Arthroscopic Release of the Stiff Elbow

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The combined loss of elbow extension and supination of the forearm has an additive effect on the performance of activities that require power for total use.

Goal of treatment

To achieve a functional range of motion

(30–130 degrees)

Surgical Treatment: Indications

- ✓ Extrinsic elbow stiffness caused by capsular contracture.
- ✓ Intrinsic elbow stiffness caused by osteophytes.
- ✓ Patients who have not regained the requisite motion for their vocational needs and lifestyle demands after a trial of nonsurgical treatment.

The Two Commandments

I. Extrinsic contractures need resection of the contracted structures.

II. Intrinsic contractures may require alteration of the articular anatomy.

Strict contraindications

Previous submuscular ulnar nerve transposition

Circumferential Capsular Release: Relative Contraindications

- Surgeon inexperience
- Patient reluctance to perform rehabilitation
- Moderate to severe intra-articular deformity
- Extra-articular deformity/malunion or HTO that will preclude functional recovery of acceptable motion arc
- Elbow instability
- Pain throughout arc of flexion-extension
- Loss of ulnohumeral joint space
- Anterior subcutaneous ulnar nerve transposition

Level of Experience

Early

Diagnostic arthroscopy
Loose body removal
Plicae excision
Lateral epicondylitis release

Advanced

- Synovectomy
- Capsulotomy
- Radial head excision
- Debridement of OCD

Most experienced only

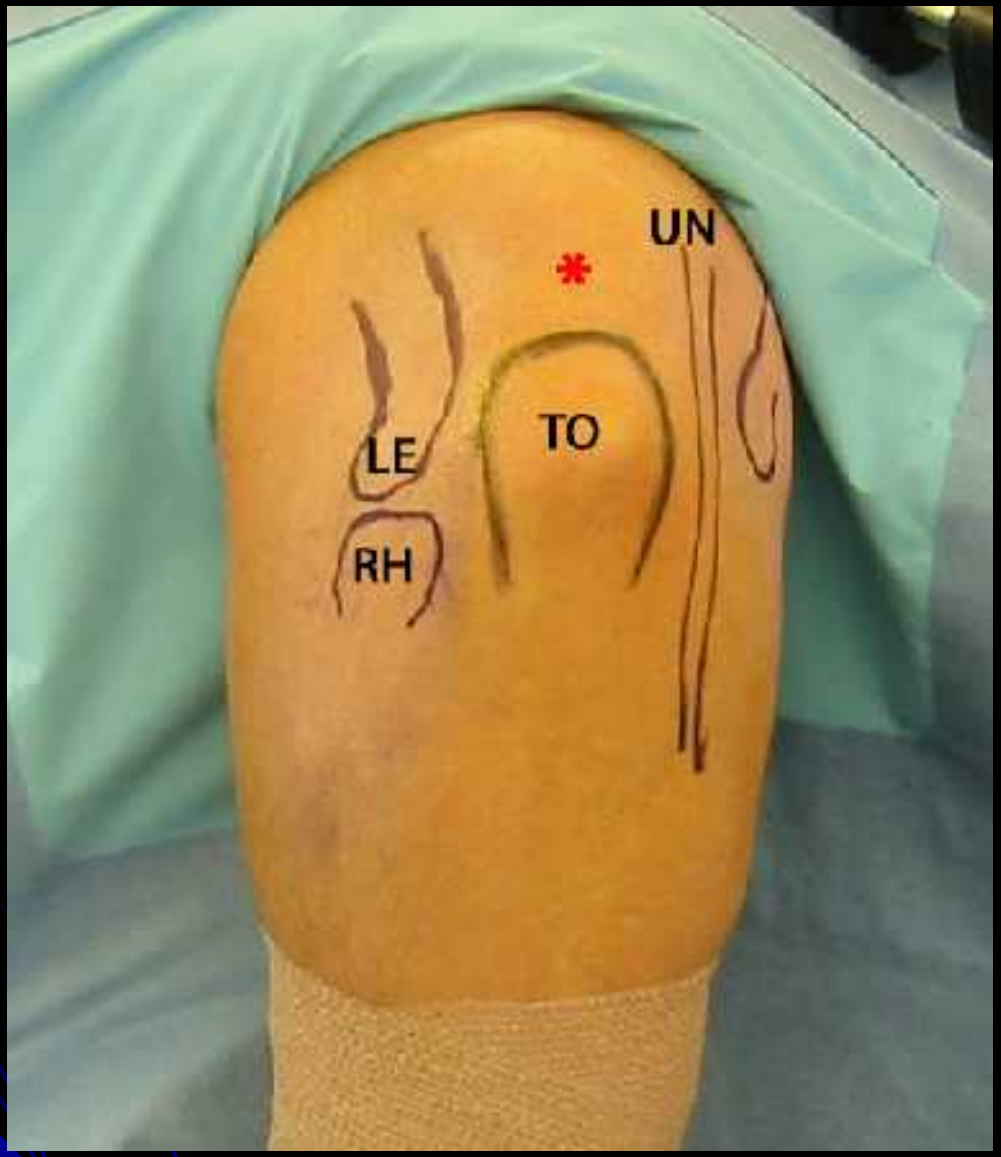
- Capsulectomy
- Osteocapsular arthroplasty
- Fracture fixation

