

## Surgical Treatment of Sanders Type 2 Calcaneal Fractures Using a Sinus Tarsi Approach

Sir,

We read with interest the article titled, "Surgical Treatment of Sanders Type 2 Calcaneal Fractures Using a Sinus Tarsi Approach" by Park and Lee.<sup>1</sup> We appreciate the authors for their efforts. However would like to highlight a few points, based on our own experience.<sup>2</sup>

The mean age at presentation mentioned in this article<sup>1</sup> is 51.2 years, which is much higher than the average age of presentation for these fractures, both in the published literature<sup>3</sup> and in our experience.<sup>2</sup> If that is the case, then the results seem to be much superior to that what is documented in the literature, as there is evidence that the outcome is poorer in patients older than 40 years.

The authors describe an innovative incision of the calcaneofibular ligament to increase exposure of posterior facet, which was repaired using a 2.7-mm suture anchor after fracture fixation in few cases. However whether the use of this method had any effect on overall outcome or ankle stability in followup has not been discussed in the article. We feel that this may be an unnecessary step, and could add to the overall morbidity. The authors mention that Bohler's angle is significantly lesser at last followup as compared to initial followup. However, the same is surprisingly not reflected in the functional outcomes. Bohler's angle is an indirect reflection of both calcaneal height and the arch angle, and thereby load transmission with a lower Bohler's angle is associated with a poor result.<sup>4,5</sup> If Bohler's angle changes over the long term, indicating settling of the facet/tuberosity, the functional outcomes would also necessarily deteriorate.

There is mention in the discussion that the only significant factors found to be related to clinical results are degrees of reduction of posterior facet and calcaneocuboid joint. However recent evidence points to the fact that restoration of the calcaneal structure, with emphasis on correct heel alignment and height of the calcaneal body, rather than anatomical reconstruction of the congruency of the subtalar articular fragments influences the outcome more.<sup>2,6</sup> This point was perhaps underemphasized by the authors. The authors excluded Sanders type 3 fractures for evaluation; this significantly reduces the number of cases that can be followed up. It is pertinent to note that outcomes of Sanders 3 fractures are comparable to Sanders type 2 fractures, unlike type 4 where the results are universally poor and type 1 where the outcomes are mostly good. Most authors club Sanders type 2 and 3 to maintain a sufficient sample size.<sup>2,7-10</sup>

In Figure 3, with screw fixation of this article published in IJO,<sup>1</sup> the authors have transfixed both the subtalar and

calcaneocuboid joints. The rationale for this is unclear since screw fixation is supposed to give a good stability, allowing for early mobility. Is it possible for the authors to enumerate the number of cases where the adjacent joints were transfixed, and elaborate on the reasons why this was needed?

We agree with authors that a larger, prospective case controlled study, preferably multicentric in nature is the need of the hour. Nevertheless, the fact that the sinus tarsi limited approach has become an acceptable option of management can no longer be disputed.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

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<b>Quick Response Code:</b> 	<b>Website:</b> <a href="http://www.ijonline.com">www.ijonline.com</a>
	<b>DOI:</b> 10.4103/ortho.IJOrtho_484_17

**How to cite this article:** Khurana A, Dhillon MS. Surgical treatment of sanders type 2 calcaneal fractures using a sinus tarsi approach. *Indian J Orthop* 2018;52:209-10.

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