

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

## International Journal of Surgery Case Reports

journal homepage: [www.casereports.com](http://www.casereports.com)

# Pedicle screw position changing policy for nerve injury problems during screw insertion on thoracolumbar compression fractures



Ahmad Jabir Rahyussalim<sup>a,\*</sup>, Ifran Saleh<sup>a</sup>, M. Fajrin Armin<sup>a</sup>, Tri Kurniawati<sup>b</sup>,  
Ahmad Yanuar Safri<sup>c</sup>

<sup>a</sup> Department of Orthopaedic and Traumatology, Faculty of Medicine Universitas Indonesia, Dr. Cipto Mangunkusumo General Hospital, Jakarta, 10320, Indonesia

<sup>b</sup> Stem Cell and Tissue Engineering Cluster, MERC Faculty of Medicine Universitas Indonesia, Dr. Cipto Mangunkusumo General Hospital, Jakarta, 10320, Indonesia

<sup>c</sup> Neurophysiology Division of Neurology Departement, Faculty of Medicine Universitas Indonesia, Dr. Cipto Mangunkusumo General Hospital, Jakarta, 10320, Indonesia

## ARTICLE INFO

## Article history:

Received 27 June 2016

Received in revised form

20 September 2016

Accepted 20 September 2016

Available online 23 September 2016

## Keywords:

Pedicle screw placement

Nerve injury

Intra operative monitoring

SSEP

## ABSTRACT

**INTRODUCTION:** Intraoperative neurophysiologic monitoring (IONM) had important role related to the complications in spinal surgery. Somatosensory Evoked Potential (SSEP), Transcranial electric Muscle Evoked Potentials (tceMEPs), and free run EMG are parameters used to asses functional integrity of the nervous system during surgical procedures. Once warning signal was recognized, surgeon have to make a precise decision to overcome that problem.

**PRESENTATION OF CASE:** We present a 47-year old male with back pain due to compression fracture of thoracic vertebra T12 and lumbar vertebrae L1. While stabilizing through the posterior approach on the T11 and 12 as well as L2 and L3, the SSEP monitor showed 50% reduction in the waveform as the pedicle screw was inserted at the left side of T12. The instrumentation was changed into vertebra thoracal T10, T11, and vertebrae lumbar L2, L3. The SSEP normalized and post operatively pain decreased. After surgery there was no neurological deficit.

**DISCUSSION:** Acute trauma as a result of spine instrumentation may provoke significant edema, with mass effect causing neurophysiological dysfunction. Administration of intravenous steroid would do at this stage, followed by constant infusion for following 24–48 h, may help ameliorating the mass effect and improving the neurologic outcome. Alternatively, immediate pedicle screw changing policy showed absolute recovery of nerve injury.

**CONCLUSION:** Insertion of pedicle screw in spinal surgery has a risk of complication that could be treated by pedicle screw changing policy.

© 2016 The Author(s). Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

Pedicle screw placement is a common procedure. It has a great developing technique that is used for fixation and fusion in spine surgery. It was firstly introduced by Harrington and Tullos in 1969 and then in late 1980's developed by Roy Camille et al., Louis, and Steffe. It had already become the leading instrumentation in spinal surgery until nowadays. It could be applied in degenerative, trauma, neoplastic, infectious and malformation cases that had a problem with axial instability [1].

