



TEMPOROMANDIBULAR JOINT (TMJ) DISORDERS

- Temporomandibular joint (TMJ) disorders is an umbrella term used to describe many conditions with differing aetiologies that cause pain and dysfunction of the TMJ and structures related to mastication. [1](#)
- It can be broadly categorised into 2 groups:
 - Intracapsular disorders: synovitis, osteoarthritis, inflammatory arthritides, and displacement of the articular disc
 - Extracapsular disorders: myofascial pain involving the muscles of mastication, trigeminal neuralgia

PANORAMIC RADIOGRAPHY (OPG)

- Used to detect gross osseous abnormalities and dental disease. [2](#)
- Limited value for diagnosis of specific conditions causing temporomandibular joint dysfunction because mild degenerative disease is seen equally in symptomatic and asymptomatic people. [3](#)



- Not recommended as a routine investigation in all patients who present with TMJ symptoms. Only patients with clinical evidence of significant TMJ disease or a lack of response to conservative management should have an OPG. [4](#)

MAGNETIC RESONANCE IMAGING

- Largely replaced arthrography as the imaging modality used to assess the location and morphology of the intra-articular disc. [1](#)
- Superior to radiography and computed tomography for soft tissue definition, and considered the modality of choice for assessing both soft and hard tissues of the TMJ. [5](#)
- MRI can detect anterior displacement of the intra-articular disc with a sensitivity and specificity of 86% and 63% respectively. For sideways and rotational disc displacement the sensitivity and specificity is 81% and 87% respectively [6](#)
- Most studies are limited because surgery is not optimal as a gold standard due to the small surgical incision, and difficulties in observing medial and lateral disc displacement. A study of the accuracy of MRI for TMJ autopsy specimens revealed an accuracy of 95% for disc morphology and position, and 93% for osseous conditions. [1,7](#)
- Correlation with symptoms is essential, as TMJ disc displacement is present in up to 35% of asymptomatic individuals. [8](#)

COMPUTED TOMOGRAPHY

- Limited accuracy to detect intra-articular disc morphology and position, however studies using multi-detector CT have not been published. [1,9](#)
- For anterior displacement of the intra-articular disc CT has a sensitivity and specificity of 66% and 68% respectively. For sideways and rotational disc displacement the sensitivity and specificity is 64% and 83% respectively. [6](#)
- Not recommended as a first line investigation for TMJ disorders. [9](#)
- Good accuracy for diagnosing osseous abnormalities, including advanced degenerative joint disease and ankylosis. [9](#)

REFERENCES

1. Westesson P-L. **Reliability and Validity of Imaging Diagnosis of Temporomandibular Joint Disorder.** Adv Dent Res 1993;7:137-51. (Review article)
2. Scarfe WC. **A common sense approach to TMJ and implant imaging.** Ann Roy Australas Coll Dent Surg 1998;14:48-61. (Review article)





3. Crow HC, Parks E, Campbell JH, Stucki DS, Daggy J. **The utility of panoramic radiography in temporomandibular joint assessment.** Dentomaxillofacial Radiology 2005;34:91-95. (Level III evidence)
4. Epstein JB, Caldwell J, Black G. **The utility of panoramic imaging of the temporomandibular joint in patients with temporomandibular disorders.** Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2001;92:236-9. (Review article).
5. Tognini F, Mandredini D, Melchiorre D, Bosco M. **Comparison of ultrasonography and magnetic resonance imaging in the evaluation of temporomandibular joint disc displacement.** J Oral Rehabilitation 2005;32:248-53. (Level III evidence)
6. Liedberg J, Panmekiate S, Petersson A, Rohlin M. **Evidence-based evaluation of three imaging methods for the temporomandibular disc.** Dentomaxillofac Radiol 1995;25:234-41. (Level II/III evidence)
7. Tasaki MM, Westesson P-L. **Temporomandibular Joint: Diagnostic Accuracy with Sagittal and Coronal MR Imaging.** Radiology 1993;186:723-9. (Level III evidence)
8. Larheim RA, Westesson P-L, Sano T. **Temporomandibular Joint Disk Displacement: Comparison in Asymptomatic Volunteers and Patients.** Radiology 2001;218:428-32. (Level III evidence)
9. Dixon DC. **Radiographic Diagnosis of Temporomandibular Disorders.** Semin Orthod 1995;1:207-21. (Review article)

Website

For more information go to www.imagingpathways.health.wa.gov.au

Copyright

© Copyright 2007, Department of Health Western Australia. All Rights Reserved.

This web site and its content has been prepared by The Department of Health, Western Australia. The information contained on this web site is protected by copyright.

Legal Notice

Please remember that this leaflet is intended as general information only. It is not definitive and The Department of Health, Western Australia can not accept any legal liability arising from its use. The information is kept as up to date and accurate as possible, but please be warned that it is always subject to change.

