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ATLAS OF SURGICAL ANATOMY

Surgical Approaches in Traumatology

UPPER LIMB

Gianfranco Zinghi
Raffaele Pascarella
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TIMEO

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ATLAS OF SURGICAL ANATOMY

Surgical Approaches in Traumatology

PELVIS
LOWER LIMB

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TIMEO

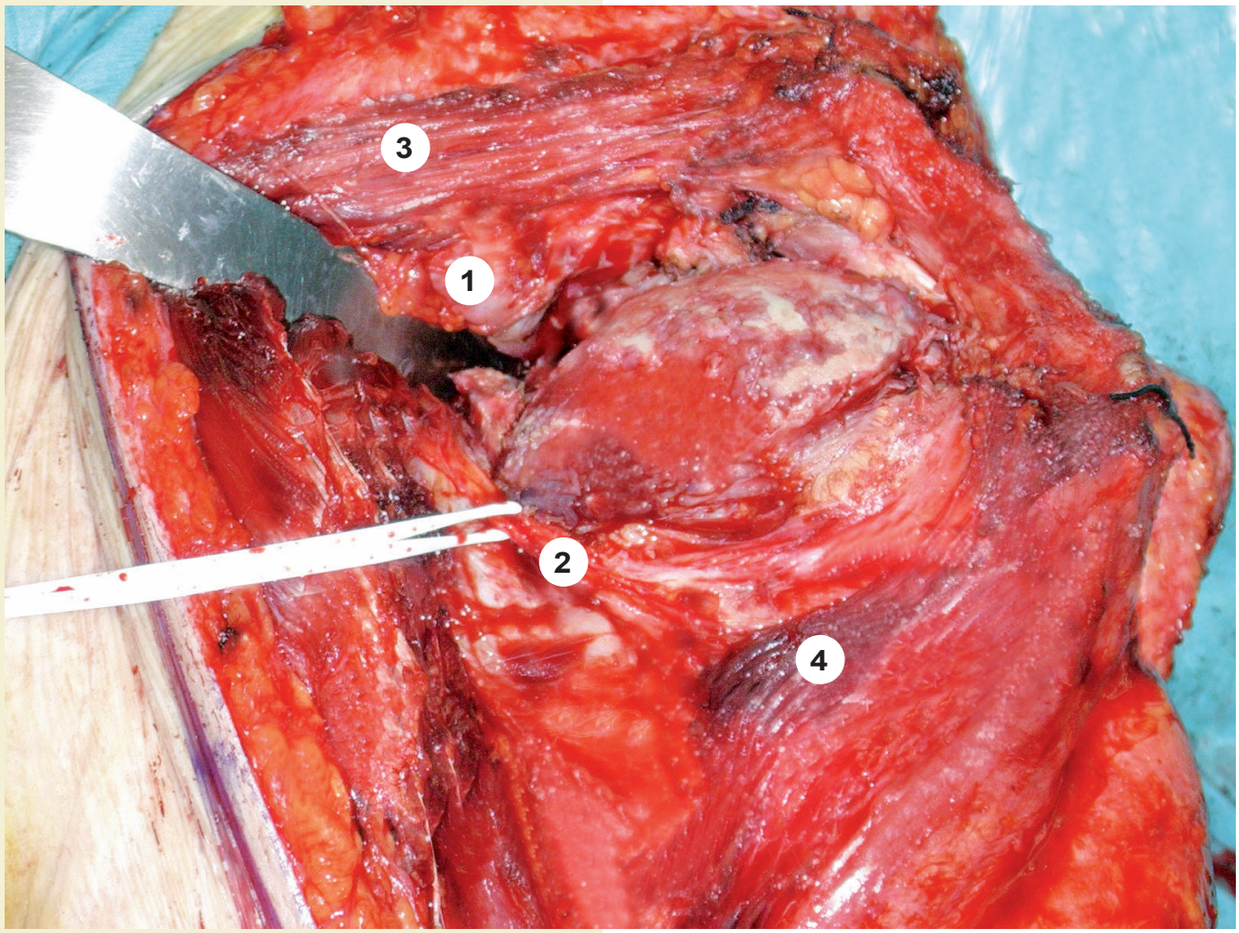


FIGURE 1

The circumflex nerve[2] during a trans deltoid approach for arthrodesis. On the right, the middle deltoid[4]; on the left, loaded by the lever, the fibres of the anterior deltoid[3]. The image shows the typically horizontal course of the nerve in the subdeltoid region: as shown in the photo, it is only 4 cm away from the lateral margin of the acromion[1]

Approach to the neck of the scapula

This approach involves detaching the *deltoid*[1] from the scapular spine and is commonly used in the irreducible posterior dislocation of the humeral head and in fractures of the neck of the scapula.