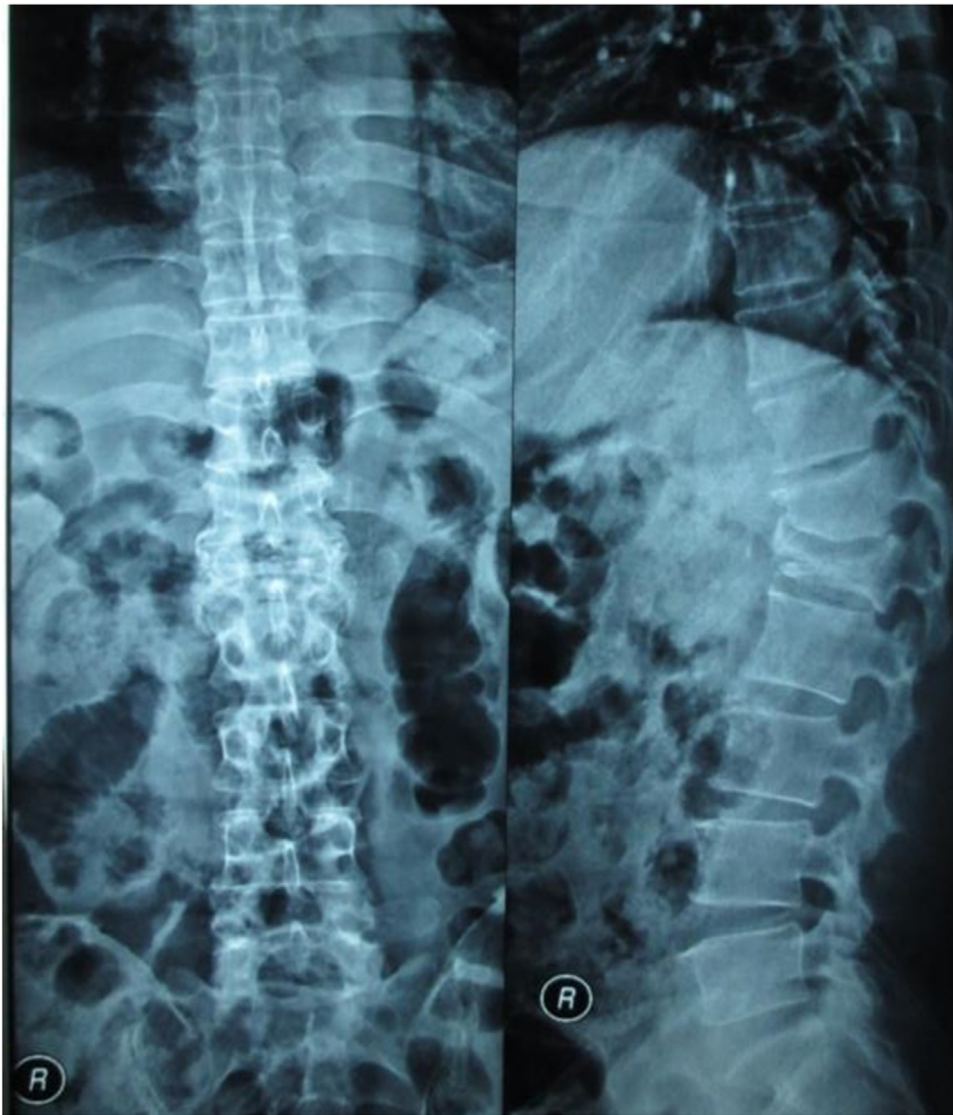
Despite its usefulness, pedicle screw placement maneuvers had some complications. Nerve root, spinal cord injury, vascular injury, cerebrospinal fluid leak, visceral injury, pedicle fracture were some complications that mostly related to pedicle screw malpositioning. Among those complications, the nerve injury due to pedicle screw malpositioning was a common complication that was faced by spine surgeons [2,3].

Intraoperative neurophysiologic monitoring (IONM) has an important role in spinal surgery. There were a various neurophysiologic techniques used to assess functional integrity of the nervous system during surgical procedures. It was useful by providing real time evaluation and immediate feedback to the surgeon at a point where intervention with any doubt taken. This real time feedback would be a guide for surgeon to determine the precise decision in preventing irreversible neural damage [3,4].

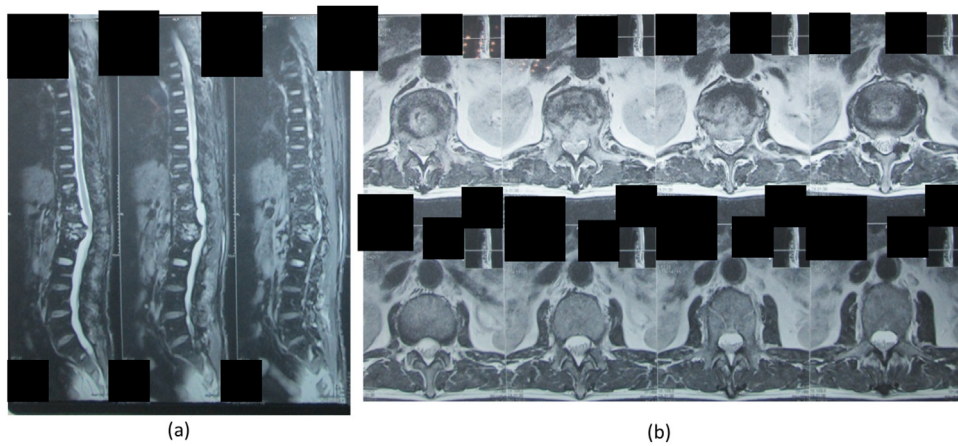
Once warning signal was recognized by IONM, surgeon had to make a precise decision to overcome that problem. Establishing

\* Correspondence to: Dr. Rahyussalim, Faculty of Medicine Universitas Indonesia, Department of Orthopaedic and Traumatology, Jalan Salemba 6, Kelurahan Kenari, Kecamatan Senen, Jakarta Pusat, DKI Jakarta, 10320, Indonesia.

E-mail addresses: [rahyussalim71@ui.ac.id](mailto:rahyussalim71@ui.ac.id), [rahyussalim@gmail.com](mailto:rahyussalim@gmail.com) (A.J. Rahyussalim).



**Fig. 1.** Initial AP and lateral view X ray were showing kypotic deformity due to collapse of vertebrae thoracal T12 and lumbar L1. (The x ray image was taken on 23 June 2015).



**Fig. 2.** Sagittal and axial view of T2 weighted images were showing destruction vertebral body of lumbar L1 and compression fracture on anterior part of vertebral body thoracal T12 (Fig. 2a). It also showed the compression of anterior part of spinal cord by posterior part vertebral body (Fig. 2b). (The MRI image was taken on 1 July 2015).

Download English Version:

<https://daneshyari.com/en/article/4288155>

Download Persian Version:

<https://daneshyari.com/article/4288155>

[Daneshyari.com](https://daneshyari.com)