

Speaking Events

Minimally Invasive Cheilectomy: functional outcome and comparison with open cheilectomy. Presented at the 3rd International Congress of Minimally Invasive Foot and Ankle Surgery, Brugge, Belgium May 2011.

Minimally Invasive Bunion Correction in Comparison with Open Bunion Correction. Presented at the British Orthopaedic Foot and Ankle Annual Scientific Meeting, Windsor, November 2011.

Minimally Invasive Chevron/Akin Osteotomy for the Treatment of Bunion Disorders. Invited Presentation at the American Academy of Orthopaedic Surgeon, San Fransisco, California, February 2012.

Invited to present the Keyhole Bunion surgery studies at the American Academy of Surgeons, February 2012. <http://www.aaos.org/education/anmeet/anmeet.asp>

Minimally Invasive Chevron osteotomy ; functional outcome and comparison with standard open chevron osteotomy

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Abstract:

Aim:

To evaluate the outcome on minimally invasive (MIS) chevron osteotomy in management of hallux valgus (HV), comparing the results with a matched cohort who had standard open chevron osteotomy.

Materials and Methods:

Retrospective study of 40 patients, 20 patients in the MIS group and 20 patients in the open group. Functional outcome was evaluated using the Manchester Oxford foot and Ankle questionnaire (MOXFQ). Radiologically the intermetatarsal angle (IMA) and hallux valgus angle (HVA), avascular necrosis of metatarsal head, malunion, non-union and over-correction were evaluated. Patients' satisfaction and complications were recorded.

Results:

Both the MIS and open groups showed significant improvements in the MOXFQ, IMA and HVA. The median improvement between groups didn't reach statistical significance. We had no cases of AVN, mal or non-union, over-correction, transfer metatarsalgia in either group.

Conclusion:

MIS procedure achieved satisfactory clinical and radiographic results similar to open surgical technique. It is at least as effective as the open surgical technique. Percutaneous hallux valgus surgery requires a learning curve which is not analysed in this present study. Clinical trials are required to validate our outcome.

Introduction:

Hallux valgus is a common disorder of the forefoot with deviation of the great toe towards the midline of the foot and prominence of the head of the first metatarsal. There are several procedures available for hallux valgus correction. Recently hallux valgus correction has been performed using Minimally invasive surgery (MIS).. Percutaneous osteotomies have received increasing recognition because of the procedure frequently compared to traditional open approaches but with reported less cost and higher patient satisfaction (1). However consensus regarding the best management has yet to be established (2). The aim of this retrospective study is to evaluate the outcome of MIS chevron osteotomy in management of hallux valgus using patient reported outcome (PROM), comparing the results with a matched cohort who had standard open chevron osteotomy.

Methods and Materials

Retrospective study
40 patients
20 patients in the MIS group
20 patients in the Open group

Inclusion criteria:

Mild to moderate HV
No previous foot surgery

Exclusion criteria:

Asymptomatic HV
Compromised local or systemic condition
Severe arthritis

Outcome Measures;

Functional outcome was assessed using the Manchester Oxford foot and ankle questionnaire (MOXFQ)

Radiological evaluation included change Intermetatarsal angle (IMA), hallux valgus angle (HVA), malunion, nonunion and avascular necrosis.

Surgical Technique:

Ankle tourniquet

Mayo block

Under mini C arm operated by surgeon Small stab incision proximal to the MT flare

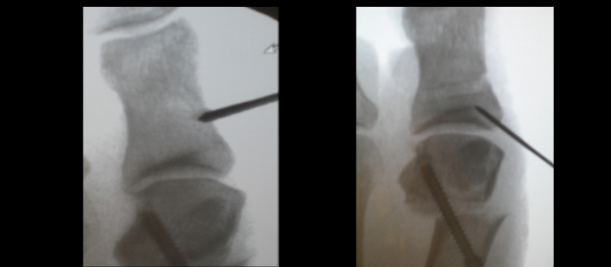
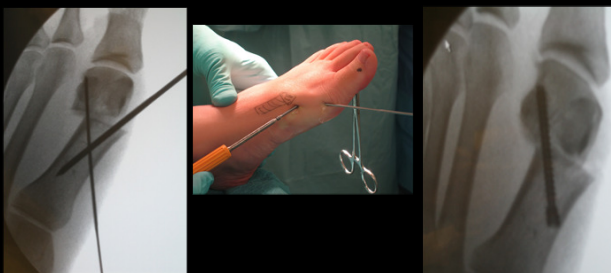
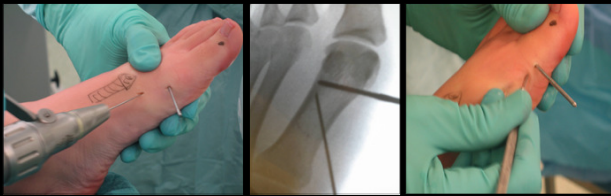
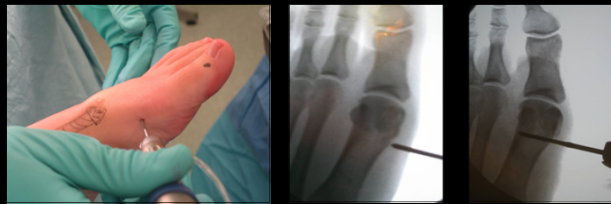
Tunnel created using peri-osteal elevator.

