Bacillary Angiomatosis in Renal Transplant Recipient: A Case Report

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ABSTRACT

Introduction. Bacillary angiomatosis (BA) is a rare, opportunistic infectious disease caused by the aerobic Gram-negative bacilli *Bartonella henselae* or *Bartonella quintana*. The main reservoir for those microbes are cats. The disease mostly affects immunocompromised patients with human immunodeficiency virus infection, after organ transplantation, undergoing corticosteroid and methotrexate therapy or with oncological history.

Case report. We represent the case of a 65-year-old man who reported to the Department of Dermatology with a high fever and numerous nodular skin lesions on the 5th month of kidney transplantation. At that time, his immunosuppressive therapy consisted of tacrolimus 6 mg/day, mycophenolate mofetil 2 g/day, and prednisone 5 mg/day. Laboratory tests revealed an increased leukocyte count and elevated values of acute-phase proteins, but blood cultures were negative.

Skin biopsy was performed and BA was diagnosed. The patient was given oral doxycycline 100 mg twice a day. During antibiotic therapy, his body temperature normalized and skin lesions began to resolve. The patient continued the above treatment for the next 3 months with good tolerance, and no relapse occurred in 1 year.

Conclusion. BA should be listed among possible opportunistic infections in organ transplant recipients.

PATIENTS after kidney transplantation (KTx) who are on immunosuppression are predisposed to various complications, including skin infections. The differential diagnosis of cutaneous lesions is sometimes difficult due to their similar appearance in conditions having different causes. A careful clinical evaluation, including anamnesis, physical examination, biochemical and serologic tests, and biopsy sample examination, can help establish a proper diagnosis [1,2].

CASE PRESENTATION

A 65-year-old man reported to the Department of Dermatology with fever and numerous nodular skin lesions 5 months after KTx. His immunosuppressive therapy consisted at that time of tacrolimus 6 mg/day, mycophenolate mofetil 2 g/day, and prednisone 5 mg/day.

The physical examination demonstrated multiple painless blood-red papules and nodules from 5 to 15 mm in diameter, localized on the arms, trunk, thighs, and face (Fig 1A and B). Some papules and nodules were covered with a fine, tightly adherent scale. Oral and genital mucosa was free of lesions. The patient complained of high fever with chills and muscle pain in the evening.

Laboratory tests revealed an increased leukocyte count and elevated values of acute-phase proteins. A moderate anemia and decreased renal function were also found. Blood cultures were negative. Abdominal ultrasound revealed splenomegaly. A chest x-ray showed extension of the right hilum. The diagnostic management was extended to include chest computed tomography, which revealed mediastinal lymphadenopathy. Bronchoscopy with lymph node biopsy and bronchial washings tests revealed an inflammatory reaction in the respiratory tract and lymph nodes.

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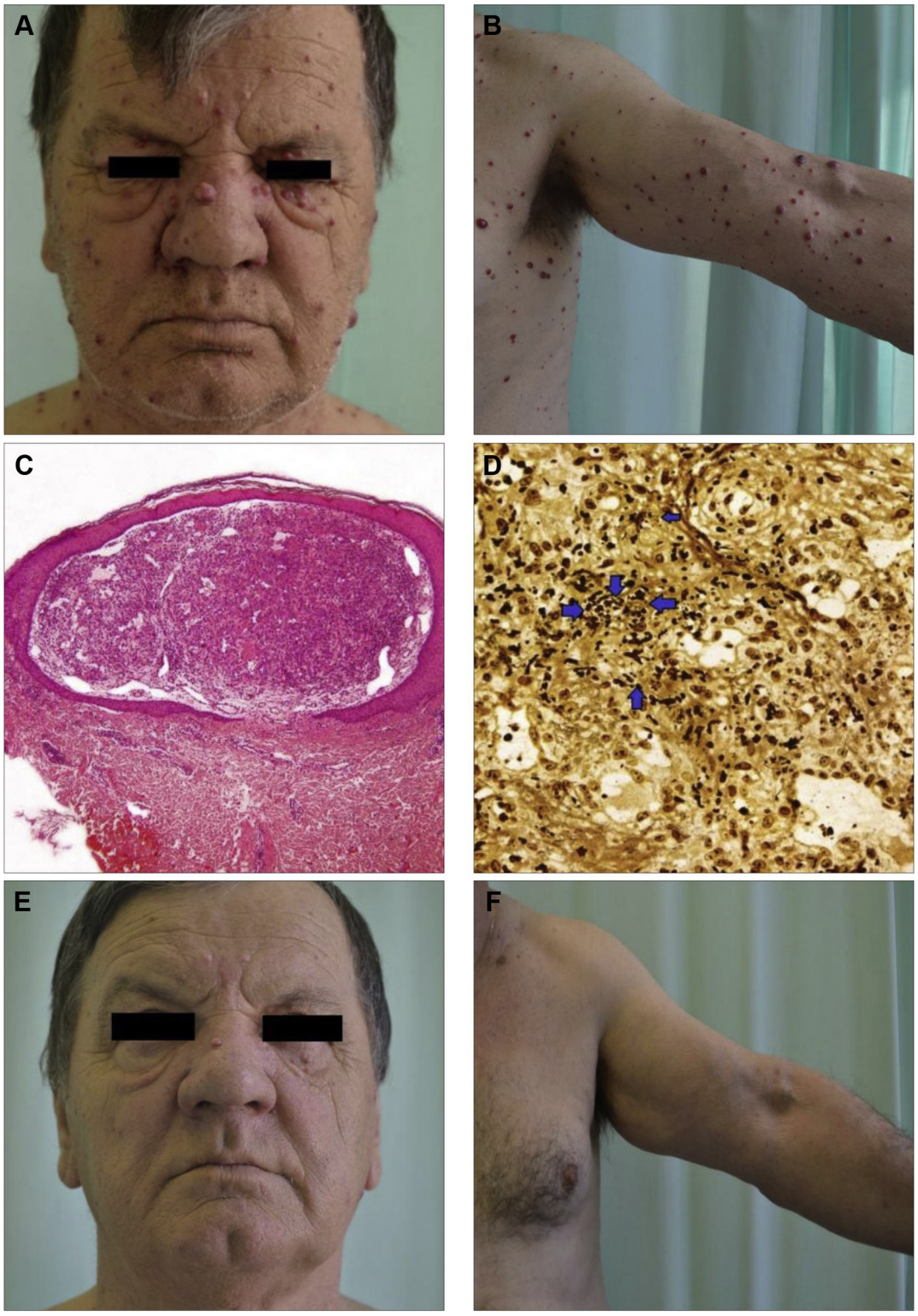

