Anterior displacement of the temporomandibular joint disc
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Patient: 45 years, female

Clinical History:
A patient with a history of pain and discomfort in both her temporomandibular joints underwent MR examination.

Imaging Findings:
The patient presented with a long history of slight pain and clicking sounds in both her temporomandibular joints (TMJ). The symptoms worsened in the last months and were prevalent on the left side. Moreover the patient complained of functional limitation on opening her mouth. So, she was referred to our institution to undergo magnetic resonance (MR) examination. This examination depicted anterior displacement of the disc of both her TMJs. Opening the mouth, the right disc was recapture, while the left disc remained displaced. Bilateral joint effusion was noted too.

Discussion:
Internal derangement of the TMJ is a condition characterized by an abnormal position of the TMJ disc with anomalous relationship between the disc and the articulating surfaces. It is a common pathologic condition affecting females more frequently than males. The etiology of this disorder is not clear. Ligamentous laxity, retrodiscal rents, trauma and degenerative process are contributing factors. Only 20-30% of affected people are symptomatic, and progression to severe bone changes is noted in only a subset of these patients. The presence of symptoms is more likely with complete disc displacement than with partial one. Disc displacement can be unidirectional or multidirectional, partial or complete, and with or without disc recapture during jaw opening. Unidirectional anterior disc displacement is the most common type of internal derangement and is diagnosed on sagittal images with the jaw in the closed position when the posterior band is more ventral than 11 o’clock position. Sagittal scans are useful also to depict the unidirectional posterior displacement (posterior band located more dorsal than the 13 o’clock position), that is the rarest disc displacement. The unidirectional transverse (lateral or medial) displacements are uncommon and are diagnosed on coronal images when the lateral or medial borders of the disk extend beyond the border of the condylar head. The multidirectional (anteromedial and anterolateral) disc displacement are not uncommon and are characterized by the combination of signs of unidirectional ones. Disc displacement can be divided into partial and complete. In partial displacement the disc remains in contact with the articular surface of the condylar head, while when this relationship is lost the disc displacement is complete. The disc reduction or recapture occurs when the displaced disc regains its normal position between the articulating surfaces during the jaw opening. In multidirectional displacement, the disc may or may not replace in one or both planes. The absence of disc recapture indicates a more severe damages to attachments, capsule and ligaments of the TMJ. Disc displacement can cause degenerative disc and bone changes (disc morphology and signal intensity changes, disc perforation,
subchondral sclerosis, cyst formation, and osteophyte formation). Asymptomatic disc displacement does not need
treatment. Intraoral splints and anti-inflammatory drugs allow reducing pain and functional restriction. Surgical
procedures, like disc plication and total discectomy with implants, might improve clinical conditions in patients with
severe complaints.

**Differential Diagnosis List:** Anterior displacement of the temporomandibular joint disc.

**Final Diagnosis:** Anterior displacement of the temporomandibular joint disc.

**References:**


Wilkes CH. Internal derangements of the temporomandibular joint: pathologic variations. Northwest Dent 1990;
69(2):25-32. (PMID: 2381794)

Larheim TA, Westesson PL, Sano T. Temporomandibular joint disc displacement: comparison in asymptomatic
Description: Oblique sagittal proton density-weighted MR image in closed mouth position. The disc is located slightly anterior to the condylar head, but it remains in contact with its articular surface. Small effusion is depicted. Origin:
Description: Olique sagittal proton density-weighted MR image in opened mouth position. The disc regains its normal position between the articulating surfaces. Origin:
Description: Oblique sagittal proton density-weighted MR image in closed mouth position. The disc has a crumpled appearance and is located anterior to the condylar head, losing contact with its articular surface. Large effusion is depicted. Origin:
Description: Oblique sagittal proton density-weighted MR image in open mouth position. The disc does not regain its normal position between the articulating surfaces. Origin: