

A Novel Intraoperative Posture-Adjustment Apparatus for Correction of Cervical Lordosis in Anterior Cervical Surgery

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Background: Cervical alignment is a crucial factor related to the success of anterior cervical surgical procedures. In patients with severe spinal cord compression, a traditional neck pillow (TNP) may not adequately correct cervical position during surgery.

Research question: the aim of this study was to introduce this innovative intraoperative posture- adjustment apparatus (IPAA) (Fig. 1), and explored its clinical and radiological results in cervical angle correction against TNP in patients who had undergone anterior cervical surgery.

Design: The clinical and radiological data of 86 patients who underwent anterior cervical surgery with a minimum follow-up period of 1 year were retrospectively reviewed. Of these, 58 patients underwent IPAA, whereas 28 underwent TNP.

Methods: Radiological parameters such as the degree of C2-C7 lordosis (CL), functional spinal unit angle (FSUA), C7 slope (C7S), fusion rate, and adjacent segment disease (ASD) were recorded and compared between the groups. The independent t-test or Mann-Whitney U test was used to compare continuous data, and categorical variables were assessed using the Pearson's chi-square test or Fisher's exact test.

Results: the post-operative CL, FSUA, and C7S were significantly increased in both groups. CL, FSUA, and C7S in the IPAA group (Fig. 2) were significantly higher than those in the TNP group (Fig. 3).the post-operative and final follow-up NDI and VAS neck scores in the IPAA group were significantly lower than those in the TNP group ($p < 0.05$). At the last follow-up, the TNP group had significantly more kyphotic patients than the IPAA group (2 vs. 0, $p = 0.041$).

Discussion: IPAA was shown to be more effective than TNP in adjusting cervical alignment (CL, FSUA, and C7S). These findings suggest that IPAA could be used as an alternative way to TNP in neck setting and cervical alignment adjustment and IPAA could potentially improve clinical outcomes after anterior cervical surgery

Fig. 1

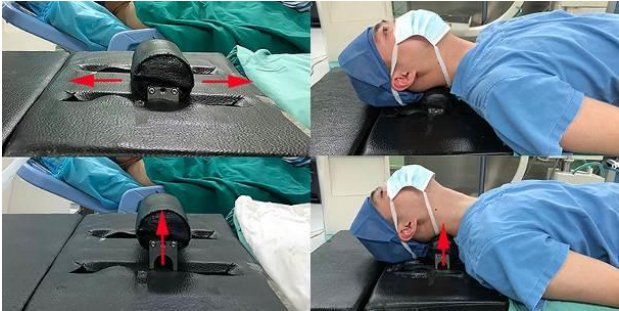


Fig. 2

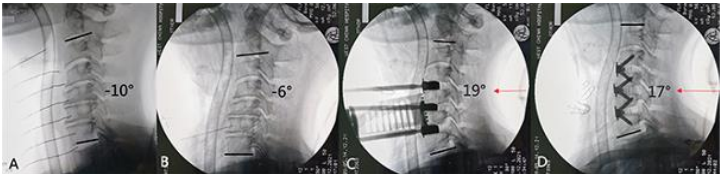


Fig. 3

