Surgical Treatment of Acromioclavicular Dislocation

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Introduction

Acromioclavicular dislocations (ACD) are often accompanied by contusions and sprains of the shoulder. For these reasons early exercises are essential for a good functional outcome. Besides anatomic reduction and its secure maintenance a fixation system should be chosen which allows movements above the level of the shoulder. This is the only way to avoid permanent limitations of shoulder motion.

A transarticular fixation with two or more K-wires prevents rotation of the scapula in relation to the clavicle, unless a broad zone of resorption develops around the implant after prolonged presence of the wires which will allow rocking motions [2].

The transarticular fixation with one K-wire, introduced through the middle of the joint, allows rotational motions which early on are limited but will increase with time. This creates better conditions for a return to normal function than other methods [7, 10].

Surgical Principle

Anatomical reduction and temporary fixation across the acromioclavicular joint (AC-joint) with a 2mm K-wire and a wire cerclage while preserving the articular disc. Reconstruction of the torn ligaments and the joint capsule. Immediate postoperative exercises.

Advantages

- Anatomical reduction under direct vision.
- Small implant, available everywhere.
- Stability allowing immediate exercises.

- No immobilisation of the shoulder.
- Limited rotational motions are possible.
- Elevation of the arm above the shoulder possible early on.
The surgical dissection and the implant leave the subacromial space and retroclavicular area intact.

Easy wire removal through a stab incision under local anaesthesia; neither capsule nor ligaments are injured during this procedure.

Good soft tissue coverage of the implant.

Low risk of infection.

Disadvantages

The transarticular wire perforates the hyaline cartilage layer. Furthermore it limits temporarily the circumduction and gliding of the shoulder.

Heavy efforts and continuous activity must be postponed until after wire removal. In unreliable patients who against our advice may use the shoulder fully after cessation of the wound pain, we recommend an abduction splint for four weeks to prevent migration of the wire. Such a complication could lead to instability of the AC-joint.

Wire removal after six, at the latest after eight weeks as high demands on the shoulder may lead to loosening or fatigue fracture of the wire [1].

Recent injury of Tossy II in all young patients even if the demand for physical activity is low.

Sequela after Tossy II [14] are marked by the position of subluxation of the lateral clavicle. Young patients experience after a certain time painful osteoarthritis of the AC-joint which limits their activity. It is for this reason that these injuries should be reduced and stabilized in patients with low physical demands.

Injuries of Tossy III even when the patients perform only average physical activities during their work or sports [14].

Injury of Tossy III in persons with low physical demands will remain unproblematic throughout life because no contact between bones exist. The loss of stability and strength on the other hand incapacitates patients with higher demands [8, 12].

Relative Indications

Recent ACDs of Tossy III in patients with low physical demands. This indication can be limited by the desire of the patient not to have a visible scar.

Remote ACDs of Tossy II and III which are older than 4 weeks [13].

Indications

Important displacement of the dislocated clavicle cranially with danger of skin necrosis.

Periosteal detachment and major displacement of the clavicle without ligament tear in children and adolescents.

Lateral clavicular fracture with displacement and ligament rupture.

Pressure on the brachial plexus by the dislocated clavicle; locking of the clavicle under the coracoid or acromion.

Contraindications

Patients with few complaints and no demands on the shoulder.

Infected skin lesions.

Advanced age.

Osteoporosis.

Increased risk for anaesthesia.

Lack of collaboration.