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Assessment of Injuries of Temporo-mandibular Joint by MRI

Thesis
Submitted for Partial Fulfilment of Master Degree in

Diagnostic Radiology

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Introduction

Introduction

TMJ is the most frequently widely used in the body, for example in chewing and talking. Injuries of TMJ is a common condition affecting around 28% of population. The incidence of TMJ disorders are highly reported on female and the ratio may reach up to 8:1 compared to male. Moreover, the symptoms may present between 20 – 50 years of age in most patients. (Solberg, Woo et al. 1979, Wilkes 1989, Martins-Júnior, Palma et al. 2010)

TMJ injuries or disorders are musculoskeletal degeneration with association of functional and morphological conditions either caused by abnormalities of TMJ components or related to structures such as ligaments, muscles, periodontal tissue and teeth. (Laskin, Greenfield et al. 1983, Zarb and Carlsson 1999)

Internal derangement (ID) is the most common TMJ disorder. It may affect around 70% of patients. It characterized by dislocated disc or pathology (Farrar and McCarty 1979). Other causes of TMJ injuries including, osteoarthrosis, inflammatory condition such as juvenile inflammatory arthritis and rheumatoid arthritis, trauma, and rarely development abnormalities, and neoplasms. (Westesson 1993). Factors such as trauma, occlusal abnormalities, sleep abnormality, systemic predisposing factors, para functional habits and psychosocial deleterious changes, considered as risk factors of TMJ disorders. (Carrara SV 2010, Hunter and Kalathingal 2013)

Signs of TMJ disorders may be present as muscular or joints pain, limitation of mouth activities, or clicking sounds usually painless. The patients suffer from pain or clicking sound during mouth opening or closing movement, limitation of jaw opening and TMJ locking, migraine,

headache, or pain around the era. Sometimes especially in early stages of TMJ disorders, the patients may be asymptomatic. (Westesson 1993)

MRI is the modality of choice for diagnosis of TMJ injuries because of its ability for better visualization of small structure of TMJ component as retrodiscal layer and lateral pterygoid attachment, also MRI can evaluate the morphological state of TMJ and analysis of dynamic process (it is pseudo dynamic MR imaging obtained from serial multiple static images).

Other advantages of MRI include, detection of soft tissue changes, necrosis, joint effusion, and bone marrow abnormalities, non-invasive procedure, no risk of radiation exposure, diagnostic accuracy, high sensitivity and specificity. MRI is the most advanced imaging modality of choice for diagnosis of TMJ injuries or disorder and the gold standard in disc displacement diagnosis.(Tomas, Pomes et al. 2006)

Chapter 1
TMJ Anatomy