

Infected Exposed Tibial Plate-Can it be a Novel ‘Sinister Popeye Sign’?

Sharat A* and Swarup S

North Eastern Indira Gandhi Regional Institute of Health & Medical Sciences (NEIGRIHMS), Shillong, India

Abstract

Implants like plate Dynamic Compression Plate (DCP), Locking Plates (LCP) and intramedullary nails are frequently used for the fixation of tibial shaft fractures. However, soft tissue problems leading to exposure of the extra medullary used plates has been seen commonly and is a nightmarish complication to be dealt with for both the affected patient and the treating doctor. These problems have been managed quite often successfully with various soft tissue reconstructive procedures like Vacuum Assisted Closure (VAC), muscle and fasciocutaneous pedicled or free tissue transfer flaps [1-3]. But, this problem becomes difficult to handle especially when there is associated possibility of the infection with exposed plate. In such situations, it is always better to have a staged approach to management of fracture, if it is still ununited. Removal of the implant is advisable, so that the issue of biofilm surrounding the implant in such cases of infection can be addressed. Once there is surety about the control of infection, ununited fracture can be tackled safely with second stage surgery. We have exemplified this problem through the case presentation by aptly putting it up as a novel ‘Sinister Popeye sign’ of an exposed and infected tibial plate used for tibial fracture fixation and highlighting the management plans.

Case Presentation

A male patient of 22 years of age came to us with leg injury following a bike accident around 9 months back. He was diagnosed with Simple transverse fracture of distal 1/3rd of tibia and fibula with no medical co-morbidities. A decision to Open Reduction & Internal Fixation (ORIF) was taken using distal tibial Locking Plate (LCP). After an uneventful hospital course, patient was discharged from the hospital with advice of non weight bearing mobilization and physiotherapy for lower limb joints. However, patient got missed for regular OPD follow up and presented again to us 3 months later with infection (with serous discharge) and tibial plate popping outside the skin (Figure 1). We described it as novel ‘Sinister Popeye sign’, a seemingly nightmarish post surgical complication associated with plating of fractures and with a serious management concerns both for the patient and doctor. Radiograph showed the possibility of non union of both tibia and fibula fracture (Figure 2). A wound swab for culture and sensitivity for possible bacterial organisms was taken, but was found to be negative. He was placed on empirical broad spectrum antibiotics and was planned for staged surgery i.e., to tackle the discharge, exposed implant and soft tissues to start with, for which removal of the tibial plate was done (Figure 3) and was followed up with regular wound care. Simultaneously, hematological parameters were monitored to rule out presence of infection/inflammation like Total Leucocyte Count (TLC), Differential Leucocyte Count (DLC), Erythrocyte Sedimentation Rate (ESR) and C-reactive protein (CRP). It took around 6 months for the wound to completely heal (Figure 4 and Figure 5). Now, second surgery is being planned to address issues of non union and limb shortening by Ilizarov ring fixation, using the principle of

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*Correspondence:

Sharat Agarwal, Associate Professor (Orthopaedics & Trauma), North Eastern Indira Gandhi Regional Institute of Health & Medical Sciences (NEIGRIHMS), Shillong, India.

Tel: +91-9436336213

E-mail: drsharat88@yahoo.com

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Figure 1: Tibial plate popping out of skin (Sinister Popeye sign).



Figure 2: Radiograph showing non union of fracture distal 1/3rd of tibia and fibula with tibial plate *in situ*.



Figure 3: Post operative radiograph showing non union of fracture distal 1/3rd of tibia and fibula with tibial plate removed.



Figure 4&5: Clinical picture after exposed plate removal & healed wound.

distraction osteogenesis.

References

1. Cyrochristos DJ, Papadopoulos O, Liapis C, Felekouras EL, Giannopoulos AM, Bastounis E. Coverage Strategies in Exposed Implants. *Am Surg.* 2009; 75:1132-1138.
2. Bibbo, Christopher DO, Kovach, Stephen J. Soft-tissue coverage of exposed orthopaedic trauma implants. *Current Orthopaedic Practice.* 2015; 26: 45-55.
3. Vaibhav J, Pradeep J, Shivi J. Soft-tissue reconstruction for exposed orthopedic implants in injured extremities. *J Med Soc.* 2019; 33:11-15.