ROLE OF MAGNETIC RESONANCE IMAGING IN EVALUATION OF POSTERIOR ANKLE IMPINGEMENT SYNDROME

Hesham Taha Kotb, Rehab Abd-Elaal Elnemr,* Rim Aly Bastawi, Ahlam Ahmed Mahmoud Abdelkader
Department of Radiodiagnosis and Intervention, of Physical Medicine, Rheumatology and Rehabilitation,* Faculty of Medicine, Alexandria University

Introduction

Ankle impingement syndromes refer to a chronic painful mechanical limitation of the ankle caused by soft tissue or osseous abnormalities. Posterior ankle impingement syndrome is a spectrum of clinical disorders characterized by posterior ankle pain during plantar flexion or hyper flexion. Posterior impingement syndrome is characterized by compression in the anatomic region between the posterior tibia and calcaneus during plantar flexion. It was described as “posterior block of the ankle joint” in a population of elite dancers. Also, it was termed “talar compression syndrome”. MRI can demonstrate osseous and soft-tissue edema in anterior or posterior impingement. MRI is the most useful imaging modality in evaluating suspected soft-tissue impingement or in excluding other ankle pathology such as an osteochondral lesion of the talus. MRI can reveal evidence of previous ligamentous injury and also can demonstrate thickened synovium, fibrosis, or adjacent reactive soft-tissue edema.

Aim of the Work

The aim of this work was to evaluate the role of Magnetic Resonance Imaging in assessment of posterior ankle impingement syndrome.

Patients and Methods

This current study was conducted on 29 patients referred from rehabilitation& physical medicine department clinically presented with posterior ankle pain.
After MRI examination 20 patients who had posterior ankle impingement syndrome were included in this study.
MRI examination of the ankle using different sequences and plans.
All the 20 patients were examined by MRI without indication of general sedation or contrast injection.

Results

Table: correlation between OS Trigonum with posterior talar aspect marrow edema and posterior ankle synovitis

MRI findings	OS. Trigonum				c^2	^{FE}p
	Absent (n=4)		Present (n=16)			
	No.	%	No.	%		
Posterior talar edematous marrow						
Absent	1	25.0	3	18.0	0.952	0.549
Present	3	75.0	12	75.0		
Posterior ankle synovitis						
Absent	0	0	0	0	0.220	1.000
Present	4	100	16	100		

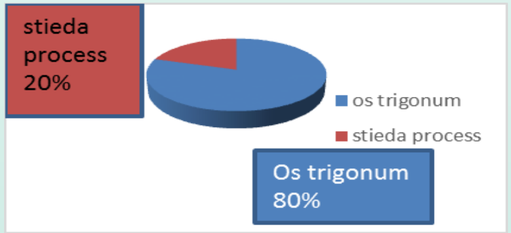
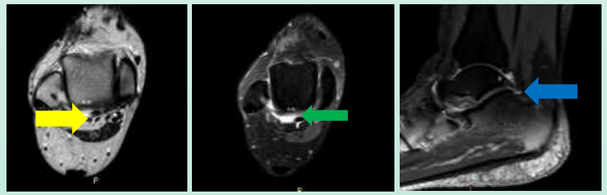
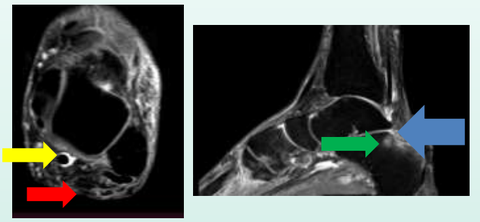


Figure 1:
Pie chart showing distribution of most common bonab abnormities among all studied patients



(A) (B) (C)

Figure 2: 33 Female patients presented with posterior right ankle pain MRI examination revealed; (A) axial T1 WI sequence showing mild flexor hallucis longus tenosynovitis (yellow arrow), (B) axial PDW FS sequence showing posterior ankle synovitis (green arrow) and (C) sagittal PDW FS sequence showing Os trigonum (blue arrow)



(A) (B)

Figure 3:
65 years old male patient presented with posterior ankle pain, MRI examination revealed; (A) axial PDW FS sequence showing flexor hallucis longus tenosynovitis (yellow arrow) and marked thinning of Achilles tendon (red arrow), (B) sagittal PDW FS sequence showing stieda process (blue arrow) with subchondral marrow edema of postero-superior aspect of calcaneus (green arrow)

Conclusion

MRI is helpful in identifying soft tissue abnormalities and associated pathologies.
MRI plays an important role in detecting PAI syndrome diagnostic criteria, depending on presence of bony abnormalities (Os trigonum or stieda process) with presence of posterior ankle synovitis.
MRI is useful in detecting osseous marrow edema pattern.