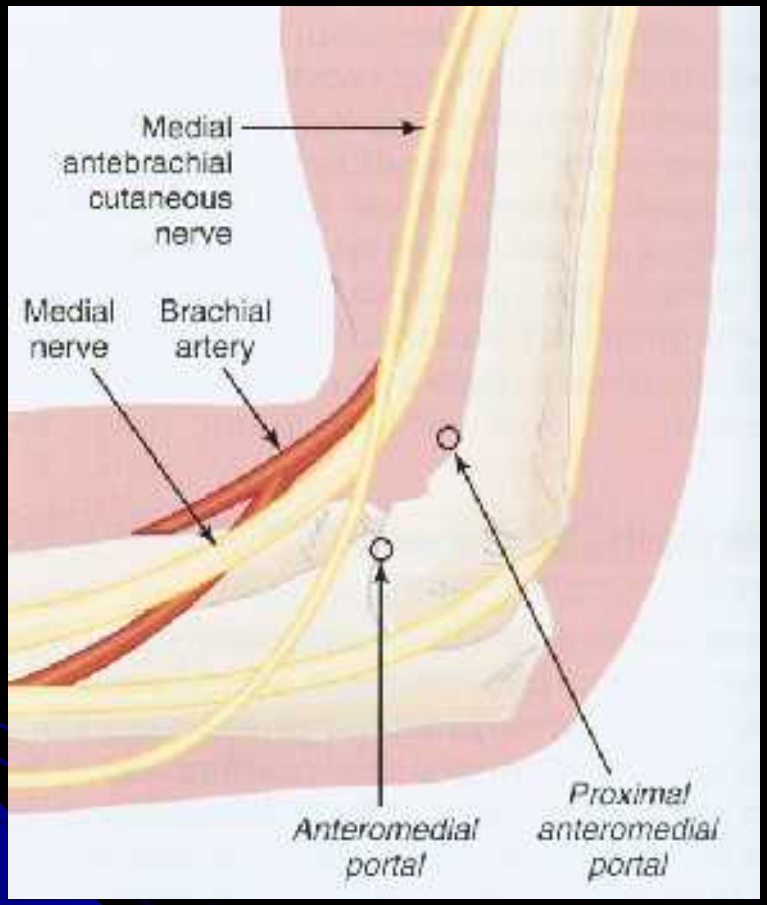
Elbow Capsulotomy

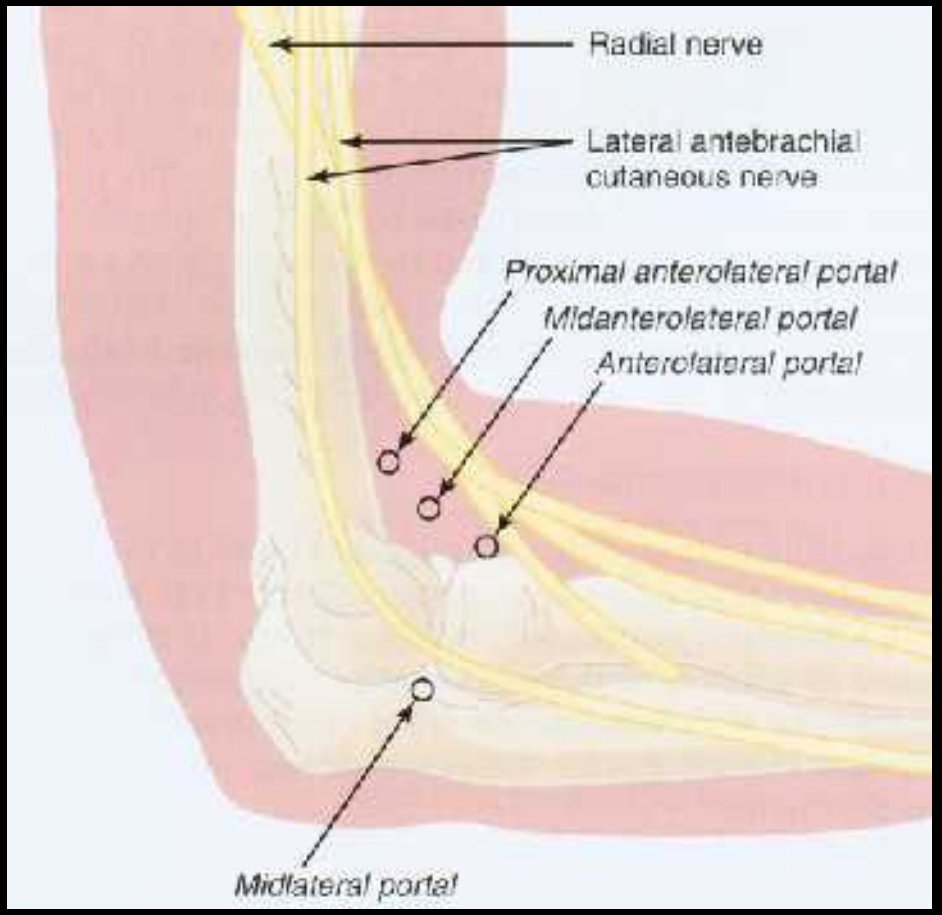
Surgical Technique

Positioning

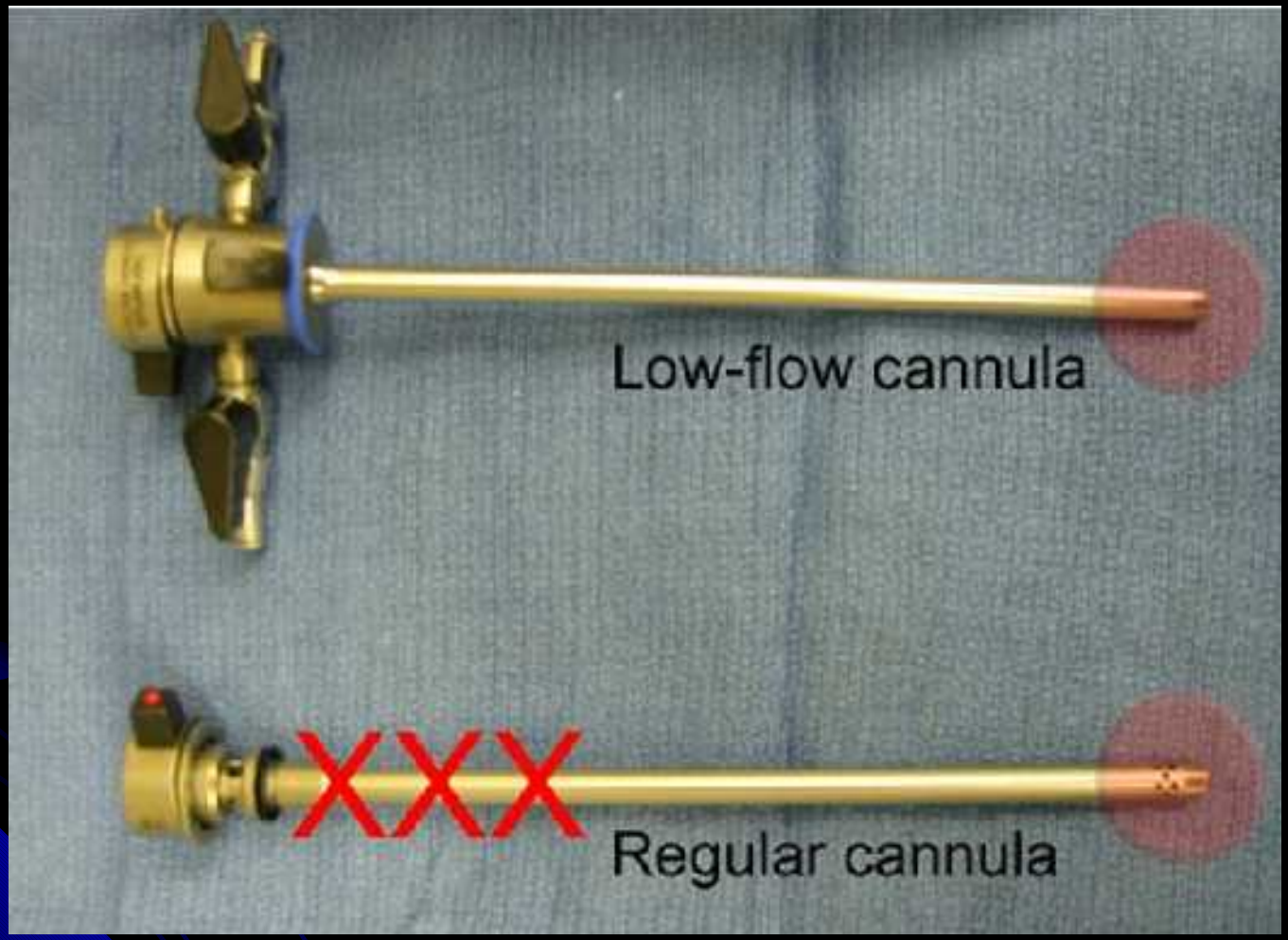
Topographic anatomy







Location of medial and lateral portals with respect to key neurovascular structures


Low-flow cannula
XXX
Regular cannula

Capsular volume may be as little as

6 mL in elbows with capsular contracture

1. Anterior ulnar nerve transfer before or after arthroscopy in cases with significant loss of flexion.

2. The open incision is used for the portal access.

3. The ulnar nerve is kept under direct visualization the whole time.

1. Synovectomy

Synovectomy and removal of any soft tissue
that may block motion due to its bulk,
such as scar tissue in the

2. Removal of loose bodies and osteophytes from the olecranon and coronoid as well as restoration of the normal depth and contour of the fossae.

