CNS 2017 ANNUAL MEETING
BOSTON, MASSACHUSETTS
OCTOBER 7–11, 2017

Accuracy and Safety of Minimally Invasive Guidewireless, Navigated Pedicle Screw Placement

Brandon W Smith MD MSCR; Jacob R. Joseph MD; Michael Kirsch; M. Oakley Strasser; Jacob G Smith; Paul Park MD

Introduction

Percutaneous pedicle screw insertion (PPSI) has been a mainstay of minimally invasive spinal surgery. Traditionally, PPSI is a fluoroscopy guided, multi-step process involving traversing the pedicle with a jamshidi needle, placement of a kirschner wire (K-wire), placement of soft tissue dilator, pedicle tract tapping, screw insertion over the K-wire. This study evaluates the accuracy and safety of PPSI with a simplified two-step process using a navigated awl-tap followed by navigated screw insertion without use of fluoroscopy.

Methods

Patients undergoing PPSI utilizing the k-wireless technique were identified. Data were extracted from the electronic medical record. Complications associated with screw placement were recorded. Post-operative x-rays as well as CT were evaluated for accuracy of pedicle screw placement.

Results

36 patients were included. There were 18 (50%) women with mean age of 60.4yrs (23.8-78.4) and mean BMI was 28.5kg/m^2(20.8-40.1). A total of 238 pedicle screws were placed. A mean of 6.6(4-14) pedicle screws were placed over a mean of 2.61(1-7) levels. Post-operative x-rays did not identify any pedicle breaches. In subgroup analysis of 25/36(69%) patients who underwent CT, 173 screws were assessed with 170(98.3%) completely within the pedicle and 3(1.7%) which demonstrated mild medial, grade B, breaches. There were no complications related to PPSI in this cohort.

Conclusions

This streamlined 2-step guidewireless, navigated PPSI appears safe and accurate without the need for radiation exposure to surgeon and staff.

Learning Objectives

By the conclusion of this session participants should be able to:

a) describe that Percutaneous pedicle screws can safely and accurately be placed without use of a K-wire in a more efficient 2-step process without need for radiation exposure to surgeon and staff.

[Default Poster]