



AC-Plate[®] by Dreithaler

Surgical Technique





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Disclaimer

This surgical technique is solely for the use of medical professionals, particularly physicians, and therefore cannot be regarded as a source of information for non-medical persons. The description of this surgical technique does not constitute medical advice or medical recommendations nor does it convey any diagnostic or therapeutic information on individual cases. Therefore, the attending physician is fully responsible for instructing and obtaining the informed consent of the patient which this surgical technique cannot supersede.

The description of this surgical technique has been compiled by medical experts and trained staff of aap Implantate AG with utmost diligence and to the best of their knowledge.

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• Introduction

By choosing the AC-Plate from **aap** you have selected a special implant for the safe and uncomplicated management of injuries of the acromioclavicular joint. Prior to the application carefully read the surgical technique and the instruction for use!

Material

The AC-Plate together with the screws belonging to it are fabricated from implant steel or titanium alloy (TiAl6V49). All materials used are standardized in national and international norms.

They are characterized by an outstanding biocompatibility and a high degree of protection against nickel allergies.

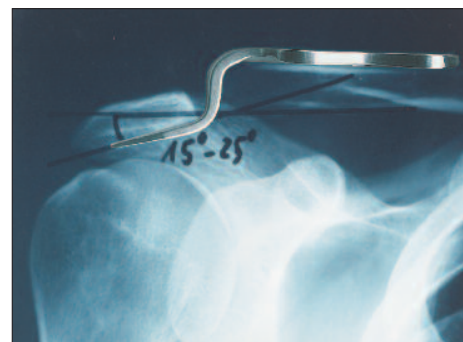


Description

The AC-Plate from **aap** is applicable for an operative therapy of AC joint injuries. With the help of this kind of motion stable and anatomical reconstruction an early functional exercise is permitted.

Anatomical adapted plate

- Slightly concave lower surface and short, wide plate body – optimal adaption to the clavicle as it broadens towards its lateral end
- Rounded corners
- Flat, wide hook form (angle of 15°) – adapted to the acromioclavicular angle
- Secure retention, which is stable on movement – because of an optimal position on the lower site of the acromion



Minimalinvasive surgery

- Incisions of max. 4 cm
- Prevention of injuries of the supraclavicular nerve
- Improved cosmetic result

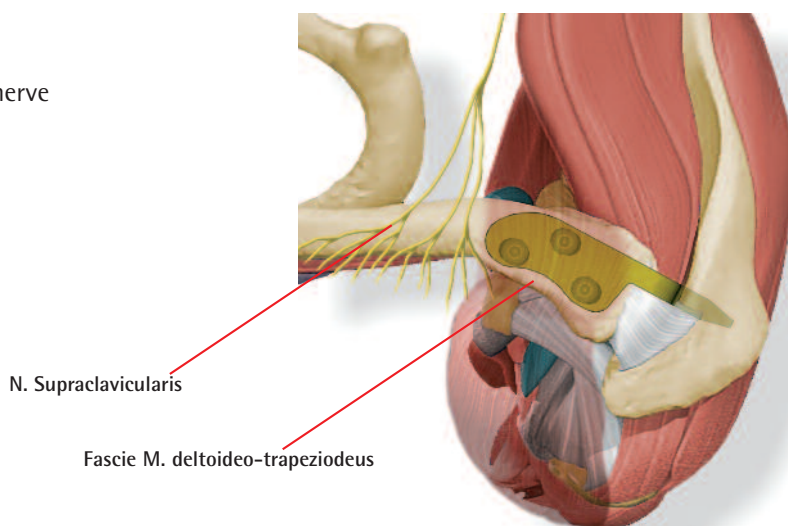
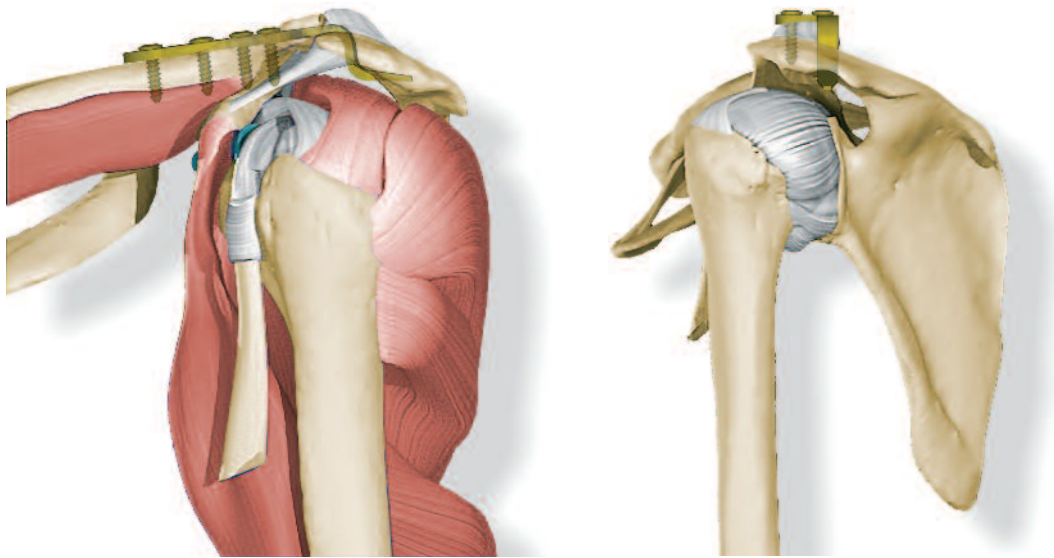


