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Acute infective endocarditis presenting with polyarthritis after turbinoplasty

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Dear Sir,

We describe a novel and rare case of acute infective endocarditis following radiofrequency turbinoplasty, with an unusual presentation of acute symmetrical polyarthritis, and other rheumatic manifestations such as septic spondylodiscitis and vertebral osteomyelitis due to bacteraemia and infective dissemination. Serious infectious complications following nasal surgery have rarely been reported.

A 59-year-old man presented to the Emergency Department with a three-day history of sub-acute widespread joint pain, which was predominant in the small- and medium-sized joints. Two days before the onset of symptoms, he had undergone radiofrequency turbinoplasty for persistent allergic rhinitis. He did not have any cardiac risk factors such as prior infective endocarditis, prosthetic heart valve, valve lesion or congenital heart disease, or other predisposing conditions such as immunosuppression, intravenous drug use, indwelling intravenous lines and catheters, or recent dental procedure. He was admitted under Rheumatology for possible systemic vasculitis based on the acute symmetrical polyarthritis, rash and nasal symptoms. Physical examination showed that he was apyrexial, and had bilateral warm and tender joints of the shoulders, wrists, ankles and mid-tarsal joints. No articular swelling, effusion or erythema was detected. Multiple non-tender erythematous macular rashes were observed on both his palms and soles (Janeway lesions, Figs. 1a & 1b), along with splinter haemorrhages (Fig. 1c). No audible murmur was detected. There was no evidence of thrombophlebitis (e.g. from venous cannulation), cellulitis or wound infection. Although crusting of the inferior turbinates was observed, abscess formation in the nasal cavity and retropharyngeal space was excluded.

Laboratory test results revealed a normal white blood cell count of 7.26×10^9/L (normal range, $4.0–10.0 \times 10^9$/L), with 89.1% neutrophils, elevated C-reactive protein of 323 (normal

range, 0.2–9.1) mg/L, erythrocyte sedimentation rate of 14 (normal range, 1–10) mm/h, and elevated procalcitonin of 5.6 (normal value, <0.5) UG/L. Anti-neutrophil cytoplasmic antibody test yielded negative results. Blood cultures on admission were positive for *methicillin-sensitive Staphylococcus aureus* (MSSA). The fulfilment of one major (positive blood culture) and one minor criterion (Janeway lesions) based on the modified Duke criteria[(1)] led to a diagnosis of possible infective endocarditis. The patient was started on high-dose intravenous cloxacillin 2 g every 4 hours on Day 2 of admission.

Transthoracic echocardiography on admission was unremarkable. In addition, no cardiac murmur was detected on subsequent daily auscultation of heart sounds. A repeat echocardiography performed eight days later revealed intracardiac vegetation measuring 10.2 mm × 7.6 mm on the mitral valve anterior leaflet, with trivial mitral regurgitation. Retinal imaging showed flame haemorrhages (Roth spots). Magnetic resonance (MR) imaging of the shoulders showed bilateral subacromial-subdeltoid bursitis; Gram staining of the synovial fluid was unremarkable, and cultures yielded no growth. The polyarthritis was likely to be reactive, considering the negative joint aspiration, absence of pus, as well as the rapid clinical resolution of joint symptoms without the requirement of arthroscopic washout in the affected small- and medium-sized joints.

However, despite treatment with appropriate antibiotics, the patient developed septic shock, acute renal failure and cerebral emboli. The refractory clinical course prompted the physicians to search for other manifestations secondary to septic embolism and infective dissemination of the MSSA bacteraemia. Ten days after the patient was diagnosed with infective endocarditis, he complained of severe back pain. MR imaging of the spine showed spondylodiscitis with adjacent vertebral osteomyelitis (Figs. 2a & 2b), and associated iliopsoas and paravertebral abscesses (Fig. 2c). Imaging-guided percutaneous drainage of the paravertebral and iliopsoas collection showed Gram-positive cocci on Gram stain smear.

Follow-up blood cultures were obtained 48 hours after commencement of antibiotics and repeated 48 hours until clearance of bacteraemia 12 days later. The patient completed a total antibiotic treatment course of 10 weeks for disseminated infection complicated by septic embolic phenomenon.

