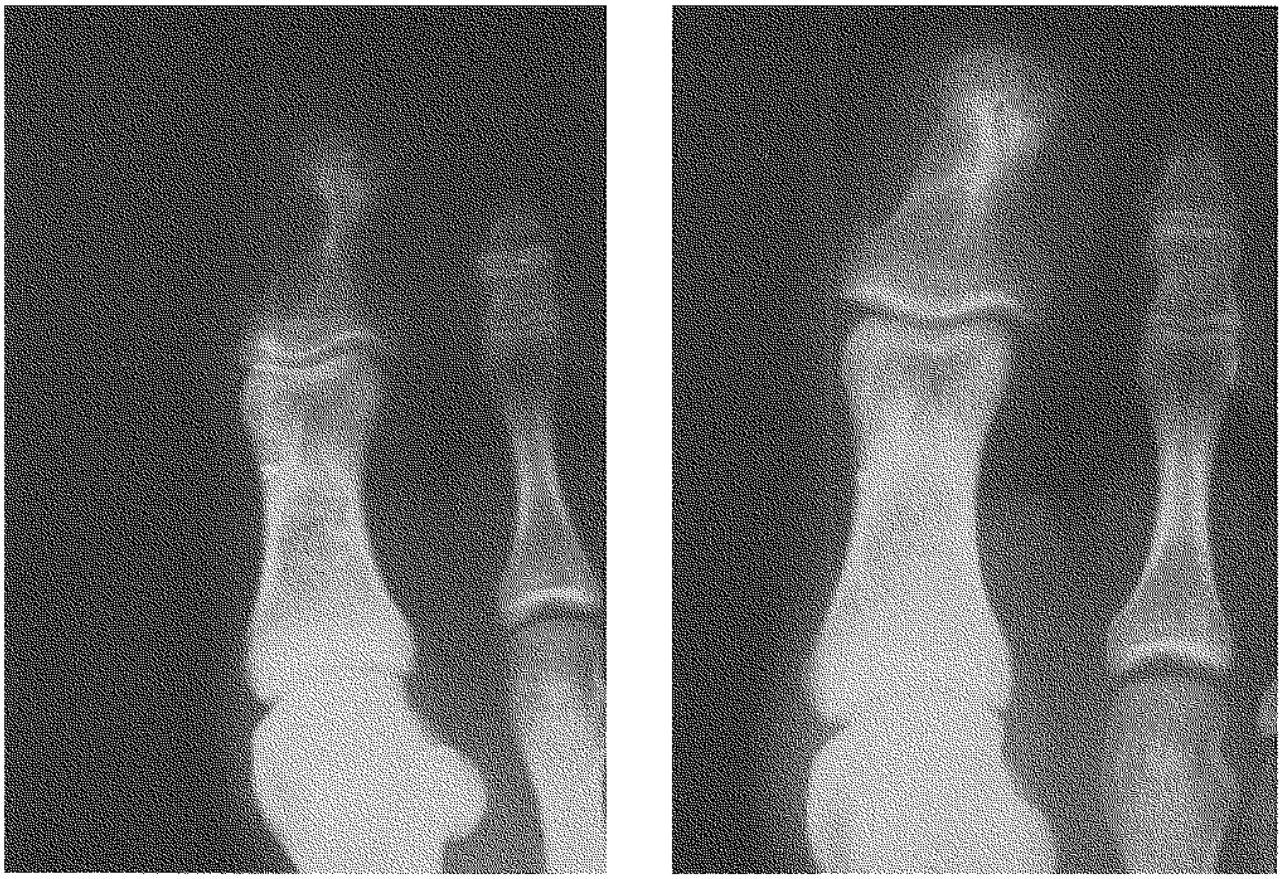

a b

Fig. 1. — a) This xray shows an osteolytic area and interruption of the cortex at the distal phalanx of the hallux. b) xray taken 25 days after surgery shows complete healing of the osteolytic area.

methodology ; tests also suggested a subungual nonmelanocytic melanoma, a histological diagnosis which was supported by the presence of the S 100 and the HMB 45 melanocytic antigens.

Xrays taken 25 days after surgery showed newly formed bone fully replacing the osteolytic area with no evidence of pathology (fig. 1b).

For this reason further histological, immunologic and histochemical analyses were performed, on the basis of which the pathologist excluded malignancy of the tumor and made a final diagnosis of proliferative fasciitis.

Five months after surgery the patient shows no symptoms and no alterations of the newly formed nail and surrounding soft tissues ; follow-up xrays show full "restitutio ad integrum" of the distal phalanx of the hallux.