Plate position

- Hook-placement dorsal to the AC joint – prevention of injuries to the acromioclavicular ligament when removing the plate
- Horizontal stability in the dorsal direction – shape of the acromion prevents any horizontal shift of the hook in the caudal direction
- Good covering of soft tissue because of the placement under the fascia of the deltoid and the trapezius muscles
- Shallow depth of the hook and anatomical shape prevent effectively any subcromial impingement



Clearly arranged, compact set

- Various plate lengths (3- & 4-hole)
- Self-tapping 3.5 mm cortical screws for fixation
- Instruments

Indications/Contraindications

Indications

- AC joint luxations of Rockwood types III, IV und V/Tossy III
- Lateral fractures of the clavicle
- Modified Weaver-Dunn-surgery for older AC joint luxations of Rockwood types III, IV und V/Tossy III

Contraindications

- General contraindications of an operative intervention (see Instruction for Use)
- All applications that are not explicitly stated in the indications and the technical literature are contraindicated

• Introduction

Processing (Sterilization & Cleaning)

Together with the instruments, the implants are supplied non-sterile in one compact set.

Before every use, instruments as well as implants must be processed. Reference is here made to the instructions for use.

Implant components which may have come into contact with infectious fluids (e.g., blood) must not be resterilized and reused in another operation. They must be returned to the manufacturer. Resterilization is prohibited under any circumstances (see Instructions for Use).



• Surgical Technique

Preoperative Planning

- Clinical examination (prominence of the lateral clavicle, piano-key phenomenon)
- a-p radiographs
- Radiographs of both AC joints under load, if necessary

Surgical Technique

Surgical procedure with the AC-Plate for the management of an AC joint luxation

Patient Positioning

- The operation is performed under general anaesthesia with the patient lying on the back on a beach chair. The surgery table, ideally a shoulder table, is raised to an angle of 30° to 40° in the area of the shoulder. Access can be facilitated by placing a plastic foam wedge under the shoulder being operated upon, and turning the head away from the operation field.

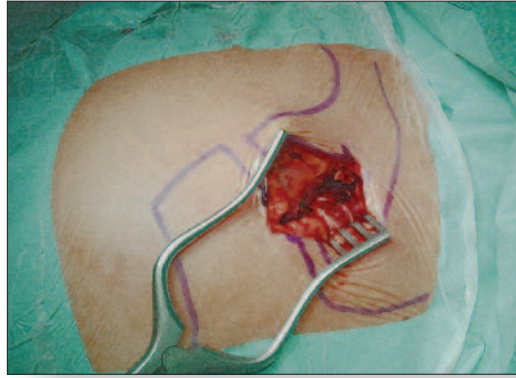


Surgical Access

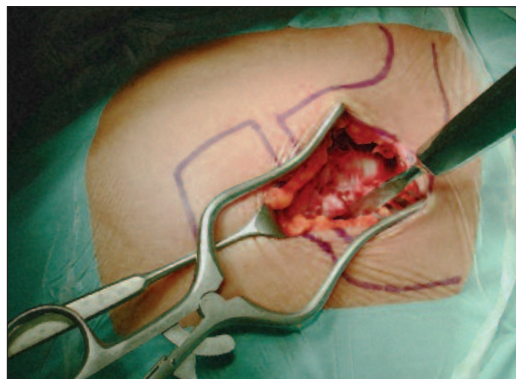
- Skin incision roughly 4 cm long running medially from the AC joint over the lateral part of the clavicle
- **Alternatively:** Suspenders incision over the lateral part of the clavicle



