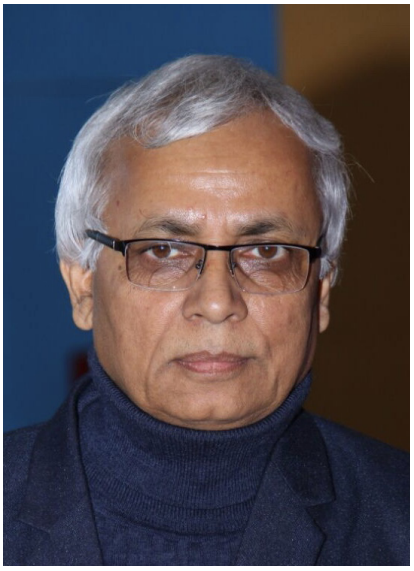
ORTHOSCAN
Education • Research • Innovation
Official Journal of NEROSA

Editorial



Infection after Internal fixation of fractures—challenges

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Implants are used In Orthopaedic surgery for two purposes. They are used either in fractures as a fixator tool to guide the path of osteosynthesis or in severely traumatized or diseased joints, to replace it.

Infection after such surgeries is of grave concern and is to be taken seriously. Attempts have been made but fight to combat infection is yet to be won.There are several challenges pertaining to it.

There is no clear definition of surgical site infection.The CDC guidelines are used by many but it fails to include either the complexity of the fracture or the condition of the implant[1].Furthermore, osteomyelitis is separately stated[2,3]. The behavior of the infection and its impact on the implant is time dependent. Therefore a definition like the one given by Willinger and Roth in 1980s is very helpful. It classifies the infection as Early when it is less than 2 weeks, Delayed between 2-10 weeks and Late more than 10 weeks[4]. In case of Prosthetic joint infection such a time dependent definition already exists.

In early infection, biofilms are immature and bone shows no signs of osteolysis or osteomyelitis. Fracture is in soft callus stage.Normally, it goes to a hard callus state by 3 to 16 weeks[5]. This is altered in a setting of late infection. Osteomyelitis and osteolysis compromises fate of the osteosynthesis. Sequestra and involucrum further walls off infection[6]. Hence lies the importance of classifying according to time.

Aim in managing infection is eradication ; if it is not possible one should try to suppress it till the fracture unites. The mainstays towards this goal are

1) Irrigation, debridement & retention of implant combined with antibiotic therapy 2) Debridement, implant removal or exchange supplemented with antibiotic therapy. However every case is unique and there is no standard procedure that can be applied in general.

Antibiotics play a pivotal role in a scenario of suppressing infection until the time implant is suitable for removal. However,no antibiotic can replace a manual debridement. When they are used for curative measures, duration is 6 weeks if implants are removed & 12 weeks if implants are retained[7,8]. For suppression, it is linked with the time fracture needs to stabilize & continued for 4-6 weeks after removal. Choice is best governed by culture and sensitivity results. Newer molecular methods are advocated nowadays to identify the organism's.

Treating infection can cause a major burden to the socioeconomic status of both individual and the nation. Recent studies show that median costs per patient doubles when infected with reported success in 70-90% cases only[9,10,11]. Hence, both preventive and treatment measures are to be improved. Such improvements may range from better defined & controlled peri-operative antibiotic prophylaxis to more rapid and specific diagnostics of even subclinical infection to increased availability of antimicrobial or functionalized medical devices.

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