How Long Can You Delay? Curve Progression while Awaiting Vertebral Body Tethering Surgery

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INTRODUCTION:
Vertebral body tethering (VBT) is an emerging treatment for adolescent idiopathic scoliosis (AIS). Due to school and surgical schedules, insurance, and patient preference, there is sometimes delay between the decision for surgery and the surgical date. We sought to evaluate curve progression for patients awaiting VBT and whether there was an impact on patient outcomes.
METHODS:
Consecutive patients presenting for VBT evaluation at a single tertiary referral center were included. Radiographs used at time of consultation were compared to those taken at the preoperative visit. Change in Cobb angle and Risser were recorded as well as whether there was a change in the surgical plan based on updated x-rays.
RESULTS:
A total of 128 patients underwent evaluation for VBT between 2015-2021. Of those, 122 patients underwent VBT and 95 patients had two sets of x-rays with more than 30 days between consultation and operative date. Reasons for delay included insurance, family preference, COVID, and other causes. Mean first-consult and preop cobb angles were 48 and 53 ($n=95$, $p<0.001$), respectively, with an average of 6 degree curve progression ($n=95$). Mean time elapsed between both first consult and preoperative radiographs was 121 days. Of the 60 patients with available Risser at both timepoints and 45 patients with Sanders scores available at both timepoints, scoring for both progressed by 0.4 and 0.2 points. Six patients had curve progression so severe that they were deemed no longer to be a candidate for VBT.
DISCUSSION AND CONCLUSION:
Nearly 6% of patients had severe curve progression resulting in a change of operative approach. The reason for their delay in undergoing VBT when scheduled was mostly due to insurance claim denial (67%). In total, 43% patients had curve progression more than 6 degrees during the waiting period. Operative delay from the decision for surgery until VBT should be minimized when possible.