

Ultrasound Imaging for Temporomandibular Joint Disc Anterior Displacement

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Temporomandibular joint (TMJ) disc anterior displacement is the most prevalent cause of temporomandibular disease (TMD). We describe ultrasonographic imaging of a case of TMJ disc anterior displacement with reduction.

A healthy 29-year-old woman had a 13-year history of intermittent pain and a snapping sensation in both her cheeks. Her symptoms gradually deteriorated, and 3 years previously, she developed jaw locking while opening her mouth. Physical examination revealed palpable clicks over the bilateral TMJs while opening and closing the jaw. Ultrasonography (US; 10–14 MHz linear probe; Siemens, Germany) showed a hypoechoic disc that lays superior and anterior to the mandibular condyle when the jaw was closed [Figure 1a]; this finding was indicative of anterior subluxation of the TMJ. The disc shifted posteriorly and disappeared from the US imaging field when the jaw was opened [Figure 1b]. Dynamic scanning revealed an abrupt recession of the disc during jaw opening and abrupt reduction during jaw closing [Video 1].

The TMJ is a sliding hinge joint between the mandibular condyle and mandibular fossa of the temporal bone. The TMJ contains an articular disc, which is a flexible and elastic cartilage serving as a cushion between the two bones. TMD is a common disorder of the TMJ and affects approximately 6% of the population.^[1] Internal derangement is the most prevalent cause of TMD, and anterior disc displacement, caused by laxity of the capsule or degeneration of the disc, is the most common type of internal derangement.^[2] Disc displacement can be classified as displacement with reduction (intermittent jaw locking may be present) or without reduction (limited jaw opening may occur).^[3] In our patient, the anteriorly displaced disc hindered the

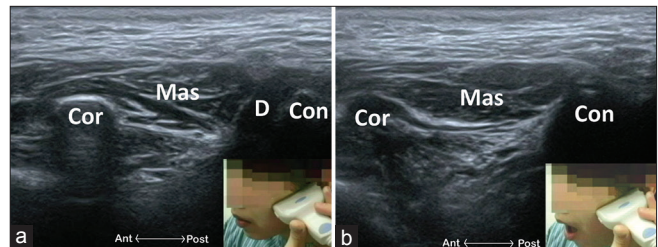


Figure 1: Ultrasound imaging of the articular disc at the temporomandibular area. The probe was placed in a transverse plane slightly anterior to the temporomandibular joint. (a) When the jaw was closed, the articular disc, a hypoechoic structure, was located anterior to the mandibular condyle. (b) When the jaw was opened, the disc shifted superiorly and posteriorly and disappeared from the ultrasonography imaging field. Mas: masseter, Cor: Coronoid process of mandible, Ant: Anterior, Post: Posterior, D: Articular disc, Con: Mandibular condyle

transition of the mandible during jaw movements and caused intermittent locking and snapping when opening and closing the jaw.

Most TMDs respond well to conservative treatments, but surgery may be necessary if conservative treatments fail. In addition to clinical history and physical examination, imaging modalities are important aids in diagnosing TMDs. Magnetic resonance imaging (MRI) has the highest sensitivity, specificity, and accuracy in diagnosing TMD. The disadvantages of MRI include inadequate availability, long examination time, and high costs.^[2] Computed tomography offers a fine depiction of bony structures but is subject to radiation exposure.^[2] US is readily available, cheap, and portable and offers a fine resolution of soft tissue. In a meta-analysis,^[4] US imaging had sensitivities of 72%–83% and specificities of 85%–90% for diagnosing TMD. Most importantly, US enables dynamic examination and can offer real-time guidance for injection, if needed.^[5] The present case highlights the important role of dynamic US in detecting the snapping of the TMJ articular disc. US can aid in confirming the diagnosis and making clinical decisions.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other

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clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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