Migratory purpura in a patient with mediastinitis due to methicillin-resistant *Staphylococcus aureus*

Mediastinitis is a devastating complication associated with substantial mortality, morbidity, hospital stay, and costs.[1–3] Isolation of methicillin-resistant *Staphylococcus aureus* (MRSA) is reported to cause an even higher mortality and morbidity.[3] We present herein a patient with mediastinitis presenting with cutaneous vasculitis as part of initial symptomatology.

A 70-year-old man presented with an ascending aortic aneurysm and underwent an aortic root replacement procedure with a prosthetic valved conduit; he was discharged on day 7 after an uneventful postoperative course. A week after his discharge, he was re-admitted to hospital with sternal dehiscence, elevated white cell count (15×10^9/l), high-grade fever, and purpuric skin lesions appearing first on the proximal lower extremities and armpits (Figure 1). He was given vancomycin and gentamicin following a presumptive diagnosis of mediastinitis and sepsis. A repeat sternotomy for valved conduit replacement was performed with mediastinal exploration and irrigation. In addition to serial blood cultures, tissue cultures were taken during exploration, all of which revealed MRSA infection. Vancomycin was continued upon microbiologic identification until serial blood and drainage cultures proved negative. Over the next week, the skin rash redistributed to the distal lower extremities around the ankles and the genitalia, and spread thoroughly over the upper extremities. Cutaneous biopsy of the skin lesions revealed a leukocytoclastic angiitis and was negative for immune deposits upon immunofluorescence study. Serum IgE levels were not elevated and no eosinophilia was observed. His postoperative course after the sternal revision was uneventful. His skin rash disappeared on day 10 when he was on systemic antibiotics and topical corticosteroid, and he was discharged on day 24.

In most cases of mediastinitis, coagulase-negative staphylococci and MRSA have been isolated as the etiological agent.[1,3–5] The cornerstone of treatment of mediastinitis is prompt re-operation with irrigation and complete excision of the infected/necrotic tissue.[3,4]

Staphylococcal infection with a vasculitis component is rare, but a known phenomenon. However, selected cases have been reported with associated renal impairment usually due to immune deposits or a sclerosing mediastinitis.[6,7] Post-MRSA vasculitis including glomerulonephritis have been proposed to be induced by superantigens causing production of high levels of cytokines, and polyclonal activation of IgG and IgA.[6] Cutaneous lesions in our patient lacked immune deposits, and renal involvement was absent. Interestingly, lesions were later redistributed to the upper extremities and genitalia in addition to the dependent areas. Clinical findings and history were inconsistent with other known causes of vasculitis. Low levels of IgE and normal thrombocyte and eosinophil counts as well as the lack of immune deposits upon skin biopsy assisted in ruling out drug reaction. Cutaneous vasculitis following sternotomy should be considered as a clinical sign of systemic infection with mediastinal involvement.

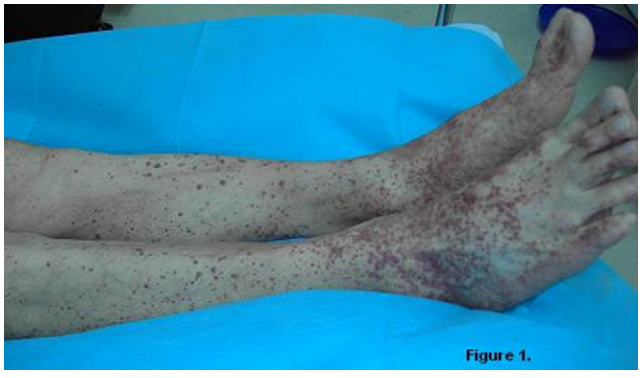

Figure 1 Systemic vasculitis secondary to mediastinitis caused by methicillin-resistant *Staphylococcus aureus*.

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References

1. Gardlund B, Bitkover CY, Vaage J. Postoperative mediastinitis in cardiac surgery—microbiology and pathogenesis. *Eur J Cardiothorac Surg* 2002;**21**:825–30.
2. El Oakley RM, Wright GA. Postoperative mediastinitis: classification and management. *Ann Thorac Surg* 1996;**61**:1030–6.
3. Hirata N, Hatsuoka S, Amemiya A, Ueno T, Kosakai Y. New strategy for treatment of MRSA mediastinitis: one-stage procedure for omental transposition and closed irrigation. *Ann Thorac Surg* 2003;**76**:2104–6.
4. Astudillo R, Vaage R, Mhyre U, Karevold A, Gardlund B. Fewer reoperations and shorter stay in the cardiac surgical ward when stabilizing the sternum with the Ley prosthesis in postoperative mediastinitis. *Eur J Cardiothorac Surg* 2001;**20**:133–9.
5. Upton A, Roberts SA, Milsom P, Morris AJ. Staphylococcal post-sternotomy mediastinitis: five year audit. *ANZ J Surg* 2005;**75**:198–203.
6. Koyama A, Kobayashi M, Yamaguchi N, Yamagata K, Takano K, Nakajima M. Glomerulonephritis associated with MRSA infection: a possible role of bacterial superantigen. *Kidney Int* 1995;**47**:207–16.
7. Loeb JM, Lombard CM. Idiopathic mediastinitis with superior vena cava obstruction, cardiac tamponade, and cutaneous vasculitis. *West J Med* 1991;**155**:296–9.

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