

Abstracts

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The winning paper was by Raymond McKenna on Muller-Weiss disease

MÜLLER WEISS DISEASE: RADIOLOGICAL EVALUATION AND PROPOSED TREATMENT ALGORITHM

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Introduction

Müller Weiss disease is becoming increasingly recognized and is of unknown etiology. Maceria et al. formulated a classification based upon the Méary-Tomeno talo-first metatarsal angle and coined the term ‘paradoxical pes planus varus’ proposing hallmark deformities. Acknowledging there is no gold standard for treatment, various surgical modalities have been advocated in the literature e.g. isolated lateral displacement calcaneal osteotomy as sole treatment. The question subsequently arises; which joints to fuse in Muller-Weiss disease? Although no consensus prevails, one must postulate fusion should include those affected. For the purpose of establishing an algorithm in the surgical treatment of Muller-Weiss disease, we therefore set out to study its clinical and radiographic features, including pathoanatomy and metabolism as determined by SPECT-CT.

Methods

We studied 63 consecutive feet presenting with Muller-Weiss disease (15 to 86 years, 18 men, 26 women). History and examination by consultant in all cases. Plain radiographs included standing anteroposterior both ankles, hindfoot alignment views, lateral standing of both ankles and feet, medial oblique both feet and dorsoplantar standing and SPECT-CT.

Surgery performed on significantly symptomatic feet unresponsive to minimum of six months conservative measures.

Méary’s talo-first metatarsal angles measured. On dorsoplantar radiographs the anteroposterior thickness of the navicular was measured at each naviculo-cuneiform joint

perpendicular to transverse axis of the medial pole of the navicular. The percentage compression was calculated at each joint and the degree of extrusion of the medial pole. Hindfoot alignment measured using method of Saltzman.

Study approved by our local research and ethics department and in accordance with General Data Protection Regulation guidelines. Statistical analysis was performed using SPSS software.

Results

Using R^2 coefficient of determination we found no correlation at any level between extrusion and the degree of compression. With respect to hindfoot alignment and Méary’s angle there was no significant correlation ($R^2=0.003$) Shapiro-Wilk test demonstrates a normal distribution of extrusion in both unilateral and bilateral cases. In 95.2% of unilateral cases extrusion significantly greater on affected side ($P<0.001$ Fisher exact test), in bilateral cases extrusion greater on the side with more compression 55.6%.

Degree of extrusion significantly greater in bilateral than in unilateral cases ($P=0.004$ unpaired T-test)

‘Paradoxical pes planus varus’ present in 27% with heel valgus and Méary’s negative in 47% cases. Almost half of patients treated conservatively consistent with literature with surgical intervention specific to involved joints from clinical and radiological parameters.

Conclusion

Lack of correlation between Méary angle and degree of compression or extrusion invalidates principle classification; it fails to reflect the severity of compression of the lateral navicular and amount of extrusion of the medial pole and has no prognostic value. It provides no guide as to what joints to fuse. Proposed hallmark deformities only present in 27% of advanced disease therefore caution advised with surgical modality. SPECT-CT influenced operative planning and authors advocate its use. We observed greater incidence of fracture with advanced disease and subclinical degenerative changes. With failed non-operative management figure 1 is our proposed treatment algorithm.



INTERMEDIATE TO LONG TERM FOLLOW UP OF HINTEGRA TOTAL ANKLE REPLACEMENTS

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Introduction

Degenerative changes at the tibiotalar joint affect 1% of adults. The optimal management is complex, arthrodesis traditionally is the reference standard. New generation total ankle replacements (TARs) in appropriately selected patients, have reported 10 year survival rates up to 89% from design centres, with good reported outcomes. We report multicentre, intermediate to long-term outcomes, of the Hintegra TAR.

Methods

This study utilised a prospective, nonrandomised observational approach to assess survival and revision rates, in all Hintegra TARs, performed in Musgrave Park and Altnagelvin Hospitals from 2004-2013. All procedures performed, by two fellowship trained foot and ankle consultants. Review clinics were established in 2018 to update patient history, clinical examination, radiographs, AOFAS hindfoot scores and Charlson Comorbidity Index (CCI). Radiographs were reviewed for evidence of loosening, by two authors who were blinded to clinical outcomes.

Results

Between 30/03/2004-18/01/2013 62 primary TARs were performed on 58 patients. Excluding the deceased (n=9) and those lost to follow up (n=1) our mean follow up was 12 years 3 months, average AOFAS score 78.

During the first 4 years 11/23 (48%) required additional surgery; reduced following a modification of the surgical technique. Our 5 and 10 year survival rates are 84% (52/62) and 71% (27/38) respectively.

Risk factors for revision include BMI > 30 (Chi-squared P=0.006), smoking history (Chi-Squared P=0.027) and lower ASA scores (One-way ANOVA P=0.034). No association between CCI and revision. Asymptomatic osteophyte formation and polyethylene wear noted after 8-10 years. 6.4% deep infection rate.

Conclusion

The Hintegra TAR is a good alternative in the management of ankle arthritis, providing good function and sustained pain relief in the intermediate to long term

Implications

We would stress the steep learning curve and the importance of achieving correct alignment to maximise longevity. Caution is advised in patients who are obese, smokers/ex and those with a high functional demand.

PES PLANUS AND TIBIOTALAR OSTEOCHONDRAL LESION: A FURTHER DIFFERENTIAL OF THE PAINFUL FLAT FOOT.

