

Management of Uncommon Presentation of Chronic Osteomyelitis of Humerus Using Ilizarov Technique in a 2 Years Old Child: A Case Report

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Abstract

Introduction: Chronic osteomyelitis is a surgical disease that can require significant dedication from both patient and surgeon to eradicate. Treatment requires isolation of pathogen, significant debridement for removal of all infective and necrotic material, then bony and soft tissue reconstruction. **Objective:** We shall try to highlight the option of management of a pan-Diaphyseal osteomyelitis of a children in the new era of osteosynthesis by Ilizarov.

Discussion: A two years old baby presented to us with the H/O chronic discharging sinus and arm sling for around 3 months. After clinical history taking and examination, radiography and pus testing (C/S) and sequestrum and pathological fracture was the identifying points we took the plan for exploration curettage and drainage. Finally we fix the arm by Ilizarov osteosynthesis for more than 3 months. The wound healed and osteomyelitis resolved.

Conclusion: Use of Ilizarov osteosynthesis for fixation and wire tension effect to resolve the infection^{1,2}.

Key words: Chronic Osteomyelitis, Humerus, Ilizarov Technique.

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Introduction:

The term osteomyelitis was first used by French surgeon. Edouard Classignac in 1852. Correct incidence is 1/5000 in the developing countries³ injury or trauma is the most common etiology in children and adult. Sometimes infection or trauma affects the whole length of bone, if the patients immunity is depressed, the organism is very virulent or the operation or trauma affecting the whole length of the bone. It was not until the last 25 years that treatment of chronic osteomyelitis significantly advanced with the use of muscle flap, vascularized of bone transfer to manage large open defect after debridement. Further advancement have included antibiotic beads to manage dead space in staged reconstruction and the use of external fixator in the Ilizarov technique for skeletal reconstruction. These advancement have to led to increased success in the management of chronic osteomyelitis with success rate >90% in the literature. Academician professor Ilizarov said, in chronic osteomyelitis the tiny cavity by are filled with infective organisms around the large fixed focus^{3,4,5,6,7,8}. The small cavities are the causes of recurrence. With the Ilizarov fixator, if you want, you can fill this gap by bone transport. The very big advantages of Ilizarov method is that one can simultaneously correct deformity and we can get excellent stability by inserting bio-compatible thin wire and securing it with the rings. Ilizarov fixator also eradicate infection by inducing huge inflammation by the tension of the Ilizarov wire. Decreased blood flow diminishes the healing capacity as a left as a rest of trauma causing thrombosis of vessels surrounded by the infected area.

Antibiotic cannot penetrate through the infected necrotic area and sequestrum produces an area of lowered vascularity. Resistance of organism to antibiotics organism from a

biofilm around the sequestrum or implant after inadequate surgical debridement^{9,10}.

CASE REPORT:

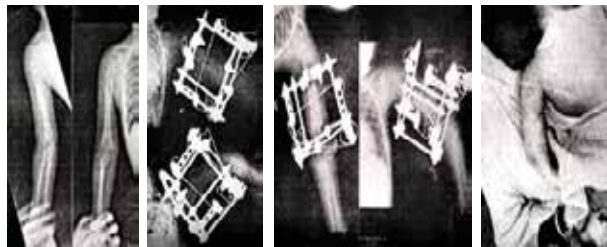
A 2 yrs old male baby hailing from Shahporan, Sylhet, presented to the out patient department with the complaints of swelling and discharging sinus from Left arm for 2 months. He had history of trauma over his Left arm 3 months back and primarily he is treated by traditional healer. After development of discharging sinus he was taken to a general practitioner, who prescribed some medication as well as as daily dressing of the wound with the condition of the wound worsening and child's overall health deteriorating he was eventually referred to our centre for further management.

The child was small built and appeared malnourished on examination of the affected limb, limb is swollen and discharging sinus present. Tenderness present on deep palpation associated with purulent discharge movement at the shoulder joint remained unaffected while elbow joint movement is slightly restricted.

A radiograph of the involved extremity was obtained which depicted a large sequestrum with features of thickening and sclerosis of humerus. There is no pathological fracture. Routine blood investigation were showed Hb:9.2gm, TLO-13800/cumm, ESR-55 mm of Hg, C-reactive protein was 10 mg/L.

A diagnosis of chronic osteomyelitis of the Left humerus was confirmed after clinical and radiological correlation patient was treated surgically with curettage, drainage and sequestrectomy followed by Ilizarov fixation under general anaesthesia, regular wound dressing and Ilizarov care done and secondary wound closure done after 3 weeks. Regular follow up and physiotherapy done and Ilizarov external fixator was removed after 3 months of application. He showed excellent recovery with overall healing of the wound with normalization of his blood parameters.

Radiological image:



Pre-operative x-ray of chronic osteomyelitis of Left humerus.

Post-operative x-ray of arm with Ilizarov external fixator

Final follow up after removal of Ilizarov fixator

Discussion:

Ilizarov technique serves four purposes:

1. To create a mechanical condition necessary for the development of distraction & compression
2. To store the new bone forming cells developed during

lengthening and deposited along the line of stress and tension.

3. Increase blood circulation for increased metabolic transformation of local tissue.

4. Most importantly the medullary and the periosteal blood supply is not disturbed.

Conclusion:

Chronic osteomyelitis in children with pan-diaphyseal osteomyelitis with discharging sinus can be treated by stable fixation of Ilizarov apparatus.

Conflicts of Interest: None.

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