Safety and accuracy of arthroscopic medial glenohumeral ligament and subscapularis tendon repair using knotless anchors: a cadaveric study in dogs

Summary / Zusammenfassung
Medial shoulder instability (MSI) is commonly associated with medial glenohumeral ligament (MGHL) and subscapularis tendon tears. The goal of the study is to test safety of a new arthroscopic technique to treat MSI.

The arthroscopic technique includes an imbrication of the MGHL and subscapularis tendon. Two single horizontal mattress sutures are secured to the glenoid at the insertion points of of the MGHL using PushLock anchors loaded with LabralTape or FiberWire. A SpeedFix single row suture is anchored to the humerus at the footprint of the subscapularis tendon using a SwiveLock anchor and FiberTape. Safety of the technique will be tested in 10 cadaveric shoulders by measuring the safety angle, insertion angle and bone thickness around the anchors with Computer tomography.

The aims of the study are:
1. To evaluate the safety of inserting glenoid and humeral knotless anchors through arthroscopic ports by measuring the thickness of the bone around the bone anchors and the angle of the anchor relative to the joint surface.
2. To evaluate the accuracy of bone anchor insertion by measuring the position of the anchor relative to the footprint of the MGHL and the subscapularis tendon.
3. To evaluate the angle of insertion of bone anchors relative to the articular surface.

We hypothesize that:
1. Anchors inserted in the caudal glenoid and humerus are safer (greater bone stock) than anchors in the cranial glenoid.
2. Anchors inserted through a cranio-medial and a caudal-medial arthroscopy ports can be positioned with high accuracy (>90% of anchors) in the footprints of the MGHL and subscapularis tendon.
3. Anchors inserted through cranio-medial and caudal-medial arthroscopy ports are inserted at 45° to 90° relative to the articular surface as recommended for rotator cuff repair in people.

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