The identification of monosodium urate (MSU) deposits within the synovium in gout is well known by arthroscopic and pathologic descriptions\(^1,2\). However, this has not been systematically studied by ultrasound (US). Most studies about US and crystal-related arthritis have focused on the appearance and location of the crystal aggregates either within or on the surface of the cartilage. In gout, deposits appear as a hyperechoic enhancement on the surface of the articular cartilage called the “double contour” sign\(^3\).

Two patients with gout that disclosed MSU crystals in the synovial fluid and synovium biopsies are presented. A characteristic “double contour” sign and deposits on the synovium were identified by US.

The first patient, a 47-year-old male, underwent arthroscopy because of a hypertrophic mediopatellar plica. A sonographic study performed 1 week earlier revealed several bright hyperechoic dots within the synovial effusion (Figure 1a). The arthroscopy also showed tophaceous material free-floating within the fluid (Figure 1b).

The second patient, a 51-year-old male, underwent arthroscopy for a meniscal injury. The imaging showed diffuse granular tophaceous deposits in the synovium (Figure 2a). In a sonographic study performed 2 weeks later, multiple nonshadowing hyperechoic dots in the synovium were observed at the lateral recess (Figure 2b).

Although this sonographic image of the synovium is not specific for gout\(^4,5\), it reinforces the presence of the “double contour” sign, particularly in any circumstances in which arthrocentesis is not an option. The presence of synovial deposits warrants a sonographic examination, including examination of other joints, looking for cartilage aggregates. Future studies about sonomorphologic aspects of the synovium in crystal-induced arthritis are needed.

REFERENCES
Figure 2. Panel a. An arthroscopic view of the lateral recess showing a gout tophus in the hyperemic synovium. Panel b. Transverse sonographic view of the same area shows nonshadowing hyperechoic dots within a hypertrophic synovium (Syn.), surrounded by a moderate amount of fluid (e).