Modified chevron osteotomy using a 2mm burr.

Wire into the medullary canal to facilitate displacement of the MT head.

Percutaneous fixation of the MT head.

Akin osteotomy through a stab incision at the proximal phalanx of the big toe using 2mm burr followed by percutaneous fixation.



Results:

MIS group

2 lost to FU, 18 available for analysis.
Median FU of 10 m (IQR 8-15)
Median age @ operation: 57 (IQR 42-67)

Open group:

No loss to FU
Median FU of 28 m (IQR 8-32)
Median age @ operation 57 (IQR 50-65)

Functional outcome:

Both groups showed significant improvement in the MOXFQ scoring (Table I & II)
The change in MOXFQ scoring between groups is shown in table III

Radiological outcome:

Significant improvement in the IMA and HVA in both groups (Table IV and V). The change in the IMA and HVA between groups is shown in table III)

We had no cases with non union, mal union, over correction, transfer metatarsalgia or avascular necrosis

Table I: Pre and postoperative median MOXFQ scoring (IQR) for the MIS group.

MOXFQ Domain	Pre-	Post	P value
Walking/Standing	40 (26-57)	7 (1-10)	0.007
Foot pain	34 (26-57)	11 (8-28)	0.005
Social	47 (30-70)	3 (1-5)	0.0001

Table II: Pre and postoperative median MOXFQ scoring (IQR) for the Open group

MOXFQ Domain	Pre-	Post	P Value
Walking/Standing	53 (45-60)	27 (12-38)	.0001
Foot pain	41 (38-50)	27 (12-42)	0.002
Social	59 (56-62)	25 (10-30)	0.0001

Table III The median improvement in MOXFQ (IQR) in the MIS and open groups

	MIS Group	Open Group	P Value
Walking/Standing	25 (5-40)	21 (10-35)	0.9
Foot Pain	14 (5-35)	14 (5-25)	0.9
Social	31 (25-55)	37 (15-45)	0.9

Table IV: Pre and post median IMA and HVA (IQR) for the MIS group

	Pre	Post	P Value
IMA	14 (12-15)	9 (8-13)	<0.004
HVA	26.5 (25-30)	9.5(5-15)	<.0001

Table V: Pre and post median IMA and HVA (IQR) for the open group

	Pre	Post	P Value
IMA	14(12.5-14.5)	7(5-8)	<0.001
HVA	30(23-33)	10(9-13)	<0.001

Table VI: Comparison of Median Improvement in IMA and HVA (IQR) between the open and MIS groups

	MIS Group	Open Group	P Value
IMA	4 (3-8)	6 (5-8)	0.06
HVA	17 (15-25)	20 (12-22)	0.2

Discussion:

Our results showed satisfactory functional outcome which was reflected in the significant improvement in all the domains of the MOXFQ scoring and were consistent with other results in the literature. (8) Magnan et al reported high patients satisfaction following a review of a cohort of 107 patients who had percutaneous distal first metatarsal osteotomy. Stella and Ruru (9) (Stella T, Ruru G A) reported excellent results in the long term follow up study of percutaneous distal first metatarsal osteotomies. Similarly other studies reported satisfactory outcome (10) (11)

Conclusion:

MIS procedure achieved satisfactory clinical and radiographic results similar to open surgical technique. It is at least as effective as the open surgical technique with the added advantage of small incision and minimal soft tissue dissection and quicker recovery. However, percutaneous hallux valgus surgery requires a learning curve which is not analysed in this present study. Clinical trials are required to validate our outcome.

References:

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