# Subaxial isolated anterior osteophyte fracture

A study aimed to retrospectively distinguish true- from false-positive fractures of anterior subaxial cervical osteophytes, which were reported on noncontrast computed tomography reports, and to correlate the imaging findings with patient symptoms and analyze the downstream impact on management of both true and false positive fractures.

Methods: A total of 127 patients had computed tomography reports of anterior osteophyte fractures. Radiology reports and imaging studies were evaluated to distinguish true fractures from fracture mimics. We analyzed imaging features including rigid spine (RS), prevertebral soft tissue swelling (PVSTS), and instability. We categorized symptoms and examination findings into 3 groups (0, asymptomatic; 1, neck pain; 2, neurological symptoms). Management was categorized into 3 groups (0, no treatment; 1, external bracing; 2, surgery). Associations between imaging features, fracture classification, clinical symptoms, magnetic resonance imaging utilization, and management were calculated using $\chi 2$ with Cramer V test to determine effect size.

Results: Eighty patients had false-positive fractures, and 47 were true positive. There were significant associations between magnetic resonance imaging utilization and fracture classification ($P \leq 0.001$), PVSTS ($P \leq 0.005$), patient symptoms ($P \leq 0.001$), and patient management ($P \leq 0.001$). There were significant associations between patient management and fracture classification ($P \leq 0.001$), patient symptoms ($P \leq 0.001$), PVSTS ($P \leq 0.001$), imaging findings of instability ($P \leq 0.001$), and RS ($P \leq 0.021$). There were significant associations between fracture classification and patient symptoms ($P \leq 0.045$), and RS ($P \leq 0.006$).

Conclusions: Subaxial isolated anterior osteophyte fractures fell into 3 major categories. By our methodology, if a suspected fracture was determined to be a fracture mimic in an asymptomatic patient, it was unlikely to be clinically significant. Isolated anterior osteophyte fractures without neurological symptoms or more concerning imaging findings can be treated conservatively. Finally, fractures that demonstrate indirect signs of instability or are associated with RS are more associated with surgical management [1)]

1)
Rao D, Godreau JP, Jenson M, Rahmathulla G, Fiester P, Patel J, Hernandez M. Can Anterior Osteophyte Fractures Be Distinguished From Fracture Mimics in the Subaxial Cervical Spine? A Retrospective Analysis Evaluating Reported Fractures With Clinical Management Correlation. J Comput Assist Tomogr. 2023 May-Jun 01;47(3):460-466. doi: 10.1097/RCT.0000000000001445. PMID: 37185011.