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A Peculiar Case of Ischemic Fasciitis Appeared on a Pressure Ulcer after 10 Days of Negative Pressure Wound Therapy

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Abstract

In this article, we reported a single case of ischemic fasciitis in a young woman with a progressive immobilization due to a multifocal demyelinating disease of central nervous system, which appeared on an extensive pressure ulcer of the sacral region treated with 10 days of negative-pressure wound therapy (NPWT). Wound examination revealed a significant nontender brown neoformation (9 cm in length × 10 cm in width × 7 cm in height), fixed to the sacrum, presenting hard consistency, and grown in the central portion of the sacral pressure sore. The histologic examination showed central fibrinoid necrosis, and vascular and atypical fibroblastic proliferations, and a diagnosis of ischemic fasciitis was made. Ischemic fasciitis is a rare benign proliferation of atypical fibroblasts that occurs in physically weak patients with reduced mobility. In the literature, the relationship between the use of NPWT on pressure ulcers and the development of ischemic fasciitis is, to the best of our knowledge, not described yet.

Keywords

- ischemic fasciitis
- pseudosarcomatous
- pressure ulcer
- negative-pressure wound therapy
- plastic surgery

Introduction

The term ischemic fasciitis identifies a rare benign subcutaneous pseudosarcomatous nodule or mass whose development depends on sustained or repeated pressure that determines ischemia of soft tissue, similar to the ischemia of soft tissue of pressure sores, but without ulceration.

It is typically described in elderly people, especially in weak and immobilized patients. It is often mistaken for soft-tissue sarcoma, both clinically and histologically.

We report a single case of ischemic fasciitis in a young woman with a progressive immobilization due to a multifocal demyelinating disease of the central nervous system, which appeared on an extensive pressure ulcer of the sacral region treated with 10 days of negative pressure wound therapy (NPWT).

Case

A 40-year-old Caucasian female, with a progressive immobilization due to a multifocal demyelinating disease of the central nervous system, presented to the Plastic and Reconstructive Surgery Department, for a fast-growing mass which appeared on a chronic pressure sore of the sacral region after 10 days of NPWT. Specifically, the sacral pressure ulcer (stage III of the National Pressure Ulcer Advisory Panel/the European Pressure Ulcer Advisory Panel pressure ulcer classification

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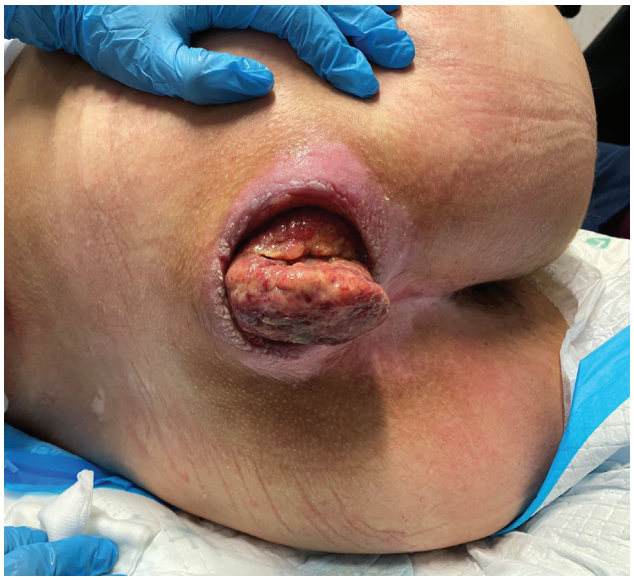

Fig. 1 Picture taken the first time the patient presented to our department for a massive neoformation grown in the central portion of the sacral pressure sore after 10 days of NPWT. NPWT, negative-pressure wound therapy.

system) had been present for nearly 6 to 8 months. To enhance wound healing, in another department, it was decided to opt for NPWT. However, after 10 days of NPWT, underneath the sponge, in the middle portion of the sore, a growth of an "unusual" tissue instead of a granulation tissue was observed. As a precaution, NPWT was stopped and our consultation was required in consideration of its fast growth.

Approximately 2 weeks after the removal of NPWT, wound examination revealed a significant nontender brown neoformation (9 cm in length × 10 cm in width × 7 cm in height), fixed to sacrum, presenting hard consistency, grown in the central portion of the sacral pressure ulcer (►**Fig. 1**).

