Temporal mandibular 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. 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. Disc displacement can be classified as displacement with reduction (intermittent jaw locking may be present) or without reduction (limited jaw opening may occur). In our patient, the anteriorly displaced disc hindered the 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. Computed tomography offers a fine depiction of bony structures but is subject to radiation exposure. US is readily available, cheap, and portable and offers a fine resolution of soft tissue. In a meta-analysis, 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. 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
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.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

Address for correspondence: Dr. Ming-Yen Hsiao, Department of Physical Medicine and Rehabilitation, National Taiwan University Hospital, Taipei, Taiwan. E-mail: myferrant@gmail.com

REFERENCES
1. Macfarlane TV, Blinkhorn AS, Davies RM, Kincey J, Worthington HV. Oro-facial pain in the community: Prevalence and associated impact. Community Dent Oral Epidemiol 2002;30:52-60.

2. Li C, Su N, Yang X, Yang X, Shi Z, Li L. Ultrasonography for detection of disc displacement of temporomandibular joint: A systematic review and meta-analysis. J Oral Maxillofac Surg 2012;70:1300-9.

3. Young AL. Internal derangements of the temporomandibular joint: A review of the anatomy, diagnosis, and management. J Indian Prosthodont Soc 2015;15:2-7.

4. Dong XY, He S, Zhu L, Dong TY, Pan SS, Tang LJ, et al. The diagnostic value of high-resolution ultrasonography for the detection of anterior disc displacement of the temporomandibular joint: A meta-analysis employing the HSROC statistical model. Int J Oral Maxillofac Surg 2015;44:852-8.

5. Levorova J, Machon V, Hirjak D, Foltan R. Ultrasound-guided injection into the lower joint space of the temporomandibular joint. Int J Oral Maxillofac Surg 2015;44:491-2.

How to cite this article: Tu KH, Chuang HJ, Lai LA, Hsiao MY. Ultrasound imaging for temporomandibular joint disc anterior displacement. J Med Ultrasound 2018;26:109-10.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.