- Division of the subcutaneous tissue and longitudinal splitting of the muscle fascia over the lateral part of the clavicle (Musculus deltoideus/Musculus trapezius)

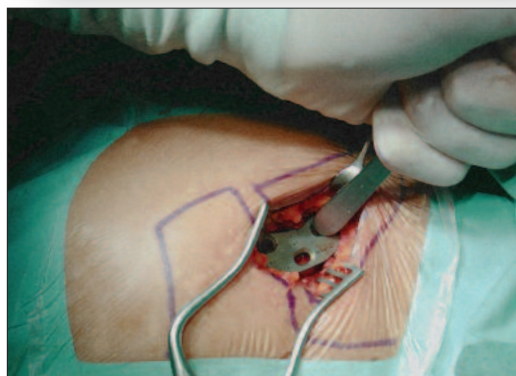
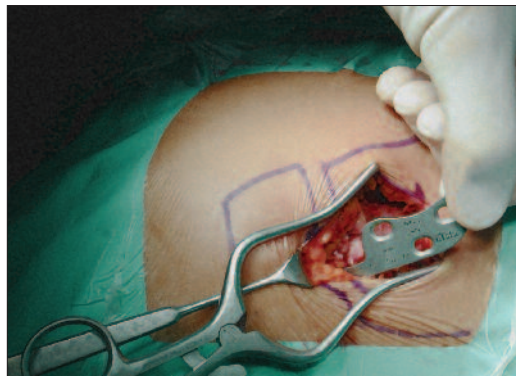


- Using a raspatory, detach the periosteum on the lower surface of the acromion dorsal to the lateral end of the clavicle



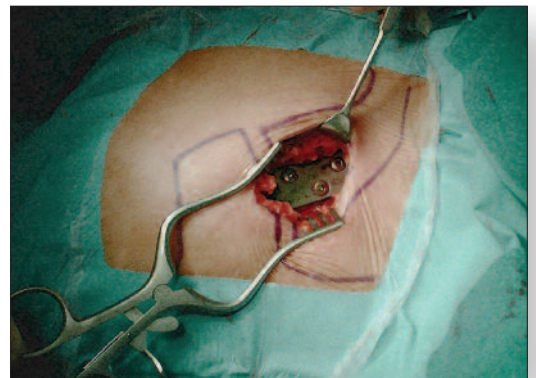
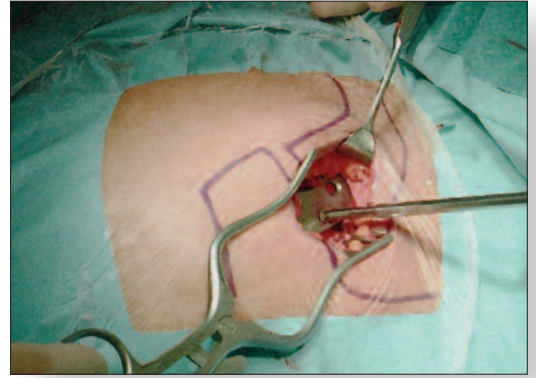
Implantation

- Introduce the hook of the AC-Plate beneath the acromion in the dorsal area of the AC joint
- Reposition the clavicle by pressing the plate downwards
- Position and temporarily fix the plate on the clavicle, using plate-holding forceps or manually
- Drill with a twist drill $\varnothing 2.5$ mm through the double drill sleeve
- Define the screw length