Through this case, we highlight the importance of being cognizant of the potential rare systemic sequelae that may result from nasal surgery, and of considering infective endocarditis in the presence of classic embolic phenomenon. Regardless of the absence of a predisposing cardiac condition and fever at presentation, our patient presented with embolic vascular phenomena such as Janeway lesions, and subsequently developed cerebral emboli and Roth spots; the latter represent the sequelae of vascular occlusion by microthrombi, leading to localised immune-mediated vasculitis.[2] Janeway lesions are a consequence of septic microemboli from infective endocarditis, and are often coincident with systemic embolisation. Janeway lesions and Osler's nodes are found in 3%–5% cases of infective endocarditis.[3] Other examples of vascular manifestations in infective endocarditis are septic pulmonary infarcts, mycotic aneurysm, intracranial or conjunctival haemorrhages, while glomerulonephritis, Osler's nodes and rheumatoid factor are well-recognised immunologic phenomena.[1]

Infective endocarditis is an extremely rare complication of turbinoplasty. Other rare infective complications in the literature include meningitis, brain abscess, cavernous sinus thrombosis,[4] and osteomyelitis involving the inferior turbinates.[5] In this patient, based on the temporal sequence of the turbinoplasty and the onset of infective endocarditis, with the exclusion of other potential causes of MSSA bacteraemia, we concluded that the infective endocarditis may be a complication of the radiofrequency turbinoplasty. Development of transient bacteraemia after nasal surgery is more common, and has been documented in 15% and 16.9% of blood samples obtained immediately after surgery and after removal of packing,

respectively, with the most commonly isolated strain being *Coagulase-positive staphylococcus*.[6]

Rheumatic manifestations of infective endocarditis are not uncommon, and disabling musculoskeletal symptoms and signs occur in 25% to 44% of patients.[7] In MSSA bacteraemia with refractory clinical disease, disseminated infection to the spine should be considered. Septic discitis and vertebral osteomyelitis tend to present as moderate to severe low back pain, with *Streptococcus bovis* having a propensity for this complication,[7] although our patient had *S. aureus* infection. Haematogenous spread was likely the cause of vertebral osteomyelitis in our patient, and subsequent extension of infection may have accounted for the development of psoas and paravertebral abscess. Septic arthritis typically presents as monoarthritis; however, multifocal septic arthritis associated with infective endocarditis has been documented,[8] and may be potentially unrecognised if joint aspiration is not performed. Other rare rheumatic manifestations that have been reported include acute gout, buttock pain and sacroiliac joint tenderness, jaw/facial pain, neck/scapular pain and flank pain; the latter may be due to retroperitoneal infections.[5]

We conclude that immediate postoperative rheumatic manifestation such as acute symmetrical polyarthritis may rarely be an initial presenting symptom of infective endocarditis, thus mimicking rheumatic diseases such as inflammatory arthritis or systemic vasculitis. As acute infective endocarditis after nasal surgery has rarely been reported, a high index of suspicion is required for early diagnosis and effective treatment, and to prevent subsequent morbidity and mortality.

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Yours sincerely,

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FIGURES

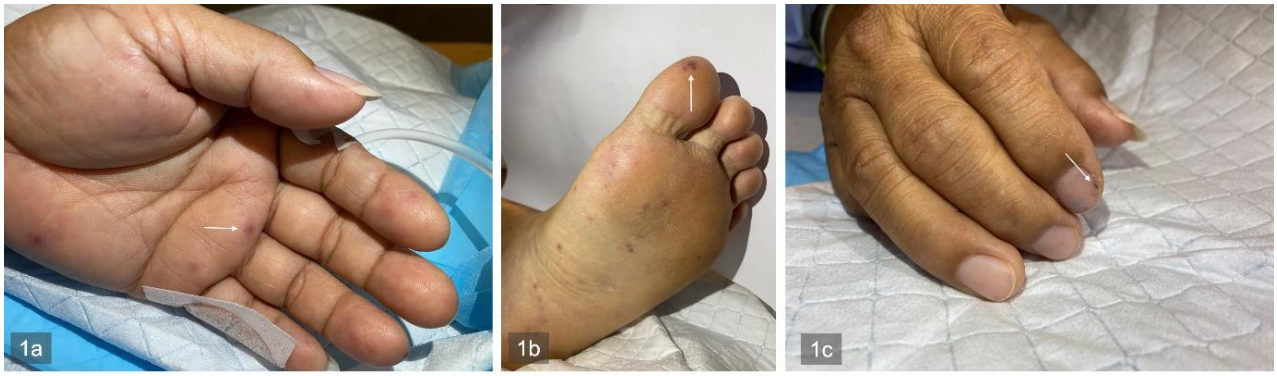

Fig. 1 Images show **(**a & b) Janeway lesions on the left palm and sole, and (c) splinter haemorrhages under the fingernail.