3. Radial Head Excision

4. Ulnohumeral Arthroplasty

5. Excision of Spurs

5. Excision of Spurs

6. Capsular Release

If motion is still limited,

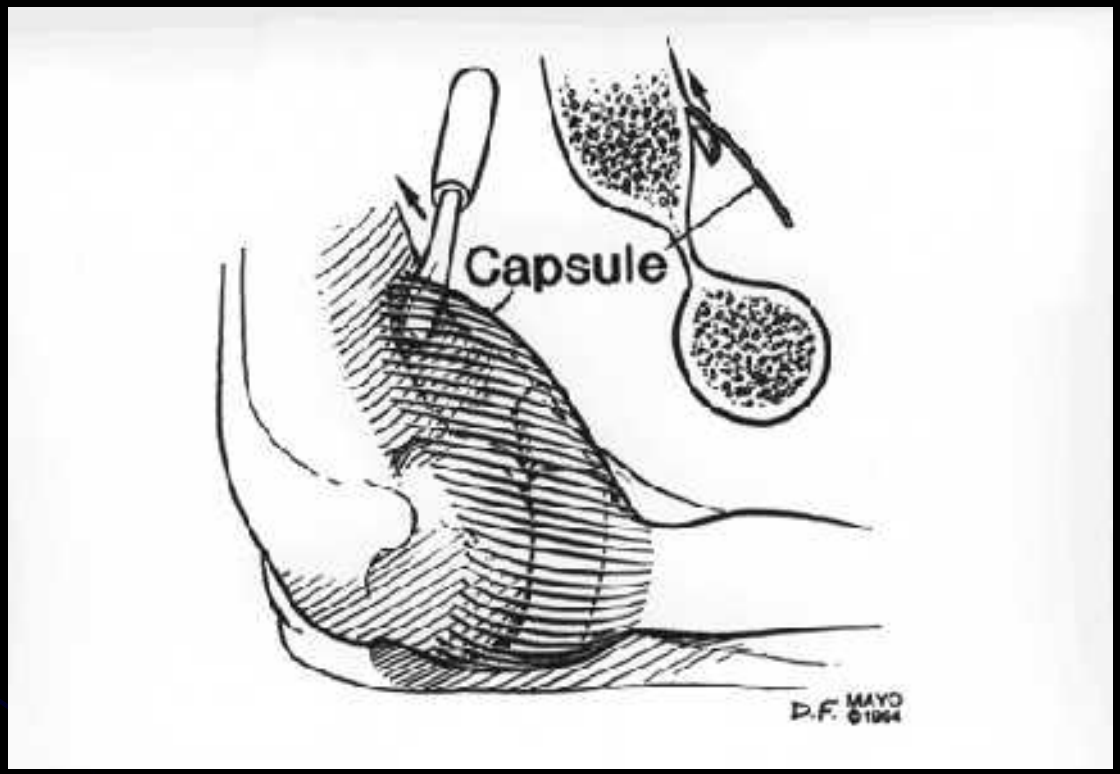
as is almost always the case,

the final stage is capsular release.

Capsular Release

1. Blunt stripping of the capsule off the humerus
2. Capsulotomy (punch)
3. Capsulectomy (shaver, no suction)

Capsular stripping

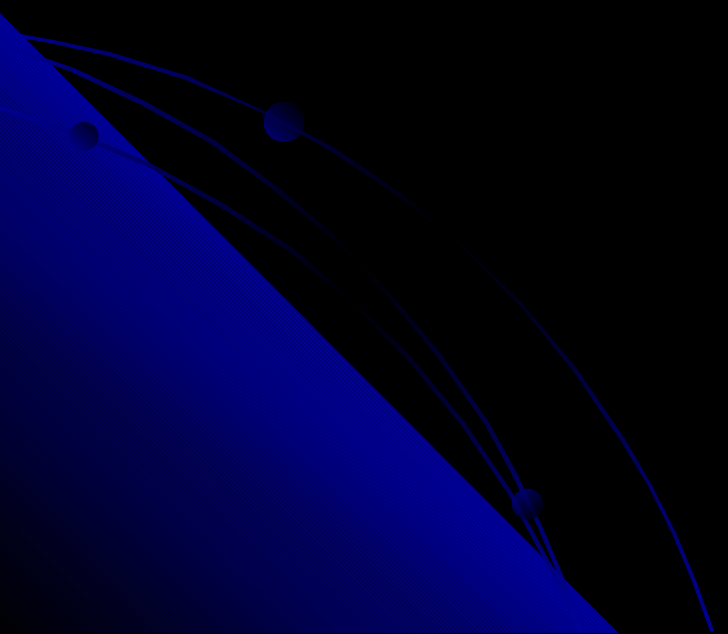


The anterior capsule is stripped off the humerus with a blunt periosteal elevator

After capsulectomy the muscle fibres of the brachialis are evident.

In simple contractures, careful manipulation

can usually gain the last few degrees of extension.



Circumferential Capsular Release: Pearls

1. If associated intra-articular procedures are required, perform capsular release last to minimize extravasation of fluid into periarticular soft tissues.

2. Capsular sweep from the humerus with a blunt instrument increases working space.

3. Stay proximal because the radial nerve lies closer to the capsule distally.

4. Prophylactic ulnar nerve decompression or transposition should be considered in patients with significant flexion deficits (90° to 100°) who are expected to experience an acute improvement in flexion.

Circumferential Capsular Release: Outcomes

- Gains in motion can be substantial and are proportional to the degree of preoperative stiffness and degenerative joint disease.

- 42° to 50° improvement in motion arc after arthroscopic release.

- Gains in motion arc are similar to those in previous reports of open release.

- Patient self-reported satisfaction is high at 92% to 100%.

Arthroscopic capsular release: Advantages

- Addresses concomitant intra-articular pathologies.
- Less surgical trauma.
- Less discomfort postoperatively and with rehabilitation.
- More rapid return to work/activity.

Arthroscopic capsular release: Disadvantages

- Inability to address extracapsular extrinsic causes of stiffness.

- Limited ability to restore flexion if posteromedial structures require release.

- Should be considered an investigational arthroscopic procedure at this time.