Journal of the Turkish Academy of Dermatology
eISSN 1307-394X

Case Report
DOI: 10.6003/jtad.1481c1

A Case of Traumatic Panniculitis After Falling down from Height

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Published:
J Turk Acad Dermatol 2014; **8 (1)**: 1481c1
This article is available from: http://www.jtad.org/2014/1/jtad1481c1.pdf
Key Words: panniculitis, trauma

Abstract

Observations: Traumatic panniculitis is an inflammation of subcutaneous adipose tissue caused by physical and chemical agents. Causes of traumatic panniculitis include physical agents such as exposure of cold or electricity, accidental blunt trauma to the skin, factitial panniculitis due to injection of substances such as drugs, organic materials and chemical agents into subcutaneous tissue. Lipoatrophia semicircularis and nodular-cystic fat necrosis are the other types of traumatic panniculitis caused by repeated microtraumas. Panniculitis due to mechanical traumas are usually observed in female patients of all ages on the breast or anterior side of the tibia. Physical examination generally revealed indurated, warm, red plaques and nodules. Histopathological findings are non-specific in early lesions. Late lesions are characterized by formations of fat microcysts surrounded by histiocytes. Also fibrosis, lipomembranous changes and hemorrhage are observed. To the best of our knowledge, this is the first case of traumatic panniculitis after falling down from a height of three meters. Although the patient landed on her feet, the lesions did not develop on the sole but instead on both anteriomedial sides of the legs.

Introduction

Traumas caused by physical and chemical agents may induce inflammation of subcutaneous adipose tissue [**1**]. Traumatic panniculitis occurs due to cold, mechanical trauma or injection of some substances into the subcutaneous adipose tissue. As a subtype of traumatic panniculitis, lipoatrophia semicircularis and nodular-cystic fat necrosis, can also be caused by repeated external microtraumas [**1, 2, 3, 4**].

Case Report

A 39-year-old woman presented with asymptomatic, brownish lesions on the anteromedial side of the lower legs (**Figure 1**). On her history, she reported that, she falled down from a height of three meters and landed on her soles, 10 months ago. On the anteromedial sides of the legs, asymptomatic purplish macules occured and after three weeks brownish macules remained. On physical examination, the lesions are nontender, warm and firm. She was in goodhealth. Her family history was unremarkable. Routine laboratory examination and bilateral lower extremities venous doppler ultrasound were normal. An incisional biopsy specimen showed fibrosis, proliferation of fibroblasts and infiltration of lymphocytes and eosinophils in the subcutaneous tissue (**Figure 2, 3**). Also small fat cycts surrounded by histiocytes and granulomas were seen in the fibrotic tissue (**Figure 4**). Clinical and histopathological fin-

Figure 1. Brown discolaration in both lower extremities

dings were consistent with the diagnosis of traumatic panniculitis. The patient was kept under follow-up without treatment.

Discussion

Accidental traumas to the skin may induce inflammation in the subcutaneous adipose tissue. Panniculitis caused by mechanical trauma are diagnosed as indurated, warm, red plaques and nodules. The main localizations are on breast and the anterior side of the tibia in women. Nodular-cystic fat necrosis and lipoatrophia semicircularis are subtypes of traumatic panniculitis. Some authors believe also cold and factitial panniculitis are the forms of traumatic panniculitis while the others thought them as specific forms of panniculitis [**2, 5**].

Nodular-cystic fat necrosis was first described as multiple nodules on the breast of a 52-year-old woman in 1975 which was named as well circumscribed fat necrosis [**6**]. Then different nomenclatures were used such as nodular-cystic fat necrosis, mobile encapsulated lipoma, nodular fat necrosis and posttraumatic fat degeneration and herniation, and encapsulated necrosis [**7, 8, 9, 10**]. It is mostly seen on the legs of women as well-defined, mobile nodules. Only 40% of the patients remember previous trauma [**4**].

Lipoatrophia semicircularis is a rare condition described by *Gschwandtner* and *Munzberger* in 1974 [**11**]. It is mostly seen in women in thirties and charecterized by atrophic, band-like horizontal depressions measuring 2 to 4 cm in width on the anterolateral side of the thighs [**12**]. Lesions occur in a few weeks due to repeated traumas and resolve within 9 months to 4 years after avoiding the trauma [**3**]. *Bloch* and *Runne* suggested that the patients who have a congenital abnormality of lateral femoral circumflex artery, are tend to occur the disease after repeated microtraumas due to impaired circulation in the affected area [**13**]. *Senecal* et al. reported 18 cases in the same company and thought that the main reason was repeated external microtraumas, not a congenital abnormality [**14**]. Most of the authors believed that the cause of lipoatrophia semicircularis was repeated mechanical microtraumas [**3, 12, 15**].