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Introduction

Pes planus is a common condition affecting approximately 12-14% of the population. Patients with pes planus commonly present with medial sided ankle and forefoot pain during weight bearing. Lateral ankle pain is generally seen in patients with more advanced disease. Osteochondral lesions (OCL's) of the head of the talus at the talonavicular joint are well described in this condition. However, despite the frequency of ankle pain as a presentation in this condition, no studies have yet sought to identify the prevalence of tibiotalar OCL's.

Methods

All Magnetic Resonance Imaging (MRI) studies requested for pes planus by a single Consultant Foot and Ankle Surgeon in a single institution over the past five years were reviewed to determine the co-existence of a tibiotalar osteochondral lesion (OCL). A subsequent chart review was performed on all patients with co-existent OCL's to determine the aetiology of pes planus and to determine other relevant past medical history such as ankle trauma. Exclusion criteria were patients with incomplete imaging or those who had recent ankle surgery in whom the altered signal on MRI obscured accurate interpretation of the tibiotalar chondral surface.

Results

54 patients were referred for an MRI of their foot and ankle, 11 of whom had an MRI of both feet. Of the 65 scans, 5 were excluded. Four MRI's had only included the foot and one patient had recent ankle surgery.

23 of the 59 patients who had an MRI of their foot and ankle for pes planus had an OCL, yielding a prevalence of 39.2% in this cohort.

The majority of osteochondral defects occurred on the medial talar dome with 14 of the 23 patients having medial talar dome OCL's, 9 had lateral talar dome OCL's and 5 had distal tibia OCL's.

Conclusion

Tibiotalar osteochondral lesions may partially account for the pain experienced by a substantial proportion of patients with pes planus deformity. The prevalence of this finding may also infer utility of Single-photon emission computed tomography (SPECT) scanning patients with pes planus who have ankle pain, to better delineate the patient's pain source prior to intervening surgically. Surgeons should consider out-ranging tibiotalar OCL's in patients with pes planus complaining of ankle pain as it may need consideration when planning treatment.



ASSESSMENT OF WEIGHT-BEARING VARIABILITY IN LOWER LIMB RADIOGRAPHS: IS WEIGHT-BEARING ACTUALLY WEIGHT-BEARING?

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Introduction

Weight-bearing radiographs are a critical modality in assessing various foot and ankle conditions. Several studies indicate the benefits of weight-bearing radiographs, to provide the most precise assessment of foot and ankle bony anatomy. We aimed to establish the proportion of bodyweight placed through the limb, when a weight-bearing radiograph was requested, with the presumption that greater than 75% satisfied a weight-bearing status

Methods

Twenty seven patients included with forty two radiographs taken (n=42). Data collection was over a one month period (Feb 2019), in a regional trauma centre. Non-weight-bearing views were excluded. Full body weight was recorded with subsequent measurements recorded at the time the weight-bearing radiograph. All measurements were obtained using the same set of scales. Percentage weight through the foot was calculated and compared to our 75% body weight standard.

Results

Mean percentage body weight was $79.7\% \pm 6.7\%$, with the median being 90.8%. 64% of radiographs were $\geq 75\%$ presumed body weight; with 52% being $\geq 90\%$ weight. Full weight-bearing of 100% occurring in 6/42 radiographs.

Conclusions

There are large degrees of variability in the weight applied to the injured limb during a weight-bearing radiograph. 64% of radiographs are over our standard of 75% body weight applied. Interpreting clinicians must be mindful to not assume satisfactory weight-bearing in all cases. A multitude of factors may influence this, including patient education, non-compliance, pain limitations, confounding patient factors (mobility, stability, visual impairment etc). This study raises points surrounding the evaluation of weight-bearing radiographs, including their accuracy, reliability and assumptions of interpreting clinicians.

THE ASSOCIATION OF HALLUX VALGUS, GASTROCNEMIUS TIGHTNESS AND GENU VALGUM: A PROSPECTIVE CASE-CONTROL STUDY.

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Introduction

There has been much debate regarding the aetiology and pathogenesis of hallux valgus and it appears to be multifactorial with contracture or tightness of the Achilles tendon and more specifically the gastrocnemius being implicated as an intrinsic factor. The purpose of this study was to look at the association between hallux valgus, gastrocnemius tightness and genu valgum.

Methods

Patients were divided into a case and control group, n=25 in each group. The case group observed adult patients who were referred primarily because of symptomatic hallux valgus and were assessed for the following: hallux valgus stage; presence or absence of isolated gastrocnemius tightness; presence or absence of genu valgum. The control group excluded those with pre-existing hallux valgus, genu valgum and rheumatoid arthritis and were assessed for isolated gastrocnemius tightness.

Results

There was a statistically significant association between the presence of genu valgum and hallux valgus when comparing both groups with a p value <0.001 . There was also a statistically significant association between: the Silfverskiöld test and the presence of hallux valgus; as well as the Silfverskiöld test and the presence of genu valgum with a p value <0.001 .

Conclusion

This study is the first to describe the association of hallux valgus, gastrocnemius tightness and genu valgum and further studies are required to assess this triad of association but knowledge and awareness of it can be applied by clinicians when considering the most appropriate management options with patients.

Keywords: Hallux Valgus; Gastrocnemius; Genu Valgum; Silfverskiöld;

Level of Evidence: 3

