

MAKERERE



UNIVERSITY

**POSITION OF PEDICLE SCREW IN FREE HAND SPINE SURGERY AT MULAGO
HOSPITAL**

BY

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ABSTRACT

Background: Posterior spine stabilization using pedicle screws and rod instrumentation surgery is on the increase in Uganda. However, most of the pedicle screws are placed using the “free-hand” technique due to unavailability of C-arm. The benefits of pedicle screws using the free hand technique have been tempered by its potential risks, such as, spinal canal violation, pedicle fracture, nerve root compression, and vascular injury.

The aim of this study was to describe the position of pedicle screw in free hand technique at Mulago national referral hospital.

Methods: This was a prospective case series study conducted at the spine unit of Mulago national referral hospital during the period of 27th August 2013 to 26th March 2014. The study consecutively enrolled nineteen participants who underwent spine surgery with 101 pedicle screws fixed using the free hand technique.

Pedicle screw violations were quantified in millimeters using CT-scan and graded as follows:

Grade 0 – Screws that are fully contained in the pedicle

Grade I - ≤ 2 mm, Grade II – 2.1 – 4.0mm, Grade III – 4.1 – 6.0mm and Grade IV -6.1 – 8.0mm⁽³⁶⁾.

Data was collected using a structured questionnaire and analysed using IBM SPSS Statistics version 21

Uni-variate analysis was done.

Results : The violation rate was 0.99 %(1) for grade II at T8, the rest were 99.01% for Grade 0, of which 23.8% were central and 75.2% were abutting the cortex.

Conclusion. The free hand technique is generally safe in the spine unit of Mulago national referral hospital, provided it is used by a spine surgeon. The violation rates were 99.01 % (100) grade 0 and 0.99 % (1) was grade II.

Recommendation: To enhance safety of pedicle screw fixation, where C-arm is not available, the spine surgeon has to observe anatomy of the pedicles, gender and age of the patient.