

A Study on Infection and Non Union in Compound Fractures in Patients At a Tertiary Care Teaching Hospital

Vijay Sharma¹, Arun K Bansal^{2*}

¹Assistant Professor, Department of Orthopaedics, Saraswathi Institute of Medical Sciences, Hapur Road, Anwarpur, Uttar Pradesh, India.

^{2*}Associate Professor, Department of Orthopaedics, Muzaffarnagar Medical College and Hospital, Muzaffarnagar, Uttar Pradesh, India.

ABSTRACT

Background: Management of infected non-union following fracture of a bone is a challenge to the orthopaedic surgeon. The present study was conducted to assess the outcomes of infection and non-union in compound fractures.

Materials and Methods: The present study was conducted among 40 cases of open fractures of age group 21-50 years. All the cases were treated as per protocol. After haemodynamic stabilization of the patient, wounds were thoroughly cleaned up with saline irrigation, dressed accordingly and splinted suitably. Detailed systemic examination of the patient and local examination of the wounds were done. Radiological examination of the limb was carried out. Anti tetanus serum was given to badly contaminated wounds in addition to Tetanus injection. Patients were put on triple antibiotics. Fracture was exposed and reduced and fixed by means of either external or internal fixation. Follow up was done.

Results: In the present study total cases were 40 in which maximum cases (47.5%) were of age group 21-30. Fracture were common in males(67.5%). I maximum cases external fixation was done (62.5%). Pin track infection was most common complication (17.5%).

Conclusion: Our study concluded that maximum cases (47.5%) were of age group 21-30. Fractures were common in males (67.5%). In maximum cases external fixation was done (62.5%). Pin track infection was most common complication (17.5%). Early debridement and wound coverage is the most important factor of the fracture outcome.

Keywords: Pintrack Infections, Infected Non Union Fracture.


*Correspondence to:

Dr. Arun K Bansal,
Associate Professor,
Department of Orthopaedics,
Muzaffarnagar Medical College and Hospital,
Muzaffarnagar, Uttar Pradesh, India.

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INTRODUCTION

Infection after any orthopedic surgery is one of the most serious complications.¹ In recent past years with a better understanding of asepsis and operative conditions, the incidence of infection declines rapidly after any orthopedic surgery. With the increase in the frequency of high-energy trauma globally and going trend toward the early internal fixation of compound fractures of all bone, the incidence of infection related to orthopedic implant is again showing increasing incidence.² This increasing incidence also associated with the emergence of multi-drug resistant microorganism prevalent in hospitals.³ Open injuries expose many tissues like bone, tendon, nerves and vessels which are all tend to at risk when left exposed.⁴ Hence it is important to give wound cover as early as possible.⁵ The bony gap results initially from acute traumatic bone loss at the site of the injury.⁶ The present

study was conducted to assess the outcomes of infection and non-union in compound fractures.

MATERIALS AND METHODS

The present study was conducted among 40 cases of open fractures of age group 21-50 years at Department of Orthopaedics, Saraswathi Institute of Medical Sciences, Hapur Road, Anwarpur, Uttar Pradesh, India. Before commencement of study ethical approval was taken from the ethical committee of the institution and the informed consent was signed by the patient. All the cases were treated as per protocol. After haemodynamic stabilization of the patient, wounds were thoroughly cleaned up with saline irrigation, dressed accordingly and splinted suitably. Detailed systemic examination of the patient and local

examination of the wounds were done. Radiological examination of the limb was carried out. Anti tetanus serum was given to badly contaminated wounds in addition to Tetanus injection. Patients were put on triple antibiotics of penicillin, aminoglycosides and metronidazole. Fracture was exposed and reduced and fixed by means of either external or internal fixation. The type of fixator constructed and number of pins inserted, depended up on the size of the fragment and degree of comminution to get the stable fixation of the fracture. Plastic Surgeons were involved early in all the flap covers. The wounds and pin tracts were dressed regularly to prevent infection. Patient was followed up regularly every 4 to 6 weeks and fracture union was tested radiologically and clinically. When sufficient union was present, fixator was removed. Patients were called up for regular follow-ups. On follow up assessment was done recording status of the wound, clinical and Radiological evidence of fracture union, range of mobility at knee and ankle joints, function of the limb and complications.

Table 1: Distribution according to age

Age group	N(%)
21-30	19(47.5%)
31-40	13(32.5%)
41-50	8(20%)
Total	40(100%)

Table 2: Distribution according to gender

Gender	N(%)
Males	27(67.5%)
Females	13(32.5%)
Total	40(100%)

Table 3: Showing Type of Skeletal Stabilization

Showing type of fixation	N(%)
Immobilization in plaster	5(12.5%)
External fixation	25(62.5%)
Internal fixation	10(25%)
total	40(100%)

Table 4: Complications

Complication	N(%)
Pin track infection	7(17.5%)
Chronic osteomyelitis	1(2.5%)
Knee stiffness	2(5%)
Toe clawing	3(7.5%)
Non-union	1(2.5%)
Shortening	4(10%)
Neurovascular damage	0
Failure of fixation	0

RESULTS

In the present study total cases were 40 in which maximum cases (47.5%) were of age group 21-30. Fractures were common in males (67.5%). I maximum cases external fixation was done (62.5%). Pin track infection was most common complication (17.5%).

DISCUSSION

In the present study total cases were 40 in which maximum cases (47.5%) were of age group 21-30. Fractures were common in males (67.5%). I maximum cases external fixation was done (62.5%). Pin track infection was most common complication (17.5%).

Steckelberg and Osmon. in his study found the success rate of more than 80% in cases of prosthetic infections but had its own complication including prolonged immobilization, unstable fracture site, and poor patient compliance.⁷

In 2003, Meehan et al.⁸ reported 1 year recurrence-free rate of 89%, but only infections with penicillin-susceptible streptococci were included.

Berkes et al. retrospectively analyzed 123 postoperative wound infections that had developed within 6 weeks after internal fixation of a fracture and found that 87 patients (71%) had fracture union with operative debridement, retention of hardware, and culture-specific antibiotic treatment.⁹

Early stabilization of open fractures provides many benefits to the injured patient. It protects the soft tissues around the zone of injury by preventing further damage from mobile fracture fragments. It also restores length, alignment, and rotation—all vital principles of fracture fixation. This restoration of length also helps decrease soft tissue dead spaces and has been shown in studies to decrease the rates of infection in open fractures.¹⁰⁻¹²

CONCLUSION

Our study concluded that maximum cases (47.5%) were of age group 21-30. Fractures were common in males (67.5%). In maximum cases external fixation was done (62.5%). Pin track infection was most common complication (17.5%). Early debridement and wound coverage is the most important factor of the fracture outcome.

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