Histopathological examination is non-specific in early lesions of traumatic panniculitis. Inflammatory infiltration of lymphocytes and macrophages around blood vessels and septa are observed. Late lesions are characterized by

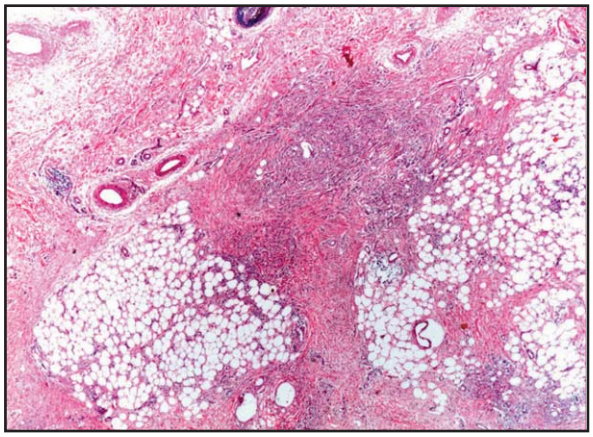

Figure 2. The increase in the fibrous collagen fibre tissue that enlarges the septum and narrows the lobular area, lifts up the subcutaneous fatty tissue, H+E x 25

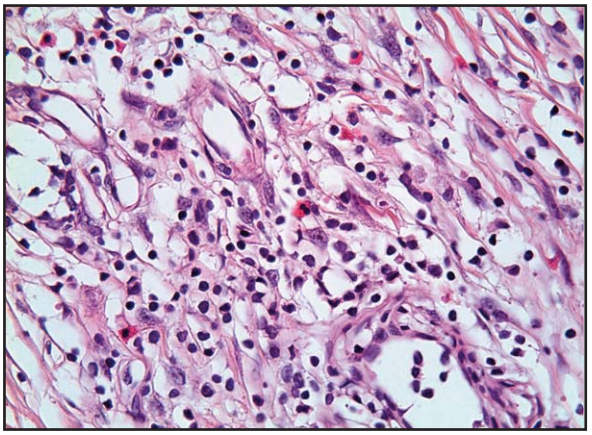

Figure 3. Fibroblast and vascular proliferation in the fibrous collagen tissue, mixed with lymphocyte dominant mixed inflammatory cell infiltration and scattered eosinophil leukocytes, H + E x 400

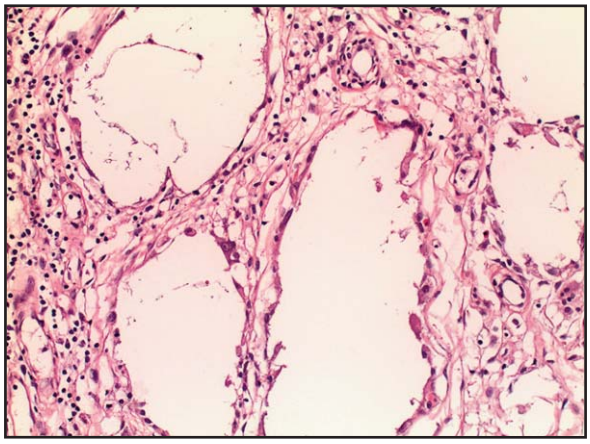

Figure 4. Fat microcysts surrounded by histiocytes in the fibrous collagen tissue secondary to lipocyte damage, H + E x 200

fibrosis, small fat cycts surrounded by histiocytes, inflammatory infiltration of neutrophils and eosinophils [**1**]. In nodular-cystic fat necrosis, the histopathological examination shows necrosis of adipose tissue surrounded by a fibrous capsule while lipoatrophia semicircularis is charecterized by partial and complete loss of fat with replacement of newly formed collagen [**4, 12**].

To the best of our knowledge, this is the first case of traumatic panniculitis after falling down from a height of three meters. Although the patient landed on her feet, the lesions did not develop on the sole but instead on both anteriomedial sides of the legs. All cases of traumatic panniculitis due to blunt trauma or falls, the lesions develop at the sites of injury. We are unsure as to why panniculitis had localized on the anterior aspects of the tibia. The patient may have impaired circulation in the affected region as a result of a congenital abnormality of the regional arterial system and pressure to the soles results in ischaemic damage of the fatty tissue.

Fat is organized intomicrolobules of adipocytes with surrounding capillary networks supplying the microlobules. In the present case, abrupt and concentrated pressure on a microlobule can cause it to rupture, with disruption of the septa between lobules and shearing of associated blood vessels. Adipocytes release their contents into the stroma and incite a local tissue reaction that can lead to permanent changes in the injured region which resulted with fat necrosis and clinical feature.

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