What's Afoot

HALLUX RIGIDUS

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Hallux rigidus results from degenerative changes at the first metatarsophalangeal joint (MPJ) which leads to a painful restriction in dorsiflexion of the hallux. Plantarflexion may also be restricted but dorsiflexion is the movement affected by the pathology. (Merriman and Tollafield, 1995)

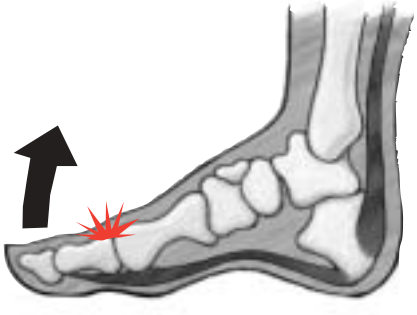

Figure 1: Hallux rigidus

SIGNS & SYMPTOMS

Patients present with pain and stiffness in the affected joint. Pain is exacerbated by walking and is usually of a deep aching nature. A dorsal exostosis may be evident and palpation of this and the surrounding joint may produce localised tenderness. Burning pain or paraesthesia may be present if the innervating nerves become irritated *(Camasta, 1996)*

The patient's gait frequently alters to compensate for the restriction in dorsiflexion. Normal gait requires approximately 60^{o} of first MPJ dorsiflexion. This motion is required during the propulsive phase and allows the body to move over the foot.

As the hallux dorsiflexes this causes the first ray to plantarflex to maintain forefoot stability. Therefore a restriction in dorsiflexion leads to the inability of the first ray to plantarflex. Thus causing medial instability and a decrease in the weightbearing load on the first ray. This encourages the weight to be transferred laterally (supination) and can lead to overloading of the lateral structures of the foot.

The predominant cause of Hallux limitus is a hypermobile first ray. (Although, a Dorsiflexed 1st Ray /Metatarsus Primus Elevatus deformity is a common predisposing factor - *see article on page 2 & 3*). The hypermobile first ray leads to the disruption of the normal function of the joint. The metatarsal head is compressed against the hallux and creates a jamming of the joint. *(Lorimer, French and West, 1997).* Constant repetition of these forces leads to the erosion of articular cartilage and leads to degeneration of the joint resulting in hallux rigidus.

ASSESSMENT

Evaluation of hallux rigidus is done with the first MPJ loaded to simulate weight bearing. The loaded joint is then put through its range of motion. This illustrates the limitation of dorsiflexion at the first MPJ and the degenerative joint changes including joint enlargement, lipping and crepitus which may also be present. The

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range and quality of motion provides an indication as to the degree of degeneration and the severity of the condition. This can be further evaluated with the use of radiographs.

TREATMENT

Conservative treatment is aimed at pain relief, joint preservation and correcting gait alterations. In acute cases strapping can be applied in order to immobilise the joint whilst orthotics are relied upon to manage the condition for the longer term. Orthotics stabilise the foot and control the primary cause of the deformity, hypermobility. Furthermore, they facilitate pain free movement of the joint and protect overloaded structures by correcting the biomechanics of the foot.

REFERENCES

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3. Lorimer, D.L., French, G. and West, S. (1997) Neale's Common Foot Disorders: Diagnosis and Management. Churchill Livingstone, Singapore