Fig 1. **(A,B)** First day of hospitalization, mulitple violaceus papules and nodules localized on the face, arms, and trunk. **(C,D)** After treatment, skin lesions completely resolved. **(E)** Histopathologic examination of a skin sample: nodule under epidermis built of proliferating small blood vessels (hematoxylin and eosin stain). **(F)** Histopathologic examination of a skin sample: Warthin-Starry histochemical stain demostrating small extracellular aggregates of coccobacilli (arrowheads) confirming the diagnosis of bacillary angiomatosis.

Skin biopsy was performed and histopathologic examination demonstrated bacillary angiomatosis (BA) (Fig 1C and D), a rare, opportunistic infectious disease caused by the aerobic Gram-negative bacilli *Bartonella henselae* or *Bartonella quintana* [2]. The patient was given oral doxycycline 100 mg twice a day. During antibiotic therapy, his body temperature normalized and skin lesions began to resolve. The patient continued the above treatment for the next 3 months with good tolerance, and no relapse occurred in the 1-year follow-up (Fig 1E and F).

DISCUSSION

BA was first described by Staler et al in 1983 [3]. The disease mostly affects immunocompromised patients with human immunodeficiency virus infection, after organ transplantation, undergoing corticosteroid and methotrexate therapy or with oncological history [2,4,5]. The main reservoir for those microbes are cats. The disease spreads through a cat scratch or bite. Fleas and lice may be vectors as well [4]. Our patient confirmed contact with several cats about a month before the first skin lesions occurred.

The pathogenesis of BA is a proliferation of vascular endothelial cells stimulated by the angiogenic factor, what leads to the development of skin lesions, mostly described as violaceus papules, nodules, and plaques [4,5]. Unusual manifestations like a single subcutaneous tumor or large exophytic masses have been rarely presented [6–8].

The disease can affect other organs, including the lymph nodules, liver, spleen, bone marrow, heart, and respiratory and gastrointestinal tracts [2,9]. Angioproliferative lesions of the liver and spleen are called bacillary peliosis [8]. General symptoms like fever, night sweats, chills, myalgias, and weakness can also occur [5]. BA can also be diagnosed in immunocompetent patients and has atypical manifestation [10,11].

Histologic examination of the lesions from the affected organs shows vascular proliferation with characteristic lobes, several mitoses with cell atypia, and leukocyte infiltration. In the majority of cases, the diagnosis is confirmed by histopathology with Warthin-Starry staining, which shows clamps of bacteria in the involved tissues, although the polymerase chain reaction test can be helpful. In differential diagnosis, the Kaposi sarcoma and pyogenic granuloma must be considered first [2,4,6].

The drug of choice in the treatment of BA is erythromycin or doxycycline. To avoid relapses, at least a 3-month therapy is recommended. For patients with multisystem involvement, a combination therapy with rifampicin can be helpful; however, interactions between the selected drugs must be carefully considered, especially in transplant recipients treated with tacrolimus. For such patients, the treatment with tacrolimus requires dose adjustment based on its blood concentration [5,8].

In conclusion, BA should be listed among possible opportunistic infections in organ transplant recipients.

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