• Surgical Technique

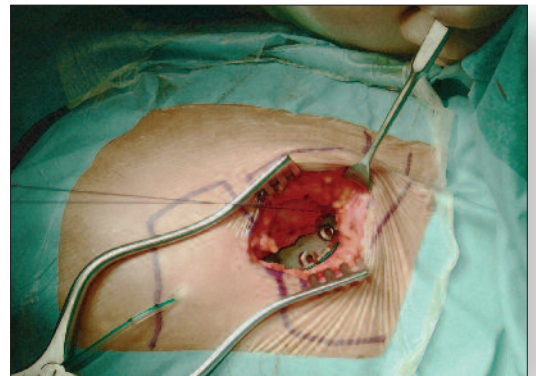
- Fix the plate in position with the self-tapping 3.5 mm cortical screws



- Suture of the delto-trapezoidal fascia over the plate

◆ **CAUTION:**

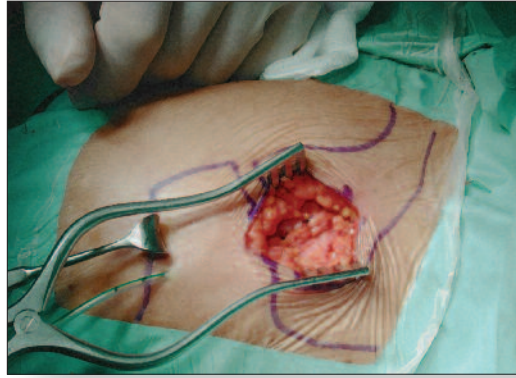
The stable reconstruction of the deltotrapezoidal fascia is absolutely essential to ensure good stability of the joint and soft tissue covering.



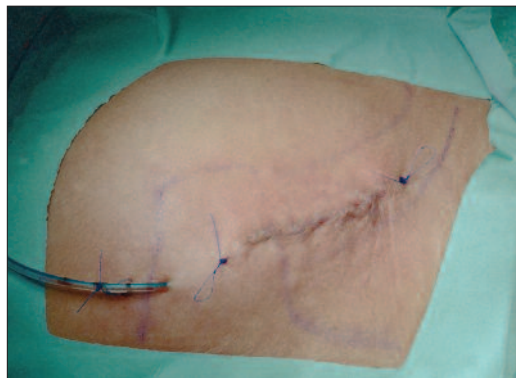
◆ **NOTE:**

Suturing of the coraco-clavicular ligament structures is not absolutely necessary.

- Insertion of Redon's drainage;
subcutaneous suturing



- Skin closure



Application of the AC-Plate for lateral fractures of the clavicle

For the management of lateral fractures of the clavicle a longer 4-hole version is available as well as the AC-Plate with 3 holes. The plate is applied after reducing the fracture and choosing a plate of the correct length, which will depend on the location of the fracture. This is done in the way described above. The use of extra screws (e.g. **aap** cannulated screws CS 2.7/3.5) for fixation of separate fragments is optional.

Application of the AC-Plate in cases of lateral clavicular resection with transfer of the coracoacromial ligament (modified Weaver-Dunn operation)

After dissecting the coracoacromial ligament and detaching the insertion of the acromial ligament with a bone scraper the AC-Plate is inserted to ensure retention of the clavicle. After resection of about 3-4 mm from the lateral portion of the clavicle the bony ligamentous insertion is re-fixed to the lateral end of the clavicle with a cannulated screw 2.7 mm. The implantation technique for the AC-Plate is the same as the aforementioned.

• Surgical Technique

Postoperative Management

The following after-treatment schedule is recommended:

- Radiological check of the position of the plate and hook and the position of the AC joint
- Immobilisation in a Gilchrist bandage for 2-3 days
- Early treatment by passive movements – up to 90° abduction and anteversion – is possible from the first postoperative day onwards.

◆ NOTE:

Active exercises should begin under gravity conditions during the healing phase up to the time of metal removal and then with gradually increasing weight-bearing.

