

CERVICOTHORACIC-UPPER THORACIC THREE-COLUMN OSTEOTOMY FOR TREATMENT OF PROXIMAL JUNCTIONAL FAILURES FOLLOWING ADULT SPINAL SURGERY

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INTRODUCTION

Severe proximal junctional failures (PJF) following adult spinal deformity surgery is characterized with rigid angular kyphotic deformity, progressive neurological deficit and severe pain.

Surgical treatment of PJF at cervicothoracic-upper thoracic (CT-UT) spine requires complex reconstructive procedures. Three-column osteotomies are powerful correction techniques but have technical challenges when performed at CT-UT spine.

PURPOSE

The aim of this study is to evaluate the efficacy of three-column osteotomies (3COs) in the management of cervicothoracic-upper thoracic proximal junctional failures.

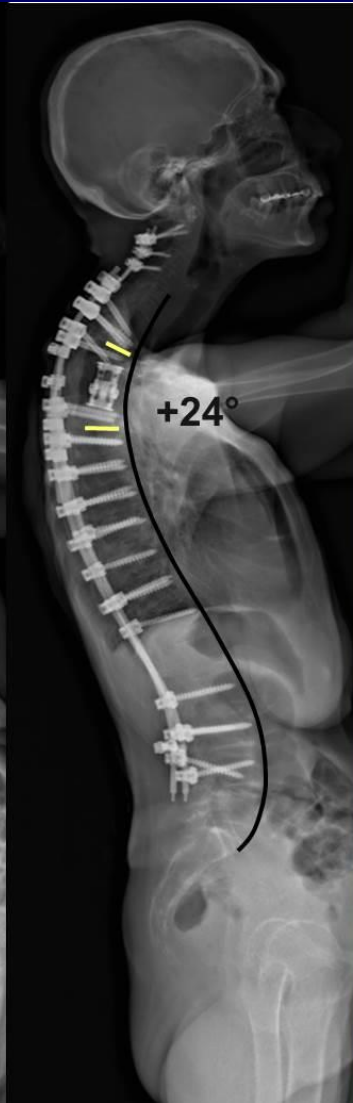
MATERIAL & METHODS

- 11 (6M,5F) patients were treated with 3COs for PJF were evaluated.
- Preop, postop and f/up x-rays were evaluated for radiological data including local kyphosis angle (LKA), global and regional sagittal spinal parameters.
- Functional status of the patients were assessed by Oswestry functional score.

RESULTS

- Average age was 42 (18-79)
- F/up was 43 months (24-132).
- 3COs were performed between T1-T6 levels.
 - 2 PSO (Scwab grade 3)
 - 2 Bone-Disc-Bone-Osteotomy (Scwab grade 4)
 - 7 PVCR (Scwab grade 5&6).
- 3COs were single level in 8 patients and multilevel in 3 patients.

65y, F



RESULTS

	Preop		F/up
▪ TK	79°	→	49°
▪ LKA	57°	→	15°
▪ LL	69°	→	57°
▪ CL	-34°	→	-21°
▪ C2-C7 SVA	70mm	→	24mm
▪ C2 Slope	36°	→	22°
▪ T1 Slope	51°	→	25°

RESULTS

- Improvements in C2 slope and T1 slope was better in patients treated with PVCR.
- 7 patients who had preop neurologic deficit had at least one grade improvement at final f/up.
- Most common complication was dural tears in 2 patients (18%).
- Oswestry scores decreased from 56 to 16.
- Solid fusion was achieved in all patients without loss of correction at final f/up.

CONCLUSION

Despite the technical challenges of cervicothoracic-upper thoracic spine, 3CO provided significant correction of the rigid angular deformity, improved neurological deficit and improved global and regional sagittal parameters.

PVCR provided better improvements in C2 slope and T1 slope values better than other 3CO types.

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