

A Delayed Diagnosis Of Staphylococcus Aureus Infective Endocarditis In An Orthopaedic Patient

P Makrides, C Mauffrey, E Bakali

Citation

P Makrides, C Mauffrey, E Bakali. *A Delayed Diagnosis Of Staphylococcus Aureus Infective Endocarditis In An Orthopaedic Patient*. The Internet Journal of Orthopedic Surgery. 2006 Volume 4 Number 1.

Abstract

Staphylococcus aureus bacteraemia is on the rise. Since 1980, it has increased from 122% to 283% in individual hospitals¹. It is the second leading cause for infective endocarditis². Mortality of infective endocarditis can be as high as 18% at discharge and 27% at six months³. In this case report we present a 67 year old gentleman with longstanding raised temperature of unknown cause. The diagnosis of endocarditis was only made 1 month following his admission.

CASE REPORT

A 67 year old gentleman presented systemically unwell with raised temperature (38.5 degrees Celsius), confusion and tachycardia (heart rate 102 beats per minutes). He presented to the accident and emergency and was referred to the medical team on call. Mr M confused and a few hours following his admission developed acute renal failure. The source of his failure was unknown, with raised inflammatory markers including CRP, ESR and WBC. Chest X-ray and urinary dipsticks were normal. Three days following his admission our Orthopaedic team were called in to assess his left elbow. His elbow was swollen, red and warm. A fluctuation of the collection in his olecranon bursa was clearly palpable and he was taken to theatre the next day, hoping that his sepsis would settle with the incision and drainage of his olecranon bursitis. The culture from the olecranon bursa collection and venous blood cultures tested positive for staphylococcus aureus. He was commenced on intravenous flucloxacillin with no evidence of improvement.

After 48 hours, he started developing signs of contralateral wrist joint swelling and redness, spreading proximally. At this point microbiology advised to increase the dose of flucloxacillin and add fusidic acid and gentamycin.

Twenty four hours later he started developing cellulitis of his left ankle, around the lateral malleolus.

Renal function was improving but he continued to remain septic, with all his inflammatory markers significantly raised.

Radiologically, there was no evidence of osteomyelitis in any of the three sites. Ultrasound of the wrist and ankle were performed showing no evidence of underlying fluid collection. A transthoracic echo was requested despite the fact that he had no cardiac history, and no audible murmurs on examination and no recent invasive procedure. This was reported as difficult to interpret but most likely to be normal.

He remained pyrexial and unwell. In view of the fact that no focus of infection could be found to explain the severity of his symptoms, and their persistence despite aggressive antibiotic treatment, a transoesophageal echo was performed. This showed vegetation on the aortic valve. The patient was then managed with intravenous antibiotics for two weeks. His cellulitis resolved completely in 10 days. He was discharged with cardiology follow-up appointment.

DISCUSSION

The incidence of Staphylococcus aureus endocarditis is rising, being the second leading cause, accounting for 25% to 45% of infective endocarditis⁶.

Staphylococcus aureus colonizes 30- 50% of normal healthy adults⁴. Individuals with a higher rate of colonization are more likely to succumb to disease e.g. bacteraemia and endocarditis¹. Risk factors to septicaemia include foreign bodies, immunosuppression, diabetes, corticosteroids, alcohol abuse, and intravenous drug abuse⁵. It can also result from non-removable sources of infection such as cellulitis.

Endocarditis has been shown to be a complication of staphylococcus aureus septicaemia in adults^{7,8,9,10,11}. A study

performed by Ringberg H et al showed that 26% of patients admitted with staphylococcus aureus septicaemia were found to have endocarditis.⁷

Infective endocarditis maybe difficult to diagnose because presenting features may be limited. In a study, only 7% of patients had autoimmune or embolic symptoms, a new murmur or splenomegaly¹². In this case, as in other cases the diagnosis of infective endocarditis was not considered initially, leading to a delay of diagnostic investigations.

Transthoracic and transoesophageal echocardiography are of paramount importance in detecting vegetations, abscesses, valve leaflet perforations and leaks. Transoesophageal echocardiography is more specific and more sensitive than transthoracic echocardiography¹³.

It is therefore reasonable to consider prompt TOE in cases where infective endocarditis is not diagnosed with a transthoracic echocardiogram, as it can better visualize small vegetations¹⁴.

CONCLUSION

This case illustrates that infective endocarditis can be a difficult diagnosis to reach due to limited presenting clinical features. Staphylococcus aureus accounts for up to 45% of bacterial endocarditis. The most sensitive diagnostic tool is transoesophageal echocardiography, and should be considered early on if there is any clinical suspicion.

CORRESPONDENCE TO

Mr Mauffrey, 115 Masons way, B927JF Solihull, England.
Tel: +44 7738671101, Email: cmauffrey@yahoo.com

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Author Information

P. Makrides

Senior House Officer Orthopedics, University Hospital Coventry and Warwick

C. Mauffrey

Specialist Registrar Trauma and Orthopedics, University Hospital Coventry and Warwick

E. Bakali

Pre-Registration House Officer, University Hospital Of Leicester