

Calcium pyrophosphate dihydrate crystal deposition disease in shoulder soft tissues: a morphological investigation

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Calcium pyrophosphate dihydrate crystal deposition disease (CPPD) is a rheumatological disorder featured by the presence of calcifications in the soft tissues (1). CPPD onset is strictly correlated to aging, the most relevant risk factor together with previous joint trauma. Knee and articular cartilage are respectively the most affected joint and tissue, even if this kind of disorder may also affect other anatomical areas (2, 3). The aim of the study is to investigate calcium crystal distribution and their interaction with cell behavior in glenohumeral joint. Specimens were withdrawn from patients with CPPD during shoulder arthroplasty, and then processed for morphological analysis. Humeral articular cartilage, joint capsule and long head of biceps brachii tendon sheath seem to reveal a relationship between crystal sediment position and cellular impairment. In particular, close to crystal deposits, chondrocytes and fibroblasts show necrotic features, such as chromatin changes, numerous vacuoles, swollen organelles, plasmatic and nuclear membrane rupture. On the other hand, cells far from crystals display a good vitality, as shown by well preserved cytoplasm and nucleus. These findings reveal how crystal deposits appear to affect cell behavior, suggesting a possible relationship between calcium crystals accumulation and cell death.

References

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Key words

CPPD, calcium crystals, shoulder.