# Treatment of Pes Planovalgus Deformity using a SymAlign® Evans Osteotomy Wedge in a Pediatric Patient

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CASE STUDY

Pes planovalgus (flatfoot) is a common deformity of the foot that includes abduction of the forefoot, calcaneus valgus, and considerable pain.[1] When conservative therapy fails, surgical treatment such as opening-wedge Evans osteotomy and/or Cotton osteotomy procedures may be considered. In an Evans osteotomy procedure, a lateral opening in the calcaneus is filled with a bone graft or metal wedge to create a lateral column lengthening. A Cotton osteotomy involves the insertion of a wedge dorsally in the medial cuneiform to cause plantarflexion, restoring medial longitudinal arch height. A number of complications associated with these procedures have been reported, including non-union, subsidence and displacement.[2-4] Graft displacement is of particular concern due to potential difficulty in repairing a displaced graft. SymAlign Evans and Cotton osteotomy allograft wedges were developed to minimize the chance of graft displacement. The wedges are sourced from donated human tissue using dense cancellous bone from femoral heads and condyles, talus, or calcaneus. SymAlign wedges have a unique texturing design that increases the coefficient of friction between the graft and the bone at the implant site. The SymAlign osteotomy wedges, with their unique textured design and high density, are designed specifically to resist graft displacement and maintain deformity correction.

**The following describes the use of a SymAlign Evans osteotomy allograft wedge to correct pes planovalgus deformity in a pediatric patient.**

## Patient

- 13-year-old male
- Patient presented with pes planovalgus in the right foot that had initially developed 2 years prior with peritalar subluxation and a painful accessory navicular exostosis **(Figure 1)**
- Previous treatments included prefabricated orthotics along with rest, ice, compression, and elevation (RICE) therapy

## Procedure

- Lateral opening-wedge osteotomy at the anterior calcaneal process with placement of a 10-mm SymAlign Evans osteotomy allograft wedge **(Figure 2)**
- Additional procedures included a Kidner procedure to remove the accessory navicular exostosis and talonavicular capsulorrhaphy

## Results

- At 10-weeks postoperative, radiographs revealed the SymAlign Evans osteotomy wedge was in good position and incorporated with complete correction of the pes planovalgus deformity **(Figure 3)**
- By 14-months postoperative, the SymAlign Evans osteotomy wedge was fused showing stable alignment and reduction in the calcaneal-cuboid abduction angle and Kite's angle compared to the preoperative radiographs **(Figure 4)**
- The patient had returned to all activities and sports

## Conclusion

- This case demonstrates the successful correction of painful pes planovalgus deformity using a SymAlign Evans osteotomy allograft wedge in a pediatric patient

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**Figure 1.**
Preoperative radiographs taken in the anteroposterior (AP; left) and lateral (right) views reveal an enlarged navicular tuborosity with an accessory navicular exostosis and increased calcaneal-cuboid abduction (CAA) and Kite's angle on the AP view.

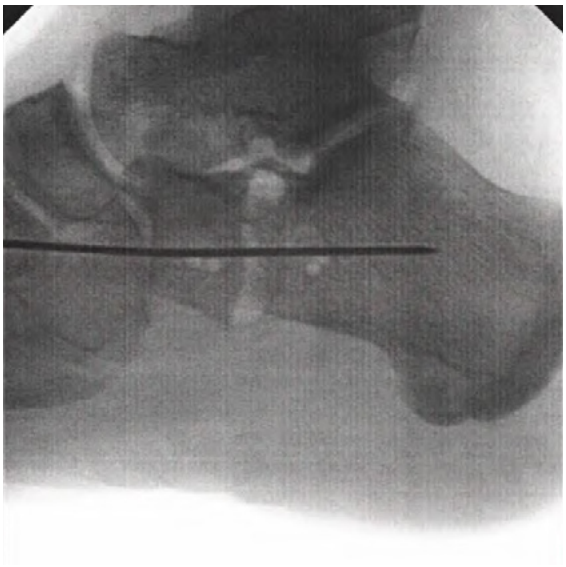

**Figure 2.**
Intraoperative radiograph of the lateral rearfoot showing the placement of the SymAlign Evans osteotomy allograft wedge into the opening-wedge osteotomy site with proper anatomical alignment.

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**Figure 3.**
Postoperative radiographs taken 10 weeks after the SymAlign Evans osteotomy wedge was implanted showing the lateral (left) and AP (right) views. The graft was in good position and fully incorporated, as well as noted elevation of the talar head and relocation of the talonavicular joint.


**Figure 4.**
Postoperative radiographs taken 14 months after the SymAlign Evans osteotomy wedge was implanted showing the lateral (left) and AP (right) views. The graft was fused with the native bone and showed stable alignment. There were noted reductions in the CAA and Kite's angle in the AP view compared to preoperative radiographs (see Figure 1).

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Informed consent was obtained for use of these case images.

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

Please refer to the instructions for use for a complete list of indications, contraindications, warnings and precautions.

## References:


1. Jara, M.E. Evans Osteotomy Complications. Foot Ankle Clin, 2017. 22(3): p. 573-585.
2. Haeseker, G.A., M.A. Mureau, and F.W. Faber, Lateral column lengthening for acquired adult flatfoot deformity caused by posterior tibial tendon dysfunction stage II: a retrospective comparison of calcaneus osteotomy with calcaneocuboid distraction arthrodesis. J Foot Ankle Surg, 2010. 49(4): p. 380-4.
3. Prissel, M.A. and T.S. Roukis, Incidence of nonunion of the unfixated, isolated Evans calcaneal osteotomy: a systematic review. J Foot Ankle Surg, 2012. 51(3): p. 323-5.
4. Zwipp, H. and S. Rammelt, [Modified Evans osteotomy for the operative treatment of acquired pes planovalgus]. Oper Orthop Traumatol, 2006. 18(2): p. 182-97.


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