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Rotator cuff calcific tendinitis (RCCT) is a very common pathology, which presents in up to 3–20% of asymptomatic adults and up to 7–54% of patients with shoulder pain, caused by the deposition of calcium in the rotator cuff tendons. Etiopathogenesis of RCCT remains a debatable topic with multiple theories proposed, including active cell-mediated process by chondrocytes that arise from metaplasia. RCCT can be divided into the precalcific, calcific and postcalcific stages. The calcific stage can be further divided into the formative, resting, and resorptive stages. In the precalcific stage, tendon metaplastic transformation in fibrocartilaginous tissue acts as a substrate for calcific deposits. In the calcific formative stage, there is formation of single or multiple crystal deposition inside the tendon. In the calcific resorptive stage, an increase in vascularity and edematous infarction is seen with macrophages' phagocytosis of deposits; the resorptive stage is usually associated with acute symptoms due to the edema, which causes increased intratendinous pressure and, in some cases, the extravasation of crystals in the subacromial subdeltoid bursa. In the postcalcific stage, self-healing tendon repair by fibroblast occurs; patients may present severe pain with reduction of range of motion. Gärtner and Heyer proposed a radiographic classification based on the morphological appearance of the calcification, identifying three types: (I) sharply defined and dense, (II) ill-defined/dense or sharply defined/inhomogeneous-less radiodense, and (III) translucent and cloudy appearance with vague border. Calcifications with a well-defined, homogeneous contour are less likely to be symptomatic and may correlate with the formative or resting phase. Deposits with fluffy, hazy, ill-defined edges are often seen in patients with acute pain and may correlate with the resorptive phase. Chiou et al. proposed an ultrasound classification of calcific deposits into four shapes: (I) an arc shape, (II) a fragmented or punctate shape, (III) a nodular shape, and (IV) a cystic shape. Severe symptoms are associated with non-arc shape calcifications, hypervascularity, and widening of subacromial subdeltoid bursa, suggesting the resorptive stage. Identifying the resorptive phase is important for management as these deposits are nearly liquid and can be successfully aspirated. Although RCCT is a self-limiting disease, because of severe pain, it can require treatment such as non-steroidal anti-inflammatory drugs, physical therapy, subacromial corticosteroid injection, extracorporeal shock wave therapy, and ultrasound guided percutaneous lavage (single- and double-needle technique). Ultrasound guided percutaneous lavage is minimally invasive and is considered a safe procedure with a low complication rate. It is an effective treatment for RCCT in the majority of patients in terms of clinical pain relief and calcification clearance. Calcific deposits do not always need to be removed completely during a lavage procedure to achieve successful outcomes, because a new window made by a needling itself stimulates natural absorption of calcific deposits.