

Percutaneous Iliosacral screw fixation for sacroiliac disruption or sacral fractures: A prospective study

Sunil Handralmath^{1*}, Preetish Endigeri², Prashant D'sa³

¹Associate Professor and Unit Chief, ²SR, ³Assistant Professor, Department of Orthopaedics, Dr. V M Medical College and Hospital Solapur, INDIA.

Email: drsunilhandralmath@gmail.com

Abstract

Background: High energy pelvic ring fractures are serious injuries resulting from motor vehicle accidents or fall from height. Unstable pelvic ring injuries are usually associated with sacroiliac disruptions or sacral fractures. The ideal treatment for unstable pelvic fractures remains a debate. Percutaneous fixation of sacroiliac joint disruption or sacral fractures has evolved recently as a minimal invasive technique with low complication rate and morbidities. **Objective:** A preliminary study to evaluate prospectively the effectiveness of the percutaneous cannulated screws fixation of posterior pelvic ring injuries in unstable fractures. **Methods:** 8 patients who had unstable pelvic ring injuries associated with other skeletal, neural or vascular injuries and treated by gradual closed reduction and percutaneous fixation using 6.5 mm cannulated cancellous partially threaded screws were included in the study. Study was done at VM Government Medical College, Solapur. Data regarding the blood loss, duration of procedure, intra operative and post operative complications and post operative rehabilitation was collected and analyzed. **Results:** Mean age of patients was 32 years (range from 20 – 52 years). 5 patients were males and 3 were females. A total of 10 percutaneous screws were inserted for the 8 patients. The duration of surgical procedure was 30 to 60 minutes including the preparation time. Wound size was 5 mm – 10 mm, Blood loss was negligible, no anaesthetic complication, no intra operative or post operative complications, no wound complications and a very good post operative rehabilitation was noted. Post operative X-rays and CT scans show no complications and a very good reduction and fixation for sacroiliac joints and sacral fractures. **Conclusions:** Closed reduction and percutaneous sacroiliac cannulated screw fixation was found to be a very good minimally invasive technique. There were no intra – operative or post-operative complications in the observed patients.


Keywords: Sacroiliac cannulated screw, sacroiliac disruptions.

*Address for Correspondence:

Dr. Sunil Handralmath, Associate Professor and Unit Chief, Department of Orthopaedics, Dr. V M Medical College and Hospital Solapur, INDIA.

Email: drsunilhandralmath@gmail.com

Received Date: 20/06/2015 Revised Date: 24/06/2015 Accepted Date: 02/07/2015

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	DOI: 06 July 2015

INTRODUCTION

High energy pelvic ring fractures are serious injuries resulting from high-energy trauma which may be due to motor vehicle accidents or fall from height¹. Unstable pelvic ring injuries are usually associated with sacroiliac disruptions or sacral fractures. The ideal treatment for

unstable pelvic fractures remains a debate. The essence of management of pelvic fractures, a high energy injury, is multidisciplinary approach, wherein, the primary goal of treatment is hemodynamic stability. Restoration of a stable pelvic ring which allows optimum weight transmission to the limbs is the ultimate aim of any surgical procedure. Contradicting schools of thought exist between whether to fix the anterior pelvic ring first vis-a-vis the posterior ring. To some extent, the decision is guided by the operating surgeon's preference for percutaneous fixation as opposed to conventional open surgery. Anatomic reduction of the fracture remains an important goal, whether performed open or closed, as residual displacement is associated with poorer outcomes². Percutaneous fixation of sacroiliac joint disruption or sacral fractures has evolved recently as a minimal invasive technique with low complication rate and morbidities.

OBJECTIVE

A preliminary study to evaluate prospectively the effectiveness of the percutaneous cannulated screws fixation of posterior pelvic ring injuries in unstable fractures.

METHODS

8 patients who had unstable pelvic ring injuries associated with other skeletal, neural and vascular injuries and treated by gradual closed reduction and percutaneous fixation using 6.5 mm cannulated cancellous partially threaded screws were included in the study. Study was done at VM Government Medical College, Solapur. Data regarding the blood loss, duration of procedure, intra operative and post operative complications and post operative rehabilitation was collected and analyzed.

RESULTS

Mean age of patients was 32 years (range from 20 - 52years). 5 patients were males and 3 were females. A total of 10 percutaneous screws were inserted for the 8 patients. The duration of surgical procedure was 30 to 60 minutes including the preparation time. Wound size was 5mm - 10mm, Blood loss was negligible, no anaesthetic complication, no intra operative or post operative complications, no wound complications and a very good post operative rehabilitation was noted. Post operative X-rays and CT scans show no complications and a very good reduction and fixation for sacroiliac joints and sacral fractures.

DISCUSSION

In our study we found that closed reduction and percutaneous sacroiliac cannulated screw fixation was a very good minimally invasive technique. There were no intra – operative or post-operative complications in the observed patients. Elhence A² has highlighted in his review article on internal fixation of pelvic injuries that

percutaneous fixation essentially comprises of external fixation and percutaneous screw fixation. The two most common percutaneous screw fixation techniques practiced for fixation of pelvic ring disruption are the Iliosacral screw fixation and the pubic ramus screw fixation^{3, 4}. Elhence A² has also mentioned that the Iliosacral screw placement entails a very clear understanding of the three-dimensional geometry of the sacrum. The screw placement is performed from a posteroinferior to anterosuperior position. The screw starts from the Ilium and ends in the body of the sacrum for ipsilateral sacroiliac joint stabilization. Robert L. Sciulli *et al*¹ have also concluded in their study that CT-guided placement of Iliosacral screws is an accurate method for reducing unstable posterior pelvic injuries. The complication rate is low, and the procedure is cost-effective. Thus, our results are in line with that reported in literature.

CONCLUSIONS

Closed reduction and percutaneous sacroiliac cannulated screw fixation was found to be a very good minimally invasive technique. There were no intra – operative or post-operative complications in the observed patients.

REFERENCES

1. Robert L. Sciulli, Richard H. Daffner, Daniel T. Altman, Gregory T. Altman, and Jeffrey J. Sewecke. CT-Guided Iliosacral Screw Placement: Technique and Clinical Experience. American Journal of Roentgenology 2007 188:2, W181-W192
2. Elhence A. Internal fixation of pelvic injuries. J Orthop Traumatol Rehabil 2014;7:19-22.
3. Shuler TE, Boone DC, Gruen GS, Peitzman AB. Percutaneous iliosacral screw fixation: Early treatment for unstable posterior pelvic ring disruptions. J Trauma 1995;38:453-8.
4. Barei DP, Bellabarba C, Mills WJ, Routt ML Jr. Percutaneous management of unstable pelvic ring disruptions. Injury 2001;32:SA33-44.

Source of Support: None Declared
Conflict of Interest: None Declared