key points

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Periprosthetic joint infection (PJI) is caused by haematogenous spread from a distant primary infection in 70% of all deep infections. It can potentially be avoided by prompt recognition and treatment of the primary infection focus in susceptible patients. Streptococci are commonly implicated in such secondary infections. Early infection occurs up to four weeks after surgery and is related to direct contamination of the joint in the perioperative period. Acute haematogenous infection presents at any time with less than four weeks of symptoms and late infection presents after the immediate postoperative period, but with more than four weeks of symptoms.

Staphylococcus aureus* and *Staphylococcus epidermidis tend to cause infection by the primary route through inoculation at the time of surgery. These organisms are responsible for 30-43% of all PJIs. *S. aureus* also causes secondary haematogenous infection in cases of bacteraemia. Streptococcal infection is the culprit in around 10% of PJIs and more commonly causes infection through secondary spread. Group A, B, C and G streptococci can cause invasive, potentially life-threatening infection. Risk factors include diabetes, immunodeficiency and venous insufficiency.

Host defence mechanisms that prevent infection include physical barriers and immune system mediated protection. Soft tissue infections generally present with erythema, pain and soft tissue induration. The absence of abscess formation makes streptococcal cellulitis more likely whereas abscess formation is more commonly seen in staphylococcal disease. Any signs such as rapid extension, bullae, pale appearance, severe pain or systemic sepsis should raise the possibility of necrotising fasciitis and indicate the need for prompt referral to hospital.

Any patient with a joint replacement should be counselled to seek early attention for any soft tissue or dental infection. A course of antibiotics should be considered in any wound in which there has been significant contamination. Patients at risk of infection through impaired physical defences such as chronic venous insufficiency should be treated appropriately and consideration should be given to prophylactic treatment of varicose veins if there are early signs of chronic venous insufficiency.

Mild, uncomplicated cellulitis can be treated with oral antibiotics, simple penicillin agents such as amoxicillin or flucloxacillin should be administered. Patients should be referred to hospital for consideration of parenteral antibiotics if they are exhibiting signs of systemic sepsis such as tachycardia, pyrexia or hypotension. PJI should be suspected if a patient with a joint replacement develops pain in that joint after a soft tissue, respiratory tract or dental infection. In cases of suspected PJI prompt orthopaedic advice should be sought and antibiotics withheld.