The perilesional skin did not present changes in color and no lymphadenopathy was appreciated. Considering the impossibility to obtain magnetic resonance imaging due to the patient's clinical situation, multiple incisional biopsies were performed. The histological examination showed central fibrinoid necrosis, surrounded by enlarged atypical proliferating fibroblasts, myofibroblasts, chronic inflammatory cells, and reactive vascularity (►**Fig. 2**).

These findings were consistent with ischemic fasciitis.

The patient was informed of the results and 4 weeks after our first consultation, with the informed consent of the patient, a complete resection of the mass and pressure sore was simultaneously performed, using a V-Y advancement superior gluteal artery perforator flap to cover the sacral defect (►**Figs. 3** and **4**). The histological assessment of the resected mass confirmed the initial diagnosis obtained by multiple incisional biopsies: ischemic fasciitis.

Discussion

First reported in 1922 by Montgomery et al,[1] ischemic fasciitis is a rare benign proliferation of atypical fibroblasts

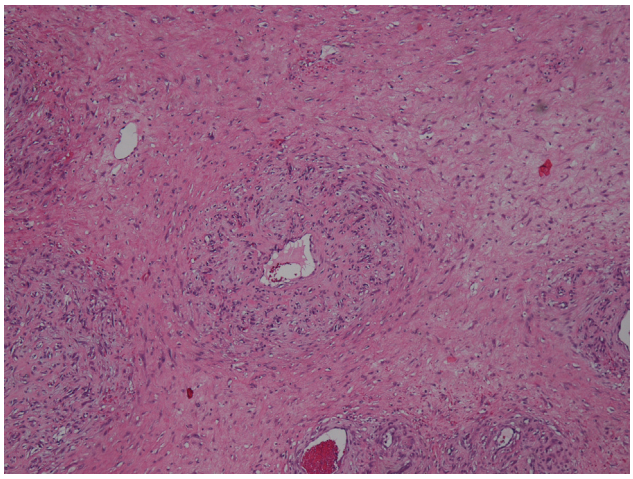

Fig. 2 Central fibrinoid necrosis, surrounded by enlarged atypical proliferating fibroblasts, myofibroblasts, chronic inflammatory cells, and reactive vascularity (hematoxylin and eosin).

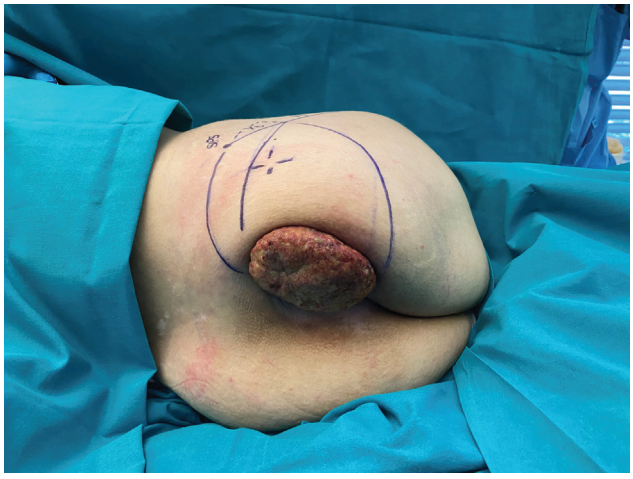

Fig. 3 Preoperative picture taken few weeks later ►**Fig. 1**. Particularly noteworthy is the fast-growing of the mass.

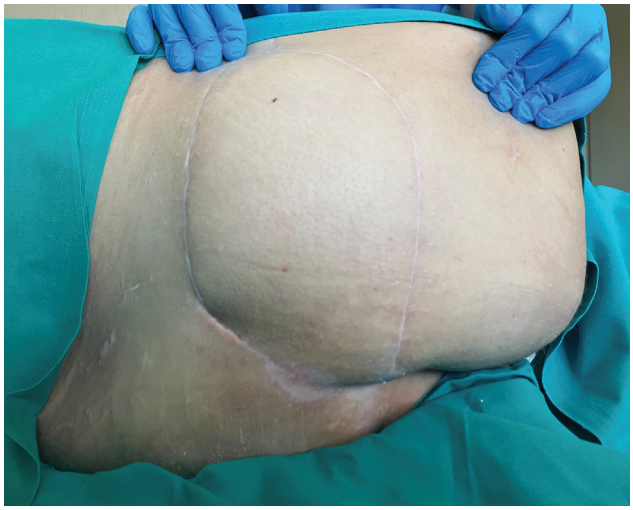

Fig. 4 Postoperative picture taken 8 months after the surgery.

that occurs in physically weak patients with reduced mobility. At Cleveland Clinic, Ilaslan et al,[2] between 1992 and 2004, encountered five cases. Between 1992 and 1998, a review of the pathology files of Massachusetts general Hospital[3] revealed three cases. In consideration of the more and more frail and disabled patients, it is difficult to give an explanation of the rarity of ischemic fasciitis.

