

MODIFIED PEG AND HOLE OSTEOTOMY FOR HALLUX VALGUS

DR. V. KUMAR, KITCHENER, ONT. CANADA.

This is a retrospective study of 101 cases, 16 bilateral, 117 feet of Hallux Valgus (H.V.), treated with modified Peg and Hole Osteotomy. The procedure, as evolved and tried over 10 years with its simplicity and assurance allows onto treat patients of varying age groups as Day Surgery with early ambulation and return to normality. Complications were few and overall satisfactory results were 97%. Thus, it is hoped that this modified Peg and Hole Osteotomy for H.V. will have wide range of application, providing uniform satisfaction to the surgeon and their patient.

HISTORICAL REVIEW :

Kelikian claims Hohmann's double displacement osteotomy for H.V. was made secure by Thomasen's Peg and Hole Technique. An intramedullary wire was used to transfix the osteotomy. Mygind 1952 popularised Thomasen's technique by reporting best results in 100 patients by this method, analysing 535 bunions operated by various techniques. Gibson and Piggott (1962) reported satisfactory results in 128 feet of 86 patients. There were 20% poor or bad results with one non union. Hugh Dovey 1969 reported on 54 patients with 84 feet mostly good results and 1 non union. Turnbull and Grange 1986 compared 20 Kellers arthroplasties and 24 Thomasen's-Mygind Osteotomy recommending the latter. In 1980 at the Ontario Orthopaedic meeting Kumar reported preliminary results in 50 Hallux Valgus (H.V.) and 25 Bunionette- Digitus Quintus Varus (D.Q.V.) treated with modified Mygind Osteotomy. Encouraged with the results, I have adopted the technique to be described for H.V.

MATERIAL :

There were 93 female and 8 male patients operated between 1980 and 1987, with 16 bilateral, there were 117 Peg and Hole Osteotomies performed. Age ranging from 10 to 85 with peaks at 3rd and 5th decades, 75% were between 40 and 70 years of age. Associated surgical procedures were done equally for 56 right and 61 left feet. Maximum number of associated procedures were as expected in the 5th decade. Most common of

these were Extensor Hallucis lengthening (E.H.L.), hammertoe correction, removal of Dorsal exostosis and osteotomy for D.Q.V. was next. A total of 119 procedures in 69 feet were recorded. These procedures helped the recovery, only moderately increasing the time. 7 patients with the inflammatory disease make a small group to draw any conclusions. Apart from a patient with Gout needing excision of Dorsal exostosis 4 years later, others seemed to have had satisfactory result.

SURGICAL TECHNIQUE IN DETAIL :

Under general anaesthesia in dry field, curved dorso-medial incision is used to expose the first metatarsal, metatarso-phalangeal joint (MPJ) capsule raising a subcutaneous flap protecting neurovascular structures. Periosteum is incised to expose the neck. A palpable dorsal exostosis may be excised by incising the capsule in the same line and if medial eminence excision is required, careful dissection of the capsule is necessary. Lateral soft tissue release was never attempted for fear of avascular necrosis and not found necessary to achieve desirable correction. Parallel cuts with oscillating saw in the cancellous part at the flare are made 3 mm. or 1/8 of an inch apart. The distal cut is completed from medial to lateral fashioning a square cortical peg dorsally and laterally. Smaller than the peg a hole is made in the cancellous cut surface of head medially and as plantar-wards as necessary. The head is displaced laterally to correct valgus and the round hole is impacted on the square peg. The head is then de-rotated to correct pronation or axial rotation

deformity. Holding the head in corrected position plantar flexing M.P.J. the osteotomy is transfixed with an oblique Kirschner wire. The wire is then turned further, impacting the osteotomy and cut below the dorsal surface and turned laterally on the capsule. The two point fixation secures the osteotomy. Lengthening of E.H.L. is done if necessary and wound is closed in layers. Padded bandage is applied with the toe held in corrected position.

Bonegrafting, using the bone chips has been used since mid 1987 and seems to facilitate healing clinically and radiologically.

The above procedure is carried out as a Day Surgery.

POST OPERATIVE CARE :

Mainly resting, with elevation of feet and ambulating indoors partial weight bearing is advised until the first change of dressing is done in approximately 2 weeks. Active and powerful dorsi-flexion is encouraged from the very beginning. Removal of sutures at first change of dressing is done to use sponge metatarsal pad and 2 inch tensor bandage. At the next attendance in 2 weeks, massage, warm soaks and exercise programme is started 5 minutes, three times a day at home. Near full weight bearing is allowed with a cane and X-ray is repeated in 6 weeks. Normal shoe wear is resumed as soon as the swelling goes down, barring high- heeled shoes. Return to work is in approximately 3 months but earlier and part-time resumption is possible with sedentary work. Oral pain medication is needed for a few days in immediate post- operative period.

The K-wire is removed as a minor procedure under general or local anaesthesia at the patient's convenience when the osteotomy has consolidated.

RESULTS :

Mild to severe H.V. with severe pronation seems to have been treated successfully. Follow up ranges from 6 months to 8 years. Presenting complaints of pain, deformity and inability to wear shoes were relieved universally. Associated procedures for existing deformity helped rehabilitation. Post operative metatarsalgia was not a problem unless pre-existing which was helped especially when other problems were

solved. Sometimes, in elderly people, warm soaks and exercises were needed for 6 months or more and soft arch supports were prescribed. For persistent swelling with poor circulation, Parke & Davis below-knee stockings were used. Night splint was used in a few cases for trial when the patient felt recurrence was eminent.

There were 14 complications in all, almost 12% but only 3 unsatisfactory outcome of 117 feet operated.

Occasionally, the K-wire turned medially needing earlier removal and in one case, pain from joint irritation was relieved upon removal. One non union healed satisfactorily with compression screw fixation. In one lady's right foot which was more painful than deformed left H.V., Hallux Rigidus developed in 8 years after surgery requiring fusion. Excision of dorsal exostosis was necessary in 5 out of 6 patients, one refused surgery and lost to follow up. There were no infections.

DISCUSSION :

Loss of corrected position even requiring manipulation and re- operation (Gibson and Piggott) and others assessing Chevron and Mitchell Osteotomy claim to be the main problem with metatarsal osteotomy for H.V. Two point fixation securing the correct position of osteotomy thus solves many problems. Apparent shortening by 3 mm. perhaps in corrected position may represent real lengthening. Advantages could be summarised. Bilateral simultaneous procedures are not recommended. There was one each, a male and a female patient in this series. Although credibility increases with the example of mother undergoing surgery for H.V. after her son's met. varus is corrected, it does not throw light on etiology.

Pedo-barograph, gait analysis and 10-15 years clinical and radiological follow up will answer other questions regarding the limits of this procedure and its effectiveness against the presence of degenerative changes, subluxation and gross deformity.

Contraindications remain as one can imagine local sepsis, neuropathic joints, previous surgeries (not a proven salvage procedure) and if general

expectations are poor with age and infirmity.

A 300 lb. lady with severe deformity and

phlebitis has done well with early ambulation. She

is looking for volunteers for other H.V. operation.

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