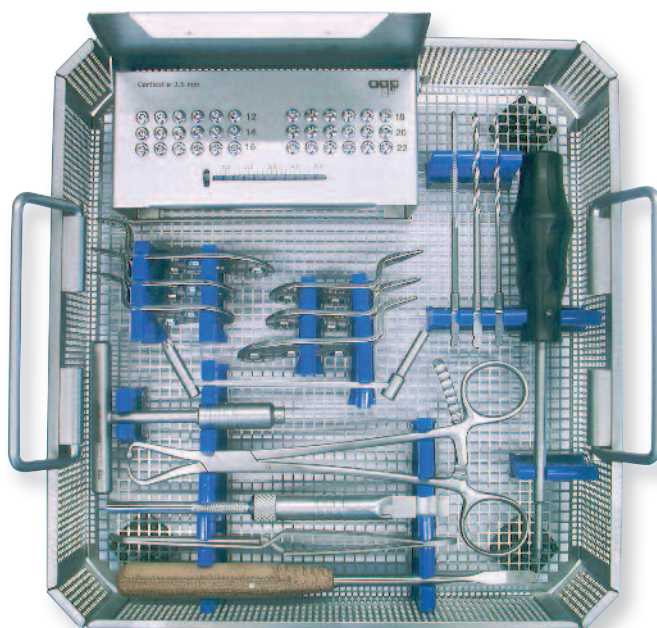
- Full range of passive movement, without weight-bearing, after eight weeks
- Implant removal at 12 weeks

◆ NOTE:

Full weight-bearing is allowed only after plate removal.



Complete Set AC-Plate Steel IC 1900-00, Titanium IC 1900-00-2



| ARTICLE | QUANTITY | ART.-NO. |
|--|----------|------------|
| Tray for AC-Plate set (empty) | 1 | IC 1900-01 |
| Screw rack with lid for AC-Plate set (empty) | 1 | IC 1900-02 |
| Depth gauge for screws 3.5-4.0 | 1 | IS 7901-00 |
| Holding forceps with ball top for small plates | 1 | IU 2508-10 |
| Elevatorium small, bended | 1 | IU 6010-00 |
| Twist drill ø2.5, L 110, coil 50, quick coupling | 1 | IU 7425-00 |
| Twist drill ø3.5, L 110, coil 50, quick coupling | 1 | IU 7435-00 |
| T-Handle for tap | 1 | IU 7701-00 |
| Tap for cortical screws ø3.5, L 110/50 | 1 | IU 7735-10 |
| Screwdriver, hexagonal, ø2.5 | 1 | IU 7840-00 |
| Screw forceps, self-retaining | 1 | IU 8004-00 |
| Double drill guide ø2.5/3.5 | 1 | IU 8116-00 |

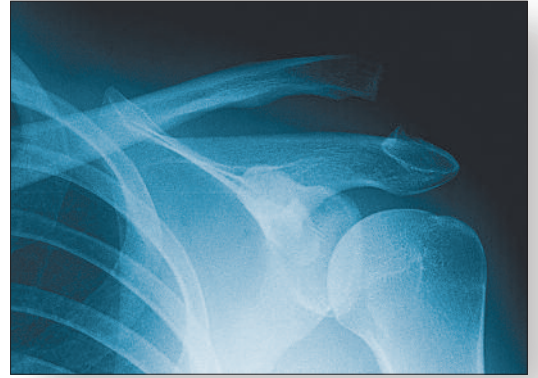
INSTRUMENTS

| ARTICLE | QUANTITY | ART.-NO. STEEL | ART.-NO. TITANIUM |
|--------------------------------------|----------|-------------------|----------------------|
| AC-Plate, 3 holes, left | 2 | PX 3520-02 | PX 3520-02-2 |
| AC-Plate, 3 holes, right | 2 | PX 3520-01 | PX 3520-01-2 |
| AC-Plate, 4 holes, left | 1 | PX 3521-02 | PX 3521-02-2 |
| AC-Plate, 4 holes, right | 1 | PX 3521-01 | PX 3521-01-2 |
| Cortical screws 3.5 mm, self-tapping | | | |
| L 12 mm | 6 | SK 3510-12 | SK 3510-12-2 |
| L 14 mm | 6 | SK 3510-14 | SK 3510-14-2 |
| L 16 mm | 6 | SK 3510-16 | SK 3510-16-2 |
| L 18 mm | 6 | SK 3510-18 | SK 3510-18-2 |
| L 20 mm | 6 | SK 3510-20 | SK 3510-20-2 |
| L 22 mm | 6 | SK 3510-22 | SK 3510-22-2 |

