

Orthopaedic Infections

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The orthopaedic surgeon in Malaysia encounters infection in many forms. The classic textbook illnesses such as haematogenous osteomyelitis and septic arthritis have become increasingly uncommon in line with improvements of the general health of the nation and the increasingly earlier adoption of antibiotic treatment. Today's orthopaedist is more likely to encounter diabetic foot infections, infections complicating open fractures and iatrogenic infections. The subject matter covered by the articles in this issue concerns iatrogenic infections after operative fixation of fractures.

In a large number of cases, the infecting organism is likely to be from genus *Staphylococcus*. Once infection establishes itself in bone, it is very difficult to eradicate. The avascular sequestrum and orthopaedic implants provide a safe haven for organisms against antibiotics. In addition, many organisms develop a resistant glycocalyx biofilm when exposed to this environment. In the situation where the blood supply is further diminished by trauma or vessel disease, the infecting organisms will persist in spite of a large cocktail of antibiotics.

It is important to distinguish between local infection such as that described above and systemic infection. In the case of systemic infection, the appropriate intravenous antibiotic can be very effective and indeed life saving. In early infection or contamination, the judicious use of antibiotics is to be lauded. However, in late infection the success of antibiotic treatment may be very limited without thorough debridement of the infected bone and removal of any implants that may be harbouring infection^{1,2}. The retrospective cases studied by Nazri et al show a trend towards poorer results in the subacute group.

Residual chronic infections can be treated with a combination of local delivery of a high concentration of suitable antibiotics impregnated into orthopaedic cement and extended treatment with intravenous antibiotics. Extensive debridement may leave the patient with gross loss of bone and instability. One of the greatest advances in the treatment of infected non-union of fractures has been that of the method of Ilizarov. Dr. Gavriil Ilizarov pioneered a method of bone regeneration by distraction of the callus of a newly formed fracture. This not only brings about new bone but also improves the vascularity of the surrounding tissues considerably. Ilizarov postulated that the infecting organisms would be 'consumed in the fire of regeneration'.

It is clear then that the management of orthopaedic infections is not simply the identification of the offending organism and the administration of the appropriate antibiotic. In many cases, more than one organism can be found in the sampled tissues⁴. Nevertheless the identification of common infecting organisms in each institution over a period of time is very useful for many reasons.

In the case of orthopaedic infections described by Yusof et al in this issue such knowledge will enable us to choose appropriate therapeutic and prophylactic antibiotics⁵. Typing of the commoner organisms may enable us to determine if there is a common source of infection. It is important to note that this research should be ongoing at all orthopaedic centres as organisms will vary from centre to centre and from time to time. As with most human endeavour, teamwork is the key to success^{1,6}.

References

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