

Technique tip

Extending the Indications for Distal Chevron Osteotomy

José Antônio Veiga Sanhudo, M.D.*
Montenegro, RS, Brazil

ABSTRACT

Distal chevron osteotomy is a widely employed procedure for correction of mild to moderate hallux valgus. The author has modified the angle of the osteotomy to provide even greater stability and allow larger displacements of the distal fragment. This modification allows the correction of a greater degree of hallux valgus than originally described for the technique. This modification is relatively simple and increases the stability compared to the original publication.

KEY WORDS

chevron osteotomy, Austin osteotomy.

INTRODUCTION

SURGICAL TECHNIQUE

After a standard approach to the medial metatarsal head. The medial eminence is removed. With a reciprocating microsaw a long chevron-shaped osteotomy is performed. The apex of the "V" should be placed on the center of the metatarsal head or just distal to it. The angle of the osteotomy is about 30°, instead of 60° proposed by Austin¹. (Fig.1) The upper arm of the "V" should extend proximally for about 3 cm reaching the proximal metatarsal area. The lower arm extends to the inferior portion of the metatarsal neck or shaft. The distal fragment is displaced laterally enough to correct the deformity. In my experience, it may be as great as 10 mm with no risk of loss of stability. A 1.5 mm K-wire is placed crossing the osteotomy from proximal plantar

medial to distal dorsal laterally as an additional stabilization. The distal end exits the skin laterally to the metatarsal shaft. The pin is removed in the office after 4 weeks. The medial excess of the shaft fragment is removed with the microsaw. The medial capsule is closed with 1-0 vicryl sutures after reduction of the sesamoids under the head of the first metatarsal.

DISCUSSION

Modifications of the original technique of Austin have previously been published.^{6,7,9} The angle of the osteotomy has been modified and included a pin or screw fixation with absorbable or non-absorbable implants.^{6,7,9} In most of these papers the author did not try to obtain correction of larger deformities through a larger displacement of the distal fragment.^{2,4,5,6,7,8,9,10} This technique modification is aimed at extending the indications for use in severe cases of hallux valgus.

REFERENCES

1. **Austin, D.W., and Leventhen, E.O:** A new osteotomy for hallux valgus: a horizontally directed "V" displacement osteotomy of the metatarsal head for hallux valgus and primus varus. *Clin. Orthop.*, **157**:25-30, 1981.
2. **Badwey T.M., Dutkowsky J.P., Graves S.C., and Richardson E.G.:** An anatomical basis for the degree of displacement of the distal chevron osteotomy in the treatment of hallux valgus. *Foot Ankle*, **18**:213-215, 1997.
3. **Frey, C. Jahss, M., and Kummer, F.J.:** The Akin procedure: an analysis of results. *Foot Ankle*, **12**:1-6, 1991.
4. **Graves, S.C., Dutkowsky, J.P., and Richardson, E.G.:** The chevron bunionectionomy: a trigonometric analysis to predict correction. *Foot Ankle*, **14**:90-96, 1993.
5. **Harper, M.C.:** Correction of the metatarsus primus varus with the chevron metatarsal osteotomy: an analysis of corrective factors. *Clin Orthop.*, **243**:180-183, 1989.

Corresponding Author:

*José Antônio Veiga Sanhudo, M.D.
Orthopaedic Department, Mãe de Deus Hospital, Porto Alegre,
and Centrotrauma Clinic, Montenegro, RS, Brazil
Av. Borges de Medeiros 3200 Ap. 1906
Porto Alegre RS Brazil 90110-150
Telephone: 051 2313049
Fax: 051 2313049
e-mail address: jsanhudo@uol.com.br

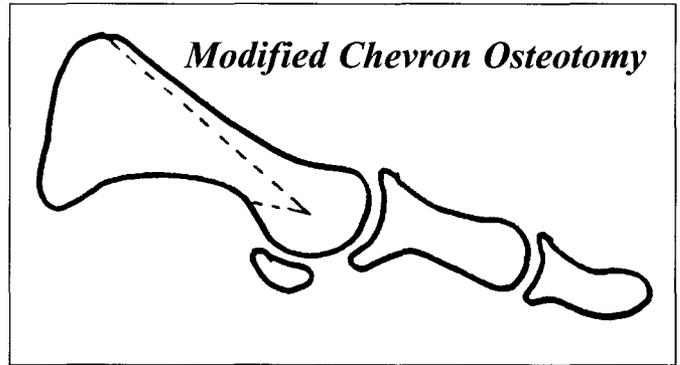
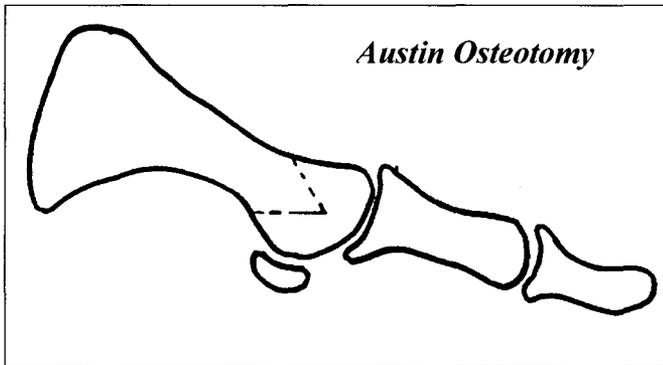


Fig.1 Comparison of Austin and modified chevron osteotomy.

6. **Hirvensalo, E., Bostman, O., Tormala, P., Vainionpaa, S., and Rokkanen, P.:** Chevron osteotomy fixed with absorbable polyglycolide pins. *Foot Ankle*, **11**:212-217, 1991.

7. **Johnson, K.A., Cofield, R.H., and Morrey, B.F.:** Chevron osteotomy for hallux valgus. *Clin Orthop.*, **142**:44-47, 1979.

8. **Kummer, F.J.:** Mathematical analysis of first metatarsal osteotomy. *Foot Ankle*, **9**:281-289, 1989.

9. **Lewis, R.J., and Feffer, H.L.:** Modified chevron osteotomy of the first metatarsal. *Clin. Orthop.*, **157**:105-109, 1981.

10. **Sarrafiian, S.K.:** A method of predicting the degree of functional correction of the metatarsus primus varus with a distal lateral displacement osteotomy in hallux valgus. *Foot Ankle*, **5**:332-326, 1985.