Case Report of Use of Vac as Adjunt of Antibiotic Coated Nail in Treatment of Chronic Osteomyelitis

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Case Report

Abstract: Osteomyelitis is inflammation of the bone caused by an infecting organism. Although bone is normally resistant to bacterial colonization, events such as trauma, surgery, may disrupt bony integrity and lead to the onset of bone infection. Chronic osteomyelitis patients usually require antibiotics as well as surgery to repair any bone damage. An infection in bone can impede blood circulation within the bone, leading to bone death. Control of infection and stability both these goals can be achieved by using the technique of an antibiotic cement-coated intramedullary nail in combination with vaccum assisted closure(VAC).

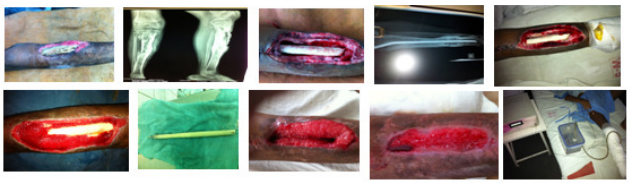
Keywords: Chronic osteomyelitis, VAC, antibiotic cement-coated intramedullary nail

Introduction

Osteomyelitis means infection of the bone or bone marrow; inflammation of the bone due to infection.[6] Post-traumatic osteomyelitis are bone infections that occur after trauma, such as a compound fracture (broken bone that breaks the skin), or an open wound to surrounding skin and muscle.[6] An infection in bone can impede blood circulation within the bone, leading to bone death.[8] Chronic posttraumatic osteomyelitis requires a detailed history for diagnosis, including information regarding the initial injury and previous antibiotic and surgical treatment.[5] Chronic osteomyelitis patients usually require antibiotics as well as surgery to repair any bone damage. Draining the infected area, Debridement, Restoring blood flow to the bone, Removal of foreign objects if any, Stabilizing the affected bone are done.[6] Dead space refers to the soft tissue and bony defect left behind after debridement. Appropriate management of this space is necessary to reduce the risk of persistent infection.[5]

Case report

15year old male came with alleged history of fall 2 months back with chief complaints of pain, exposed bone, foul smelling, maggots in upper part of leg, difficuilty in walking. Vitals were normal. X-ray of right tibia showed deformed tibia with signs of post traumatic chronic osteomyelitis. Patient was admitted and intra venous broad spectrum antibiotic were started. Thorough wash with normal saline, betadine was given twice daily and nilgiri oil packs were applied. All routine investigations were done. Hb-9gm%, Total leucocytes count was 20000cumm, ESR-90mm, CRP-positive, elisa/HBsAg/HCV were negative. On sixth day patient was operated under spinal anaesthesia for sequestrectomy, debridement & antibiotic impregnated cemented k-nail. Immediate post operatively VAC was applied. The pump delivered an intermittent negative pressure of −125mmhg. The cycle was of nine minutes in which pump was on for six minutes and off for three minutes. Limb was supported in above knee slab. Every third day VAC dressing was done. On post operative day 21 patient was operated for removal of cemented nail and slab continued. VAC was continued further till the dead space was filled with granulation tissue which required 12 days after second operation. Patient was operated for third time for STSG and patient was under continuous cover of IV antibiotics. Total duration of IV antibiotics was for 6weeks and patient was kept immobilized. Skin graft was accepted well with no signs of infection. Routine blood investigations were done and were within normal limits. Oral antibiotics were then started and patient was allowed toe touch walking with crutches and was discharged. Regular follow up of patient was done and full weight bearing was started after 3 months. Fig-1 showing course of treatment.



Discussion

Control of infection and stability both these goals can be achieved in half the patients with 1 surgical procedure in using the technique of an antibiotic cement-coated intramedullary nail[3]. Treatment with the antibiotic-coated nail leads to local antibiotic delivery as well as stable internal fixation. Since the IMN is it can be used as

definitive fixation rather than as an intermediate stage. Another advantage of the IMN is that it helps avoid complications associated with external fixation while providing a comparable result[1]. Antibiotic-impregnated beads may be used for temporary sterilization of dead space[5]. VAC therapy represents a good clinical efficacy in treating osteomyelitis; it can promote the granulation tissue formation, bacterial clearance, and reduce the needs for tissue transfer and muscle flaps in patients. In addition, it could be used as an adjuvant for the eradication of osteomyelitis and improving soft-tissue management, it may be more suitable for treating osteomyelitis with soft-tissue problems[2]. If the patient cannot tolerate surgery because they are very ill and could not endure the procedure and recovery, the doctor may use antibiotics for longer - in some cases even years - to suppress the infection[6]. A number of methods of management for chronic osteomyelitis have been described, usually with the goal of providing good quality soft tissue adjacent to the affected bone.[7]

Conclusion

Treatment with the antibiotic-coated nail leads to local antibiotic delivery as well as stable internal fixation. VAC therapy represents a good clinical efficacy in treating osteomyelitis. Treatment in combination with antibiotic coated nail and VAC is highly effective in treating chronic osteomyelitis.

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