DISCUSSION

The onset of the tumor, the fact that it affected mainly bone, and difficulties in identifying the histologic type complicated the diagnosis of the case reported. Histological examination of the material by hematoxylin-eosin stain showed a number of spindle-shaped cells with polymorphous nuclei and clearly evident nucleoli. The cells were sometimes arranged in fascicles with a tendency towards a colonnaded pattern.

Despite the polymorphism of some cells, no mitoses were visible (fig. 2).

The first histological diagnosis of a malignant fibrous histiocytoma or subungual melanoma suggested a radical and highly disabling therapy consisting of amputation either of the hallux or

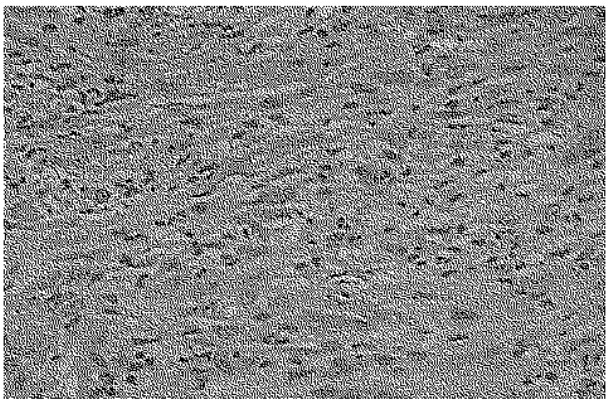

Fig. 2. — The histologic picture under the microscope after hematoxylin- eosin stain : colonnaded arrangement of spindle-shaped cells with large acidophilic cytoplasm, partly polymorphous nuclei, slack chromatin and prominent nucleoli. No mitotic figures are visible. Final diagnosis of nodular fasciitis.

the first ray. Only further and more thorough histological, immunologic and histochemical analyses of the material led to the final diagnosis of proliferative fasciitis, a benign condition with rare recurrences, that can be effectively treated with conservative therapy.

CONCLUSION

Nodular fasciitis is a benign tumor-like lesion of soft tissues with histological evidence of cellular proliferation represented by scattered fibroblasts and some mitotic figures ; this could explain why it can at first be mistaken for a malignant tumor such as malignant fibrous histiocytoma or fibrosarcoma.

Standard forms of malignant tumors with histological findings of polymorphism and hyperchromatism of nuclei, giant multinucleated sarcomatous cells and atypical mitotic figures leave no doubt as to the diagnosis of malignancy.

The differential diagnosis with such malignant tumors is quite difficult, especially with low malignancy forms, which are rare however.

The suspected diagnosis of subungual nonmelanocytic melanoma was based on the microscopic evidence of melanocytic antigens during immunologic and histochemical analyses ; however recent studies report that these markers are nonspecific, since there have been numerous cases of false positive responses (3, 6).

The atypical bone location did not facilitate the task of the clinicians or the pathologist in making a diagnosis. It was the benign radiological and clinical evolution of the lesion that led the pathologist to perform further histologic, immunologic and histochemical tests, thus reaching a definite histologically-based diagnosis.

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SAMENVATTING

G. SPAGNOLLI, M. P. PASQUALI, M. ROSATI, M. LISANTI. Nodulaire fasciitis van de hallux : problemen bij de differentieel diagnose.

Nodulaire fasciitis of prolifererende fasciitis wordt gebruikelijk geclassificeerd als een „tumor-like" hyperplastisch letsel van de weke delen. De histologische kenmerken van het letsel gaven vaak aanleiding tot diagnostische problemen omwille van de gelijkenis met een maligne mesenchymale neoplasme.
Als illustratie wordt een geval van nodulaire fasciitis beschreven waarbij atypische radiologische en klinische kenmerken de diagnose bemoeilijkten.

RÉSUMÉ

G. SPAGNOLLI, M. P. PASQUALI, M. ROSATI, M. LISANTI. Fasciite nodulaire du gros orteil : difficulté du diagnostic différentiel.

La fasciite nodulaire (nodular fasciitis) ou fasciite proliférative est actuellement classifiée comme une lésion pseudo-tumorale de nature hyperplasique qui intéresse les tissus mous.

Les caractéristiques histologiques de cette néoplasie sont telles, qu'elles rendent souvent problématique le diagnostic différentiel avec des néoplasies malignes de nature mésenchymateuse.

Dans le but de souligner cet aspect, les auteurs décrivent un cas de fasciite nodulaire d'interprétation difficile dont le diagnostic fut posé sur base des caractères cliniques et radiologiques de la lésion.