The disease starts as an ischemia of soft tissue and subsequent abnormal healing due to the persistent and recurring pressure.[4] In a recent analysis of 44 cases of ischemic fasciitis, Liegl and Fletcher[5] reported 74 years as the median age, with a tumor size ranging from 1.3 to 10 cm (median: 4.7 cm).

The classic clinical sign is a single or multiple painless subcutaneous mobile mass, overlying bony prominences, most commonly found over the sacrum, limb girdles, hips, and shoulders.[6] The overlying skin could be elevated and could present erythema. Ulcerations of the skin or the onset on a pressure ulcer are uncommon. The span of time from the patient's first notice of the lesion to presentation ranged from "recent" to 1 year with an average of 6 months.[4]

The differential diagnosis for ischemic fasciitis includes sarcoma due to the similar clinical and histological findings. The typical histological presentation of pseudosarcoma is a central hypocellular area of fibrinoid degeneration/necrosis surrounded by granulation cells, fibrosis, fibrohyalinosis, and myxoid change.

The presence of infarcted fat, fat necrosis, extravasated erythrocytes, hemosiderin deposition, myxoid changes, and an inflammatory infiltrate are helpful to make a diagnosis of ischemic fasciitis instead of a sarcoma.[5]

Magnetic resonance imaging typically shows a mass in the subcutaneous tissue with a low signal center coherent with the ischemic and necrotic tissue. A local resection is often resolutive; in fact Liegl and Fletcher[5] reported only one recurrence in their analysis of 44 cases.

In the literature, the relationship between the use of NPWT on pressure ulcers and the development of ischemic fasciitis is, to the best of our knowledge, not described yet. Indeed the peculiarity of the present case consists in the onset in the central portion of a pressure sore after NPWT.

Disclosure

None of the authors has a financial interest in any of the products, devices, or drugs mentioned in this manuscript.

Authors' Contributions

Conceptualization: V.R., B.P., D.T., A.S., G.D.B.
Data curation: V.R., B.P., D.T., A.S., G.D.B.
Formal analysis: V.R., B.P., D.T., A.S., G.D.B.
Methodology: V.R., B.P., D.T., A.S., G.D.B.
Project administration: V.R., B.P., D.T., A.S., G.D.B.
Visualization: V.R., B.P., D.T., A.S., G.D.B.
Writing – original draft: V.R., B.P., D.T., A.S., G.D.B.
Writing – review & editing: V.R., B.P., D.T., A.S., G.D.B.

Ethical Approval

The informed consent was obtained from the patient.

Note

This article was presented at the Congress of the Italian Society of Plastic Surgery (SICPRE) 2021 in virtual edition.

Conflict of Interest

The authors confirmed that they have no conflicts of interest.

References

1 Montgomery EA, Meis JM, Mitchell MS, Enzinger FM. Atypical decubital fibroplasia. A distinctive fibroblastic pseudotumor occurring in debilitated patients. Am J Surg Pathol 1992;16(07):708–715
2 Ilaslan H, Joyce M, Bauer T, Sundaram M. Decubital ischemic fasciitis: clinical, pathologic, and MRI features of pseudosarcoma. AJR Am J Roentgenol 2006;187(05):1338–1341
3 Baldassano MF, Rosenberg AE, Flotte TJ. Atypical decubital fibroplasia: a series of three cases. J Cutan Pathol 1998;25(03):149–152
4 Lehmer LM, Moore JB, Ragsdale BD. Ischemic fasciitis: enhanced diagnostic resolution through clinical, histopathologic and radiologic correlation in 17 cases. J Cutan Pathol 2016;43(09):740–748
5 Liegl B, Fletcher CD. Ischemic fasciitis: analysis of 44 cases indicating an inconsistent association with immobility or debilitation. Am J Surg Pathol 2008;32(10):1546–1552
6 Sayeed SM, Tyrell R, Glickman LT. Management of recurrent ischemic fasciitis, a rare soft tissue pseudosarcoma. Arch Plast Surg 2014;41(01):89–90