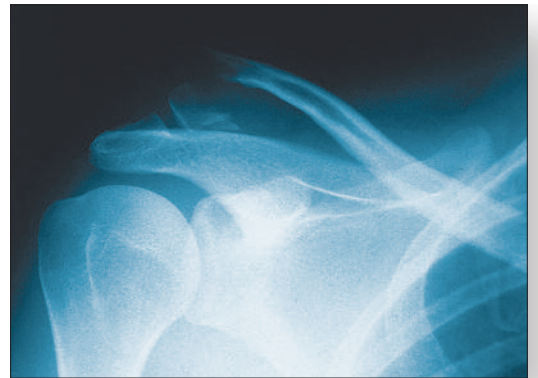
IMPLANTS

• Case Studies

AC joint dislocation
Type Rockwood V/Tossy III

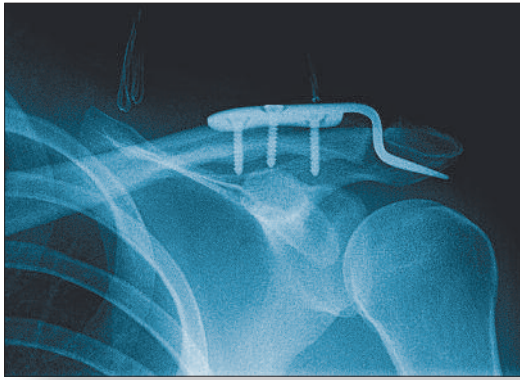


Fracture of the lateral end
of the clavicle

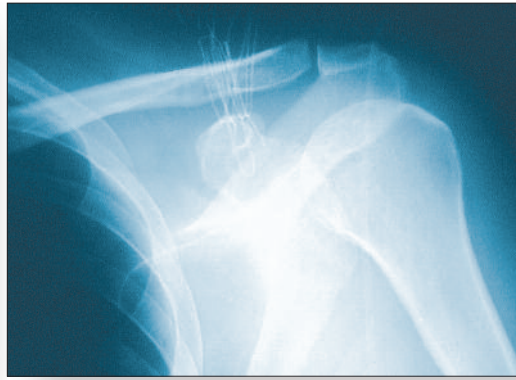


Old AC joint dislocation
Type Rockwood V/Tossy III

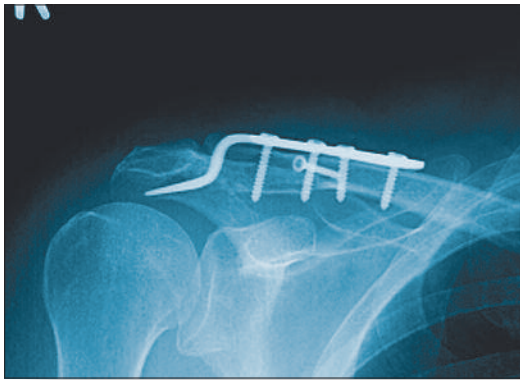




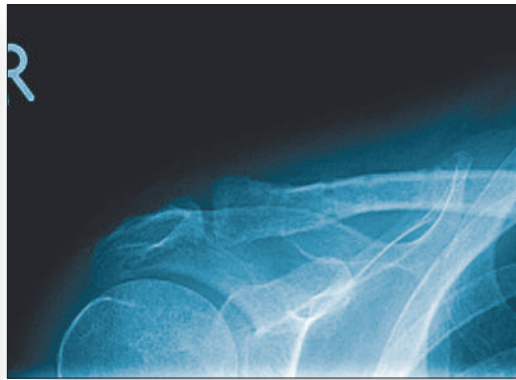
Fixation with 3 hole AC-Plate



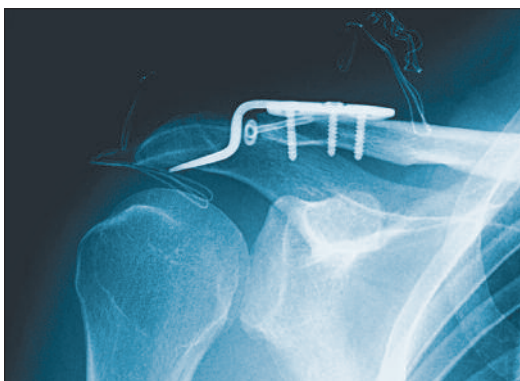
AC joint after plate removal



Fixation with 4 hole AC-Plate
Additional osteosynthesis with
2.7 mm cannulated screws



AC joint after plate removal



Modified Weaver-Dunn technique
Fixation with 3 hole AC-Plate



AC joint after plate removal

- Notes

Subject to technical changes, errors
and misprints.

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WM 2006-01 / 0910

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