

Post-tubercular kyphosis

Kyphosis in [spinal tuberculosis](#).

Almost all [tuberculosis](#) of spine, even if they are treated well, leave behind some amount of kyphosis in different segments of [spine](#). Persistent [spinal deformity](#) affects the biomechanics of all segments of the spine. The life expectancy of human beings has increased globally. If deformity is moderate to severe, these patients report 10–20 yrs later with the clinical problems related to persistent spinal deformity and paraplegia with the healed disease ¹⁾.

The hospital records of 47 patients from a single center, operated for healed, post-tubercular kyphosis were retrospectively analyzed. Deformity correction in all patients was done utilizing a three-column osteotomy by a single-stage, posterior-only approach. Radiological parameters (local kyphosis angle; KA, thoracic kyphosis; TK, lumbar lordosis; LL, pelvic tilt; PT, sacral slope; SS, C7 sagittal vertical axis; C7 SVA, pelvic incidence minus lumbar lordosis; PI-LL), functional scores and clinical details of complications were recorded.

Results: The median age of the study population was 16 years (6–45). The apex of deformity was in thoracic, thoracolumbar and lumbar spine in 22, 19 and 6 cases, respectively. The mean operative time was 197.2 ± 30.5 min and the mean operative blood loss was 701 ± 312 ml. KA (preoperative: $68.2^\circ \pm 26.9^\circ$ v/s postoperative: $29.6^\circ \pm 20.3^\circ$; p value < 0.0001), C7 SVA (preoperative 20.9 ± 37.9 mm v/s postoperative: 5.5 ± 16.3 mm; p value = 0.005) and TK (preoperative $47.7^\circ \pm 33.2^\circ$ v/s postoperative: $37.8^\circ \pm 19.8^\circ$; p value = 0.0024) underwent a significant change with surgery. Mean SRS-22r score improved after surgical correction (preoperative: 2.7 ± 0.2 v/s final follow-up: 4 ± 0.2 ; p < 0.0001) with the maximum improvement occurring in self-image domain. The overall complication rate was 29.7%-including 4 neurological and 10 non-neurological complications. Permanent neurological deterioration was seen in one patient.

[Three-column osteotomy](#) through posterior-only approach are safe and effective and offer good clinic-radiological and function outcome in post-tubercular kyphotic deformity correction ²⁾

The progression of post-tubercular kyphosis in 61 children who received ambulatory chemotherapy was studied prospectively. The angles of deformity and kyphosis were measured for each patient at diagnosis, 3, 6, 9, 12 and 18 months later and every year thereafter for 15 years. During the course of the disease signs of instability appeared on the radiographs of some of the children. These were dislocation of the facets, posterior retropulsion of the diseased fragments, lateral translation of the vertebrae in the anteroposterior view and toppling of the superior vertebra. Each sign was allocated one point to create a spinal instability score. The influence on the progression of the deformity of the level of the lesion, the vertebral body loss, the number of segments involved, the angle of deformity before treatment and the spinal instability score was analysed. The mean angle of deformity at the start of treatment was 35 degrees. This increased to 41 degrees at 15 years. Progression occurred during the active phase of the disease and again after cure when variations in progression were observed. Type-I progression showed an increase in deformity until growth had ceased. This could

occur either continuously (type Ia) or after a lag period of three to five years (type Ib). Type-II progression showed decrease in deformity with growth. This could occur immediately after the active phase (type IIa) or after a lag period of three to five years (type IIb). Type-III progression showed minimal change during either the active or healed phases and was seen only in those with limited disease. Multiple regression analysis showed that a spinal instability score of more than 2 was a reliable predictor of patients with an increase of more than 30 degrees in deformity and a final deformity of over 60 degrees. Since signs of radiological instability appear early in the disease, they can be reliably used to identify children whose spine is at risk for late progressive collapse. Surgery is advised in these cases ³⁾

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³⁾

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