



Miyanji F, Pawelek J, Nasto LA, Rushton P, Simmonds A, Parent S. Safety and efficacy of anterior vertebral body tethering in the treatment of idiopathic scoliosis: a multicentre review of 57 consecutive patients. *Bone Joint J.* 2020;102-B(12):1703-1708.

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Sir,

We read with great interest the article by Miyanji et al¹ which reported on the safety and efficacy of anterior vertebral body tethering (AVBT) in the treatment of idiopathic scoliosis. We commend the authors' efforts in undertaking a multicentre study of a novel surgical technique and presenting the largest cohort of AVBT. However, we have a few concerns about the presentation and interpretation of the data.

Our first concern is the follow-up period. The authors state that patients with a minimum of two years' follow-up were included, but the mean reported follow-up period is 40.4 months with a range from 11 to 56 months. Hence, it seems that not all patients met their inclusion criteria of a minimum two years' follow-up and that patients with less than two years' follow-up were included in the data analysis.

Our second concern is about the maturity of the cohort in terms of Sanders score and Risser grade. The mean preoperative Sanders score and Risser grade were 3.3 (SD 1.2) and 0.05 (0 to 3), respectively. The mean age of the cohort was 12.7 years (8.2 to 16.7). Also, the authors state that 42/54 patients were premenarchal, i.e. the remaining 12 patients had reached menarche prior to surgery. There also seems to be mismatch in terms of the reported Sanders score, age, maturity, and menarchal status in light of the Sanders et al article² quoted by the authors in their paper. According to Sanders et al, menarche usually occurs once the tri-radiate cartilage is closed (Stage 5 – Adolescent steady – early). Also, the same article² reports that the skeletal ages corresponding to Sanders stages 5, 6, 7, and 8 are 13, 14, 15, and 17 years, respectively. Hence, the mean Sanders score of 3.3 (SD 1.2), along with a mean age of the cohort of 12.7 years (8.2 to 16.7), does not define immaturity of the cohort. Therefore, we feel that a proportion of the cohort is either maturing or has attained maturity by the time of surgery.

Our third concern is that six patients had to undergo fusion surgery. Here, the authors state that the reason for conversion to fusion surgery was that the preoperative flexibility of these curves (28.9%) was less than the flexibility of the overall cohort (41.8%). We feel that if the inclusion criteria took flexibility index into consideration, such complications would have been avoided. A previous study³ has reported the importance of including preoperative curve flexibility as a criterion for the use of the AVBT technique.

We again appreciate the authors' efforts in presenting this study. However, in our opinion, the above discrepancies in the presented data raise concern about data interpretation, along with the fact that not all patients met their inclusion criteria of minimum follow-up period and of being skeletally immature.

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1. **Miyanji F, Pawelek J, Nasto LA, Rushton P, Simmonds A, Parent S.** Safety and efficacy of anterior vertebral body tethering in the treatment of idiopathic scoliosis: a multicentre review of 57 consecutive patients. *Bone Joint J.* 2020;102-B(12):1703-1708.
2. **Sanders JO, Khoury JG, Kishan S, et al.** Predicting scoliosis progression from skeletal maturity: a simplified classification during adolescence. *J Bone Joint Surg Am.* 2008;90-A(3):540-553.
3. **Samdani AF, Ames RJ, Kimball JS, et al.** Anterior vertebral body tethering for immature adolescent idiopathic scoliosis: one-year results on the first 32 patients. *Eur Spine J.* 2015;24(7):1533–1539.

Conflict of Interest: None