COVER SHEET

THE USE OF FULCRUM BENDING FILMS IN ANTERIOR THORACIC CORRECTION OF SCOLIOSIS

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INTRODUCTION The use of bending films is well established in scoliosis surgery. The technique has been refined by Cheung et al(1) using a fulcrum. Luk(2) has shown that in posterior surgery, the correction achieved can be predicted by fulcrum bending films. The relevance to anterior correction has been disputed, as this commonly involves shortening the spine by the removal of intervertebral discs. The aim of the study was to see whether the preoperative bending angle reflected the degree of correction achieved.

METHOD All data has been collected prospectively and consecutively. All patients had an anterior endoscopic correction using a single rod. In all cases, disc clearance and bone grafting were performed. All had preoperative fulcrum bending films. The mean Cobb angle achieved at the preoperative bending film was compared with the postoperative correction at 2 months. The FBCI (Fulcrum Bending Correction Index) and correction rates were also calculated. The FBCI is calculated by dividing the correction rate by the fulcrum flexibility and expressed as a percentage. It takes into account the preoperative flexibility of the curve. Linear regression analysis was performed to investigate the relationship between preoperative bending films and postoperative correction.

RESULTS There were 91 patients. The median age was 15.8 (range 9.9-46.5) years. The majority of curves were Lenke type 1 (79%) or Type 2 (8%). The median angle achieved at the preoperative bending film was 20.0 (range0-45) degrees. The median Cobb angle of the corrected curve at 2 months following surgery was 20.0 degrees (range 6-35). The mean FBCI was 107%. The overall correction rate was 60.1% (median 61.3%, range 28-87%). The correlation between preoperative bending films and surgical correction achieved was highly significant ($P<0.001$).

DISCUSSION In our series, fulcrum bending films have been significantly predictive of the correction achieved following anterior endoscopic surgery. The correction rate of 60.1% is in keeping with other series. In addition, the FBCI was 107%, implying that the anterior instrumentation had corrected slightly beyond the flexibility achieved at the time of the preoperative bending films. We conclude that the use of preoperative bending films is significantly predictive of correction achieved in anterior surgery, however one can expect a small additional correction due to the discectomy.

REFERENCES

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