



# Orthopaedic surgery

## SHOULDER JOINT

Painful shoulder joints are very common. Mostly the pain is not caused by the bony structures but the surrounding soft tissue. The gliding area with its bursa between the “roof” of the shoulder (acromion) and the rotator cuff is involved very frequently. Chronic bursitis will lead to a narrowing of the subacromial space and painful friction of the rotator cuff, which is called impingement-syndrome.

### Impingement-syndrome

Chronic intensive work related overhead activities or sports like tennis, baseball or weight lifting may cause an irritation and inflammation of the subacromial bursa with narrowing of the subacromial space and subsequent impingement of the rotator cuff. Calcification of the rotator cuff tendons, tendon ruptures, osteophytes of the acromion and/or osteoarthritis of the acromio-clavicular joint may also cause shoulder pain. Pain is provoked mainly by elevation of the arm in any overhead position. For initial treatment rest, antiinflammatory drugs and subacromial injections are recommendable and may soothe the pain. Without treatment usually the pain gets worse, especially during the night. The patients can hardly sleep on the side of the involved shoulder. If the inflammation becomes chronic, it normally spreads out to the tendons of the rotator cuff. It is now difficult to elevate the arm and some patients feel a certain weakness. At this stage first tears of the rotator cuff may be diagnosed. Gradually the shoulder joint loses a considerable amount of mobility, which may support the indication for operative treatment.

### Operative technique (acromioplasty)

By the help of Arthroscopy the shoulder joint itself and the subacromial joint space can be inspected. After confirmation of the diagnosis operative treatment is done at the same occasion. The inflamed bursa is resected and in case of small tears of the rotator cuff it can be debrided (smoothened). The underneath surface of the acromion is abraded, which means that the sub-

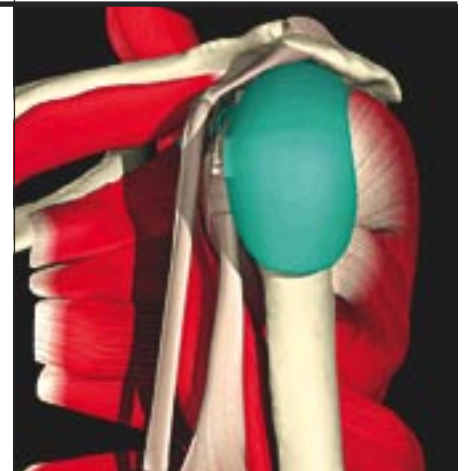
acromial space will be enlarged (subacromial decompression). The whole intervention is done with powered instruments, which are introduced through small skin incisions. In cases of osteoarthritis of the acromio-clavicular joint the resection of the lateral end of the clavicle may be indicated.

### Calcified deposits of the shoulder joint (tendinosis calcarea)

This is a typical disease of the mid-age-patient. There is a higher incidence of female patients. The cause of the disease is uncertain. The x-ray findings are calcified deposits of various sizes near the insertion of the supraspinatus tendon (one of the four tendons of the rotator cuff). These deposits are irritating the subacromial bursa and thus causing massive acute pain. Possible conservative treatment is anti-inflammatory medication and local subacromial injections. Quite often the inflammatory reaction leads to the resorption of the deposit and the patient is healed. Unfortunately this is not the case in every patient and surgical treatment then might be indicated.

### Operative technique (resection of calcified deposits)

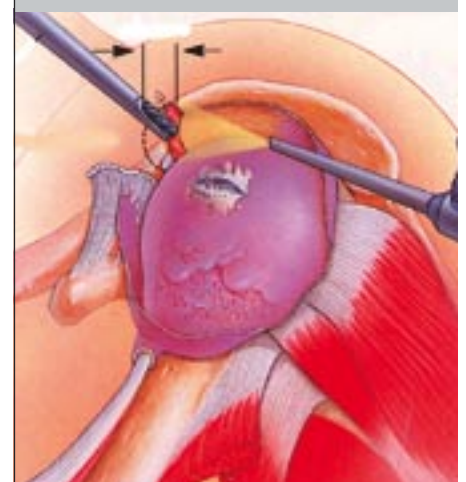
The resection of calcified deposits is usually no problem. After introduction of the arthroscope the subacromial joint and the bursa can be inspected and the deposits are localized, sometimes by the help of a fluoroscope. The rotator cuff is palpated with a small probe and the deposit can be debrided. The intervention is done on an out-patient basis or as a day-case.



