



Letter to the Editor

Polyaxial pedicle screw dislocation during screw tightening for posterior spinal lumbar stabilization

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Received : 28 November 19

Accepted : 06 December 19

Published : 27 December 19

DOI

10.25259/SNI_571_2019

Quick Response Code:



COMMENTARY

The polyaxial pedicle screw (PAPS) system is widely used for posterior spinal stabilization. Unlike monoaxial screws, the PAPS has the advantage of moving along several different axes, allowing the surgeon some flexibility in their placement. Nevertheless, pedicle screws are associated with their own unique surgical complications.^[1,4] Here, we report a case in which the head of the PAPS accidentally separated/dislocated during posterior fixation for a lumbar burst fracture.

CASE SUMMARY

A 21-year-old male, neurologically intact following a motor vehicle accident, had a L3 burst fracture as demonstrated on the emergent spinal computed tomography-scan [Figure 1a]. He underwent a posterior surgical reduction, decompression, and stabilization using PAPS [Figure 1b]. However, during the right L4 PAPS tightening, the head was suddenly detached from the screw shank [Figure 2]. This caused the surgeon to directly injure the lumbar spine with the screwdriver; fortunately, this did not result in any adverse sequelae. The screw was removed and a second spare screw was finally replaced. The operation ended successfully and the postoperative recovery was uneventful. He was discharged on the 10th postoperative day.

IMPLANT RETURNED TO MANUFACTURER

The implant was sent to the manufacturer for their examination; they found “witness marks” and “deformation” noted on the inner diameter surface below the retaining ring pocket of the head; this suggested the ring may not have been fully seated in the ring screw pocket [Figure 3]. The manufacturer’s conclusion was consistent with a manufacturing error, resulting in the foregoing event.

This case emphasizes the importance of proper checking of the integrity of the surgical implant before its use. In addition, industry has to guarantee the quality of their product. Here, this unpredictable incident was recognized immediately without serious consequences for the patient. One similar case was previously reported; however, there was no clear manufacturer defect.^[3]

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Figure 1: A burst fracture of L3 as seen on sagittal reconstruction computed tomography scan (bone windows) before operation (a). Postoperative lumbar spinal X-rays showing the emplacement of polyaxial pedicle screws (on L1, L2, L4, and L5), decompressive posterior laminectomy (on L3 and L2) with bilateral connecting rod screws (b).



Figure 2: Polyaxial pedicle screws before use. These multiaxial screws have 360° head polar mobility (a). Picture of the dislocated polyaxial screw: The screw head was detached from screw shank (b).

Device component failure should always be considered as a potential risk associated with any spinal system, which may induce neurological/spinal complications and injuries to vessels, nerves, and other organs. Furthermore, incidents and accidents with medical devices must be reported to the National Medicines Agency of each country and the manufacturers to prevent future possible complications.^[2,5]

Acknowledgments

The author would like to thank the companies Maroc Systèmes Santé (Casablanca, Morocco) and Medtronic Sofamor Danek USA Incorporated for their collaboration to understand this event.

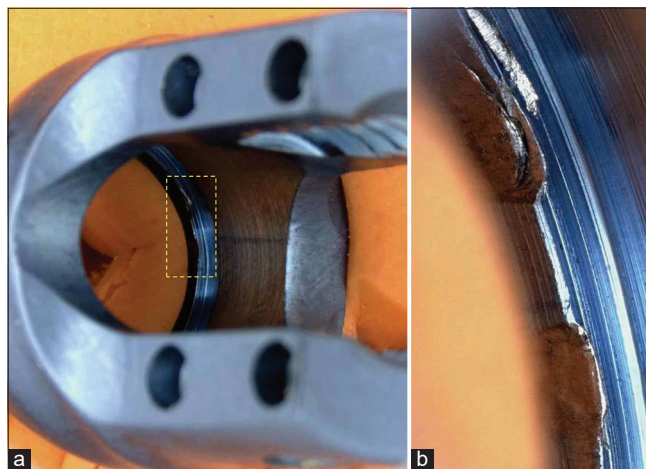


Figure 3: The technical analysis of the manufacturer has found witness marks and deformation noted on the inner diameter surface below retaining ring pocket of the head screw (visual review [a] and microscopic review [b]).

Declaration of patient consent

The author certifies that they have obtained all appropriate patient consent forms.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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How to cite this article: Akhaddar A. Polyaxial pedicle screw dislocation during screw tightening for posterior spinal lumbar stabilization. *Surg Neurol Int* 2019;10:255.