

# Clinical Outcome of 2 Cases of Paediatric Intra-articular Calcaneal Fractures Treated with Minimally Invasive Sinus Tarsi Reduction and Fixation

<sup>1</sup>FY Thong, <sup>2</sup>J Saengsin, <sup>2</sup>T Vaseenon

<sup>1</sup>Department of Orthopaedics, Queen Elizabeth Hospital, Sabah, Malaysia, <sup>2</sup>Department of Orthopaedics, Chiang Mai University, Chiang Mai, Thailand

## INTRODUCTION:

Calcaneum fractures are rare in children with an incidence of 1 in 100,000 fractures. Most fractures are non or minimally displaced; therefore, conservative treatment has been reported to provide adequate results. However, there is no consensus on the management of intraarticular fractures; with open reduction via extensile lateral approach and internal fixation most commonly described. This approach involves extensive dissection, with possible soft tissue complications. The usage of a minimally invasive sinus tarsi approach to address reduction and fixation of the intra-articular calcaneal fractures has been described in adults but rarely in children.

## MATERIALS & METHODS:

In the present series, we report the use of the minimally invasive sinus tarsi approach to perform open reduction and percutaneous fixation of intra-articular calcaneum fractures in 2 pediatric patients; aged 12 and 13 respectively. Both presented after fall from height and radiographs reveal intrarticular fractures of the calcaneum with Bohler angle of 5 and 10 degrees respectively. Anatomical reduction of the subtalar joint is important to obtain optimal long-term outcome and this was achieved using open reduction. Reduction was held provisionally with K wires; final fixation was achieved using percutaneous screw fixation.

## RESULTS:

Both patients did not suffer from any complications such as wound breakdown, infection and nerve injury. The minimal dissection done also translates to faster healing and return to function with both patients returning to full function by 3 months post fixation.



Figure 1: Intraoperative Pictures



Figure 2: Full Range of Movement by 3 months

## DISCUSSIONS:

Our objective of using this approach is to reduce the subtalar joint, which can be performed easily using this approach without the need to raise a large flap thereby, avoiding the risks of the extended lateral approach, namely infection and skin sloughing due to the residual soft tissue swelling.

## CONCLUSION:

The sinus tarsi approach allows for adequate reduction of the subtalar joint, avoiding the inherent risks of the extended lateral approach. Its use in children is even more justified, because the main aim in this population is to reduce the subtalar joint, with less emphasis on the height and width of the calcaneus, which can remodel with growth.

## REFERENCES:

1 .Peña Fernández MP, Quijada Rodríguez JL Intra-Articular Calcaneal Fracture in Patient of 11 Years, What Treatment is the Most Adequate?. Clin Res Foot Ankle 6: 257, 2018.