subacromial gliding space with rotator cuff and bursa – left shoulder (side view)



impingement-syndrome under the coracoacromial roof (O = narrowing of gliding space)



enlargement of gliding space by bony resection of anterior acromial roof and resection of the bursa



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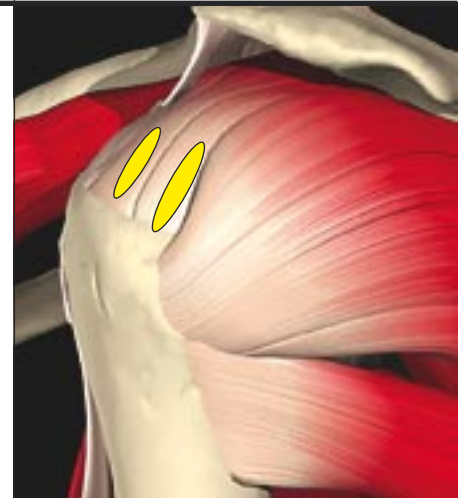
## SHOULDER JOINT

### Frozen shoulder

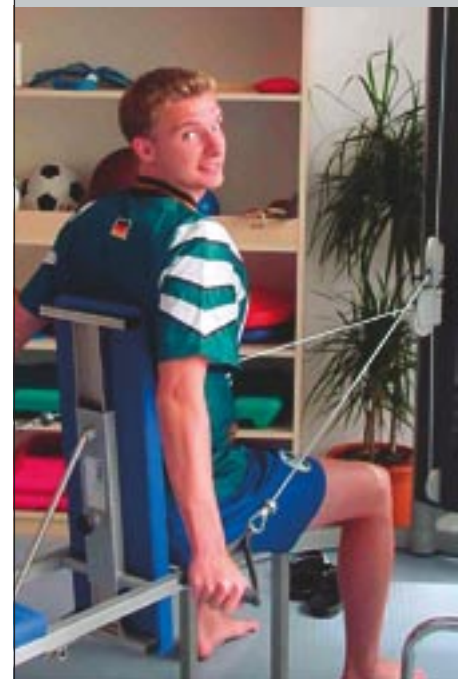
Painful lesions of the shoulder may cause stiffness of the shoulder joint. However, in the majority of cases this stiffness (frozen shoulder) is a pathology of its own. For aetiology endogenic factors like menopause, diabetes or a pathologic thyroid condition are discussed. The clinical feature is a very painful stiffness of the involved joint caused by a dramatic shrinking of the joint capsule. Conservative measures (physiotherapy, anti-inflammatory medication and intraarticular injections) are the treatment of choice over a couple of months. If this regime fails, the affected shoulder joint can be treated operatively. By the help of arthroscopy the joint capsule can be extended gradually. In difficult cases a separation of the joint capsule from the glenoid and synovectomy may be necessary.

### Rehabilitation

After shoulder surgery 3 to 4 months for rehabilitation have to be taken into account. The treatment is physiotherapy with active and passive exercises without immobilisation of the arm. Team work and the patient's discipline are essential for an excellent result in terms of painless full function of the operated shoulder joint. Sometimes continuous passive motion at home on a motor device is helpful in addition to physiotherapy. Most of the patients should take anti-inflammatory drugs for a certain time. The overall results after this type of shoulder surgery are good.



*calcified deposits in supraspinatus tendon (yellow)*



*rehabilitation after shoulder surgery as important integral part of treatment*