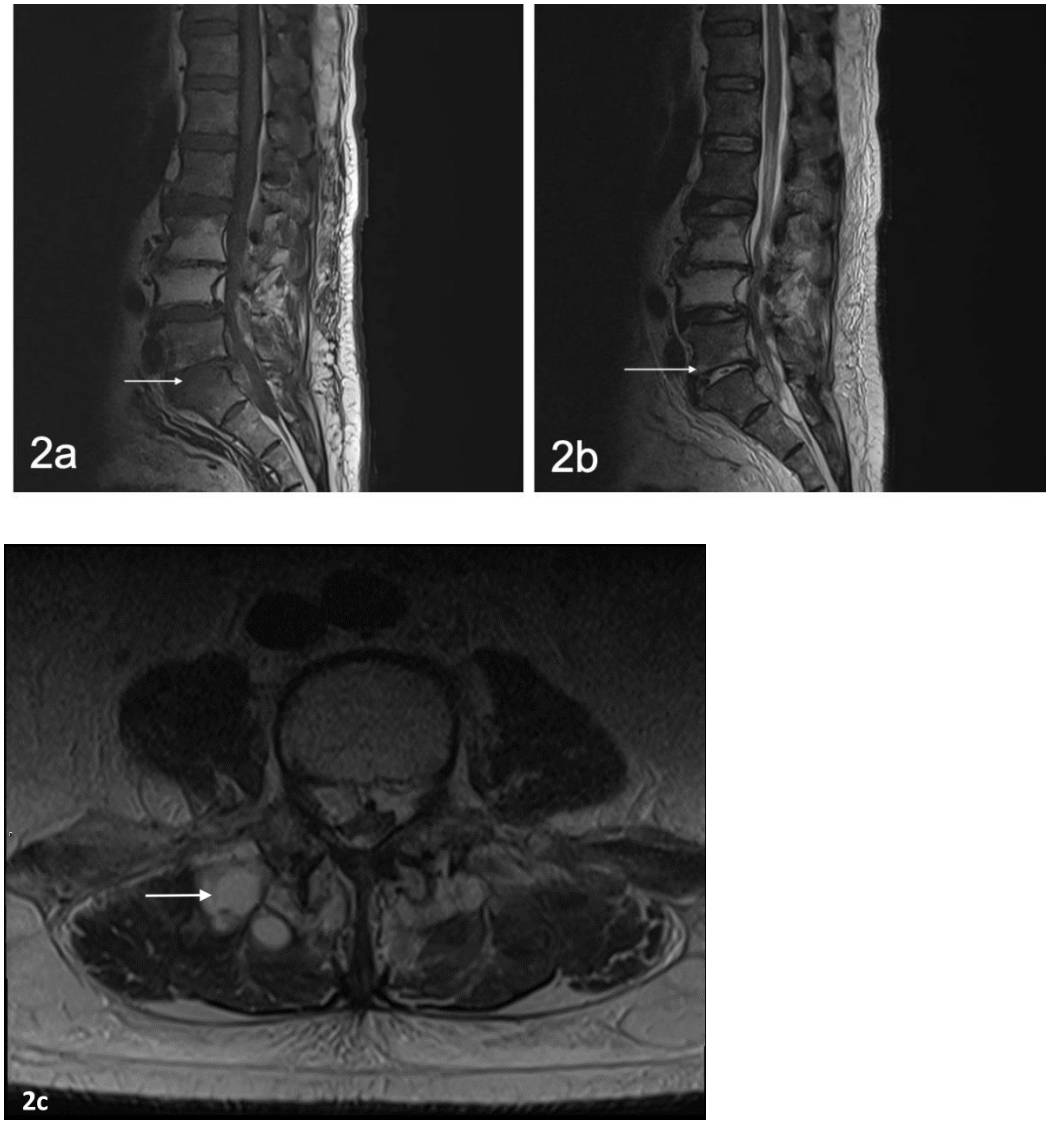

Fig. 2 Sagittal MR images of the lumbar spine show (a) L5 and S1 spondylodiscitis and (b) adjacent vertebral osteomyelitis, and (c) axial MR image of the lumbar spine shows right paravertebral muscle abscess.