DIAGNOSIS OF ANKLE IMPINGEMENT SYNDROME WITH MAGNETIC RESONANCE IMAGING

Essay

Submitted for partial fulfillment of Master degree in

Radiodiagnosis

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2016

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List of Abbreviations

AT : Achilles tendon
ATFL : Anterior talofibular ligament
AITFL : Anterior inferior tibiofibular ligament
CFL : Calcaneofibular ligament
CT : Computed tomography
EDL : Extensor digitorum longus
EHL : Extensor hallucis longus
FDL : Flexor digitorum longus
FHL : Flexor hallucis longus
FR : Flexor retinaculum
ICNL : Inferior calcaneonavicular ligament.
IER : Inferior extensor retinaculum
ITFL : Interosseous tibiofibular ligament
LM : Lateral malleolus
MM : Medial malleolus
MRI : Magnetic resonance imaging
PB : Peroneus brevis
PL : Peroneus longus
PT : Peroneus tertius
PTF L : Posterior talofibular ligament
SER : Superior extensor retinaculum
STNL : superior talonavicular ligament
TA : Tibialis anterior
TCL : Tibiocalcaneal ligament
TNL : Tibionavicular ligament
TP : Tibialis posterior
TTL : Tibiotalar ligament
TTS : Tarsal tunnel syndrome

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Introduction

Introduction

Ankle impingement is a common condition occurring secondary to sprain or repeated micro-trauma.

Clinical symptoms are chronic pain located in the affected region and limited range of ankle motion.

Types of ankle impingement syndrome include: anterior impingement, which can be subdivided into anterolateral, anteromedial and anterior impingement; posterior impingement, which can be subdivided into posterior and posteromedial impingement. ***(Pesquer L., Guillo S. et al., 2014)***

These clinical abnormalities are related to interposition of more or less calcified synovial tissue in the joint space. They are often associated with bone and soft tissue abnormalities. ***(Pesquer L., Guillo S. et al., 2014)***.

Despite conventional radiography being usually the first imaging technique performed to assess any potential bone abnormalities, soft tissue affection usually escape and it has disadvantages of improper assessment of cartilaginous, ligamentous and tendinous lesions. ***(Dunfee et al., 2002)***

The CT scan can clearly distinguish osteophytes in cases with bony impingement. It is often the preferred method for identification of bony and arthritic changes if plain radiography is inadequate in evaluating these changes in detail. ***(Vaseenon T. and Amendola A., 2012)***

Ultrasonography is of low cost and noninvasive and can provide the experienced examiner with a wealth of additional information within a short time. It can demonstrate fluids, soft tissues, joints, and bony surfaces.

The power Doppler mode provides information on vascularity (e.g., angiogenesis in synovitis). But it is weak in: inability to penetrate bony or calcified structures, poor visualization of deeper structures and poorer lateral resolution than MRI, with comparable axial resolution. ***(Szeimies U. et al., 2015)***

Conventional MR imaging can accurately detect and localize anterior osteophytes and associated lesions. In addition, MR imaging provides an easy evaluation of any articular cartilage changes, ligamentous injury, and occult bony contusions, and it is also helpful in differentiating extra- from intraarticular causes of ankle impingement. The MR arthrography does not provide much additional

information to diagnose bony impingement. **(*Vaseenon T. and Amendola A., 2012)***

However, for the soft tissue impingement, MR arthrography is highly accurate in the assessment with a sensitivity of 96 %, specificity of 100 %, and an accuracy of 100% when clinical signs of anterolateral impingement are present. **(*Vaseenon T. and Amendola A., 2012)***

MRI aids in preoperative planning through identification of reactive synovitis and fibrosis, subchondral marrow edema, collateral ligament complex injury, osteochondral lesions, intra-articular bodies, or osteoarthritis. ***(Anderson R. et al., 2014)***

Aim of work

The aim of this study is to evaluate the role of magnetic resonance imaging in assessment of impingement syndrome of the ankle joint.

Anatomy Of The Ankle Joint