S-1 alar-iliac screw technique: nothing new under the sun

TO THE EDITOR: In a technical note published in 2013 in this very same journal, we first described the technique for sacral-alar iliac (SAI) screw fixation using an entry point in S-1 (the so-called “S-1 alar-iliac screws”; Figs. 1 and 2), along with several clinical examples in which this technique was successfully employed. Five years later, without appropriate reference to the original publication, DePasse et al. published another technical note presenting exactly the same technique (DePasse JM, Valdes M, Palumbo MA, et al: S-1 alar/iliac screw technique for spinopelvic fixation. J Neurosurg Spine 28:543–547, May 2018).

I am fully confident that the authors’ failure in properly acknowledging the original description of such a technique was unintentional and a mere product of the lack of a proper review of the literature on the issue.

Ultimately, the contribution from DePasse’s team amounts to a well-illustrated and educational article, perhaps just not as innovative as originally intended by the authors. In addition to re-demonstrating the feasibility of SAI screws with an entry point in S-1, this study also showed (although based on a single-specimen analysis) that such a technique is biomechanically very robust, ultimately constituting an interesting option (either by itself or in combination with S-2 alar-iliac screws as presented in our original article) for pelvic fixation in long posterior thoracolumbosacral constructs.

It is actually a great delight to observe that the technique we first described 5 years ago has found widespread favor in the eyes of the spine surgery community (likely not “because” of our humble past contribution, although it would have been polite as well as scientifically advisable...
FIG. 2. Depiction of the posterior anatomy of the sacrum as well as important landmarks for the placement of the combined S-1 and S-2 SAI screws. The entry point for the S-2 SAI screw is located between the S-1 and S-2 foramina and at the level of the lateral sacral crest. The entry point for the S-1 SAI screw is also located at the level of the lateral sacral crest but between the S-1 foramen and the S-1 superior articular facet. Reprinted with permission from Mattei TA, Fassett DR: Combined S-1 and S-2 sacral alar-iliac screws as a salvage technique for pelvic fixation after pseudarthrosis and lumbosacropelvic instability. J Neurosurg Spine 19:321–330, 2013. Figure is available in color online only.

on the authors’ part to have properly recognized its primacy, ultimately having been successfully used by several groups for the treatment of such challenging cases.

Tobias A. Mattei, MD
Eastern Maine Medical Center, Bangor, ME

References

Disclosures
The author reports no conflict of interest.

Correspondence
Tobias A. Mattei: tobias.mattei@health.slu.edu.

INCLUDE WHEN CITING
Published online May 25, 2018; DOI: 10.3171/2018.2.SPINE18173.

Response
Dr. Mattei is absolutely right. As described in our paper, we developed this technique when treating a patient in whom we could not place S-2 alar-iliac screws, and then we found it a useful adjunct in select patients. When searching the literature for relevant previous publications, we missed Dr. Mattei’s well-written description of the technique due to the presence of dashes in the title that eliminate it from many PubMed searches, and we apologize for our oversight in failing to recognize his article as the first to describe this trajectory. We agree wholeheartedly with Dr. Mattei regarding the value of this surgical option, and we hope our article’s biomechanical analysis and additional cases will increase confidence in its feasibility and contribute to its widespread utilization.

J. Mason DePasse, MD
Warren Alpert Medical School of Brown University, Providence, RI

Sagittal balance in adult spinal deformity


Smith et al.,9 world-renowned experts in the field, conducted a multicenter study with a large cohort of patients to prospectively assess the rates of complications associated with adult spinal deformity (ASD). The study concluded that spinal surgery for ASD is associated with an extremely high risk of perioperative and delayed complications (469 complications, 207 minor and 262 major, occurred in 203 of 291 patients; 1 revision surgery in 82 patients). Additionally, the study had only a 2-year follow-up. The risk of complications in a study with long-term follow-up might be considerably higher.

Tessitore and Gautschi,10 taking a cue from this study, highlighted that the majority of patients seeking medical advice for sagittal imbalance problems present with one or more factors associated with an increased complication rate (they are often elderly, obese, possess significant comorbidities, and have previously undergone back surgery). In the light of the extremely high risk of perioperative and delayed complications, they considered unavoidable the question: is surgery always worthwhile in the event of ASD problems? The best way to minimize the risk of complications or an unfavorable outcome seems to be meticulous patient selection.7

In an attempt to master the etiopathogenesis of ASD and sagittal imbalance, recent studies have suggested that trunk muscle strength is inversely correlated with the sagittal lumbar curve and that a positive relationship exists between trunk strength and sagittal balance.3 Trunk muscle strength can impact sagittal balance, particularly when