

The Fatty Infiltration Into Cervical Paraspinal Muscle as a Predictor of Postoperative Outcomes: a Controlled Study Based on Hybrid Surgery

Objective

To evaluate the association of fatty infiltration (FI) of cervical paraspinal muscle (CPM) with postoperative outcomes in patients undergoing hybrid surgery (HS) and analyze the relationship between FI and cross-sectional area (CSA) of CPM.

Methods

A retrospective analysis was performed on 110 consecutive patients undergoing continuous 2-level HS. According to Goutallier classification of multifidus FI, the patients were divided into normal, moderate, and severe groups. Clinical outcomes and radiographic parameters were collected and evaluated for relevant comparisons.

Results

Visible FI was identified in 69.1% of patients (76/110), with a propensity in elderly patients. No statistically significant differences were presented among the three groups regarding pre- and postoperative clinical evaluation scores. The cervical lordosis was significantly higher in the normal group before surgery. Likewise, the sagittal vertical axis (SVA) was significantly higher in the severe group than the normal group at the final follow-up. The function spine unit angle and disc angle of arthroplasty levels were significantly lower in the severe group than the normal group at follow-ups. Moreover, after correction according to vertebral body area, no statistically significant relationship existed between CSA ratio and FI grade.

Conclusion

CPM degeneration is common and age-related in patients with cervical disc degenerative disease. There was a significant positive correlation between severe FI of CPM and postoperative sagittal balance disorder, particularly in C2-7 SVA and segmental alignment of arthroplasty level. Meanwhile, FI of CPM appears to have no impact on clinical outcomes and reveals small correlations to CSA.

Keywords

Cervical paraspinal muscle; Fatty infiltration; Cross-sectional area; Hybrid surgery