Effective And Inexpensive Way Of Treating Intramedullary Infection In Long Bones

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INTRODUCTION:

Intramedullary infection in long bones represents a complex clinical challenge, with an increasing incidence due to the increasing use of intramedullary fixation. We present a case of a 34 years old male with open fracture tibia-fibula (Gustillo II) who had an interlocking nail inserted two weeks after removal of external fixator which later complicated with intramedullary infection.

MATERIALS & METHODS:

The treatment of intramedullary infections after nailing usually includes removal of the nail, debridement, reaming of the medullary canal and, delivery of high concentration of local antibiotics. We used this self-made antibiotic cement rod to treat the intramedullary infection. The antibiotic rod was fabricated in the operation theatre under sterile technique at the time of surgery by using a chest tube (28FG), 50cc bladder irrigation syringe, 3.0mm K-wire and gentamicin cement.

The cement is mixed with its monomer and is poured into the syringe. Next the cement is injected into the chest tube and the K-wire which is a little bit longer than the tube with its end bent is inserted into the middle of the cement in the tube. Once the cement begins to harden and heats up or after the exothermic reaction, the tube is cut with surgical knife and peeled from the cement. The rod can then be inserted into the medullary canal, with the bent end extruding for easier retrieval.

RESULTS:

With the antibiotic cement rod being placed in the medullary canal along with six weeks of systemic antibiotics (according to intra-medullary culture sensitivity), noted there was a significant reduction in the ESR and CRP with absence of infection. The rod was kept in situ for two months prior to extraction and fracture was immobilized with a cast.

Radiological findings shows good progression of callus formation.

Figure 1:

Instruments used in fabrication of the rod and its end product.

Figure 2:

Progress in radiological findings.

DISCUSSIONS:

It takes 10 to 100 times the standard bacterial concentration for systemic antibiotics to react against the infection, often making it unsafe. With the use of local antibiotics, it's possible to reach high concentrations, with low serum levels and low systemic toxicity.

CONCLUSION:

The antibiotic cement-coated rod seems to be an effective and an inexpensive treatment for intramedullary infection.

REFERENCES:

1. Thonse R, Conway J. Antibiotic cement-coated interlocking nail for the treatment of infected nonunions and segmental bone defects. J Orthop Trauma. 2007 Apr;21(4):258-68.

2. Marcin K. Wasko Custom-Made Antibiotic Cement Nails in Orthopaedic Trauma: Review of Outcomes, New Approaches, and Perspectives PMCID: PMC4609780