FLUOROSCOPIC VS CT GUIDED TRANSPEDICULAR CORE NEEDLE BIOPSY FOR SPINAL INFECTIONS AND TUMORS: A PROSPECTIVE RANDOMIZED TRIAL

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Background
Spinal biopsy is important to obtain culture and histopathological diagnosis in spine infections and tumors.

Objective
This study evaluated the accuracy, safety and diagnostic outcome of fluoroscopic guided and Computed Tomography (CT) transpedicular biopsy techniques.

Methods
A prospective randomized trial was performed in 60 patients divided into fluoroscopic and CT guided spinal biopsy groups. Transpedicular approach was done with 8G core biopsy needle. Diagnosis were made based on biopsy results, clinical criteria and disease progression during 6 months follow up. Radiation expose to patients and doctors were measured with optically stimulated luminescence dosimeters (OSLDs).

Results
There was no significant difference between the diagnostic accuracy of both fluoroscopic and CT guided spinal biopsy ($p=0.67$) and between diagnostic accuracy of spinal infection and spinal tumor in both group ($p=0.402$ for fluoroscopy group and $p=0.223$ for CT group). Radiation dose exposed to patients and doctors was approximately 26 times and 2 times higher in CT group respectively without lead protection. Lead shield significantly reduced the radiation exposure of doctors approximately 2 to 8 times. No complications were observed for both groups and the differences in post biopsy pain scores were insignificant.

Conclusions
The accuracy rate, operative time, complication rate and pain score for both fluoroscopic and CT guided spinal biopsy were similar. However, the radiation dose exposed to patients and doctors were significantly higher in CT group without the lead apron and thyroid shield. With the use of lead protection, radiation exposed to doctors were reduced significantly.