

# Diagnostic Imaging Pathways - Temporomandibular Joint Disorders

## Population Covered By The Guidance

This pathway provides guidance on the imaging of adult patients with suspected temporomandibular joint disorders.

**Date reviewed: August 2013**

**Date of next review: 2017/2018**

**Published: May 2013**

## Quick User Guide

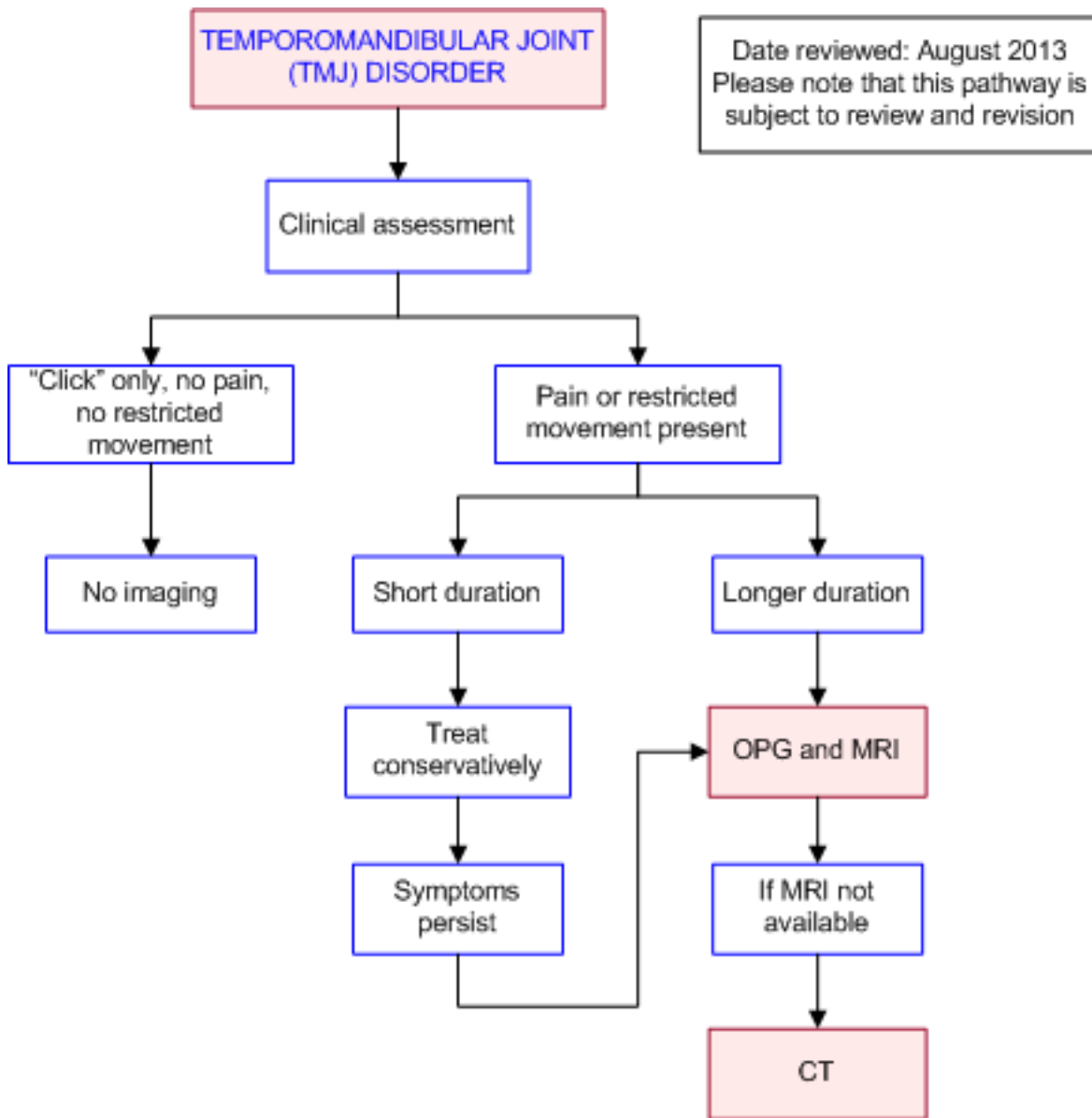
Move the mouse cursor over the **PINK** text boxes inside the flow chart to bring up a pop up box with salient points.

Clicking on the **PINK** text box will bring up the full text.

The relative radiation level (RRL) of each imaging investigation is displayed in the pop up box.

SYMBOL	RRL	EFFECTIVE DOSE RANGE
	None	0
	Minimal	< 1 millisieverts
	Low	1-5 mSv
	Medium	5-10 mSv
	High	>10 mSv

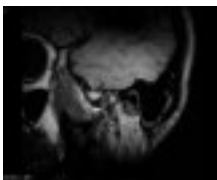
## Pathway Diagram



## Image Gallery

*Note: These images open in a new page*

1a



### Intracapsular Temporomandibular Joint Disorder

Image 1a and 1b (Magnetic Resonance Imaging): Sagittal proton density image of the right TMJ with mouth closed showing anteriorly displaced degenerate articular disc (Image 1a). This fails to recapture in open mouth series (Image 1b) (arrow).

1b



## Teaching Points

- A term used to describe many conditions that cause pain and dysfunction of the Temporomandibular Joint (TMJ) and structures related to mastication
- Only patients with clinical evidence of significant TMJ disease or a lack of response to conservative management should have an OPG
- MRI is the modality of choice for the assessment of both soft and hard tissues of the TMJ

## 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](#)

## 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](#)

## 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](#)

## Temporomandibular Joint Disorder (TMJ)



- TMJ disorder 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

## References

Date of literature search: April 2013

The search methodology is available on request. [Email](#)

References are graded from Level I to V according to the Oxford Centre for Evidence-Based Medicine, Levels of Evidence. [Download the document](#)

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- [2.](#) Scarfe WC. **A common sense approach to TMJ and implant imaging.** Ann Roy Australas Coll Dent Surg. 1998;14:48-61. (Review article)
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- [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 Rehabil. 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 umaging.** 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)

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