CASE REPORT

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Leukocytoclastic vasculitis as a complication of infected total hip prosthesis

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Abstract We present a case of leukocytoclastic vasculitis, associated with an exacerbation of chronic osteomyelitis in a pseudoarthrosis of the hip. Skin lesions of the lower limb were the most prominent features.

Résumé Nous présentons un cas de vasculite leucocyto-clastique apparue après exacerbation d'une osteomyélite chronique évoluant après ablation d'une prothèse totale de hanche. Les traits plus dominants sont les lésions cutanées sur le membre inférieur.

Introduction

Vasculitis caused by an immunological reaction is a rare complication of chronic osteomyelitis. Bacterial antigens and antibodies may form immunocomplexes which precipitate in the walls of blood vessels and induce a type III immunological reaction [3]. There are characteristic inflammatory changes, with proliferation and necrosis in the walls of blood vessels. Such changes can occur in many conditions as primary or secondary phenomena [2, 4]. There are few reports of vasculitis associated with osteomyelitis. There is initially precipitation of immune complexes within the walls of blood vessels. The antigen often remains unknown, although the causative organism may be a mycobacterium, a streptococcus or a staphylococcus. In most classifications hypersensitive vasculitis, also known as allergic or leukocytoclastic vasculitis, is distinguished from other types of vasculitis. Small vessels such as arterioles, capillaries and venules may be affected in many organs, but the skin is the most prominently affected [3]. We present a patient with a chronic infection as a complication of total hip replacement [1]. Secondary, leukocytoclastic vasculitis developed most probably as an immunological response to the infection.

Case report

A 61-year-old male patient presented with necrotic skin and a purulent discharge affecting most of the left lower leg and dorsum of the foot. His general condition was poor; he was dehydrated and febrile (39°C). The sedimentation rate was 130 ml/h and the WBC

Fig. 1 Histologic picture of the skin biopsy. Venules in the papillary and upper reticular dermis show the deposition of fibrillary eosinophilic fibrinoid in the wall of the vessels, the presence of neutrophils and fragmented neutrophils in and around the vessel walls. Lymphocytes and histiocytes make up a portion of the inflammatory infiltrate

Fig. 2 Extension of the skin necrosis on the dorsum of the left foot and lower leg

count $20,000\text{ cm}^{-3}$. There was a fistula in relation to the previous left hip surgery. There was an extensive previous history of surgery following dislocation of the left hip sustained in a road traffic accident in 1970. He developed avascular necrosis of the head of the femur and underwent decompression of the femoral head in 1980. Thereafter an intertrochanteric osteotomy had been performed followed by total hip replacement in 1989. This procedure was complicated by deep staphylococcal infection and the prosthesis was removed in 1993. He developed an actively discharging fistula in 1996 and later that year developed a rash affecting the left lower limb. Skin biopsy confirmed the diagnosis of leukocytoclastic vasculitis (Fig. 1), with dermal oedema and foci of necrosis in the dermis and abundant neutrophils with cellular destruction and metastatic abscesses. In the deeper aspects of the dermis there were similar necrotic foci with invasion of the venules by granulocytes. Occasional fibrinoid necrosis and microthrombosis was seen. There were mononuclear cells in the inflammatory infiltrate. There were areas of erythrocyte extravasation throughout the dermis. These cutaneous pathological features are characteristic of acute leukocytoclastic vasculitis [5].

At operation a debridement of the infected pseudoarthrosis was performed and bipolar drainage instigated. The necrotic and purulent tissue from the lower leg and foot (Fig. 2) was removed. He received intravenous antibiotics, albumin and a blood transfusion. The leg wounds were dressed regularly and eventually split skin grafting was performed. The hip wound healed. Mobilisation proceeded satisfactorily. The majority of the areas of skin grafting healed. There was shortening of the left lower limb by 7 cm and an equinus deformity of the ankle. At the time of discharge he was walking independently.

Discussion

The leukocytoclastic vasculitis occurred after exacerbation of chronic staphylococcal osteomyelitis within a pseudoarthrosis of the hip. Immunocomplex precipitation within the walls of small vessels is induced by staphylococcal antigens. The cutaneous regions of the lower limb and foot, which are typical of leukocytoclastic vasculitis, were the most prominent features of this case.

References

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