The patient is in a prone or lateral position, with the shoulder slightly abducted and elevated.

The inverted L-shaped incision begins at the acromion, follows the ridge of the scapular spine, and, at its base, changes direction to follow the posterior margin of the *deltoid*[1].

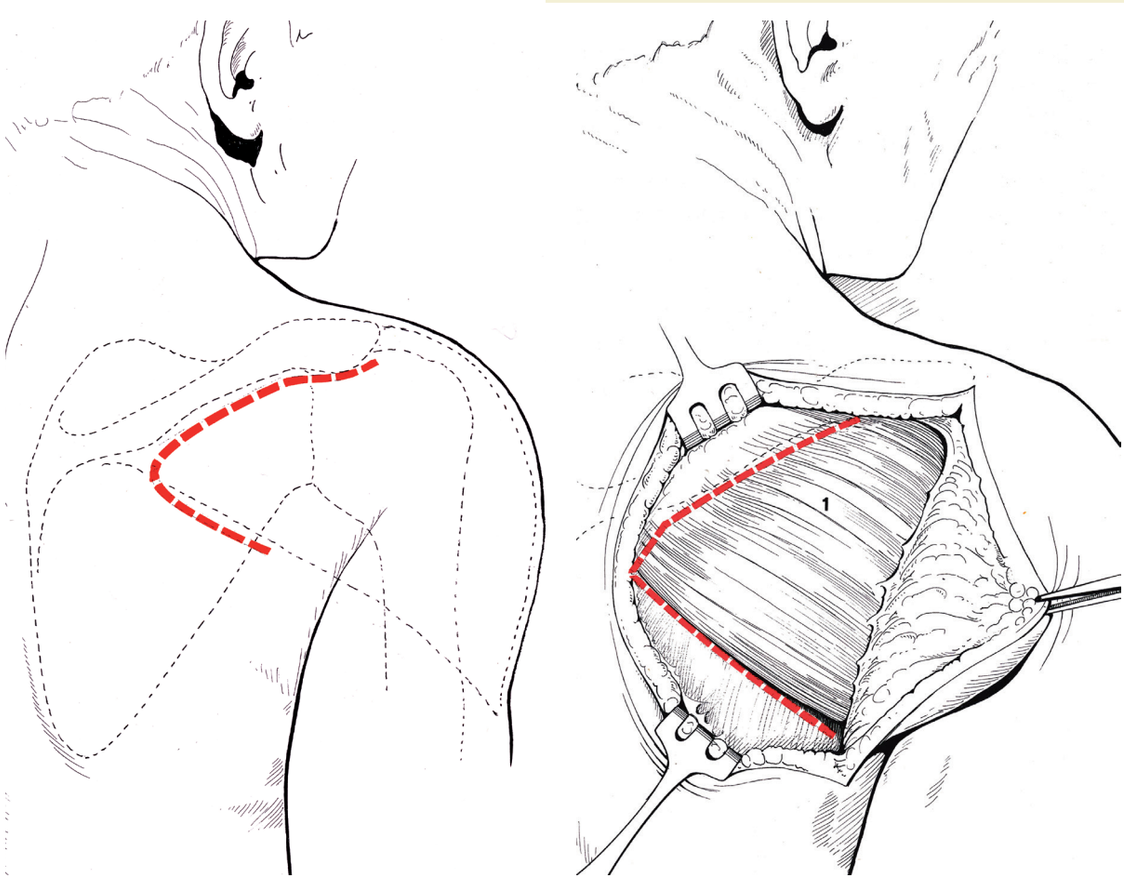
After opening the first aponeurotic layer, the *deltoid*[1] is revealed and detached from the spine, flipping it laterally to expose the deep muscular plane.

Here, two muscles are found: the *supraspinatus*[2] above and the *infraspinatus*[3] below, separated by a clearly visible intermuscular space (see also **TABLE 17**).

By spreading the *infraspinatus*[2] superiorly and the *teres minor*[3] inferiorly, both the *joint capsule*[4] and the anatomical neck of the scapula are exposed.

Caution should be taken not to injure the *suprascapular neurovascular bundle*[5].

The *circumflex* scapular artery is protected by the *teres minor*[3], so there is no risk of damaging it.



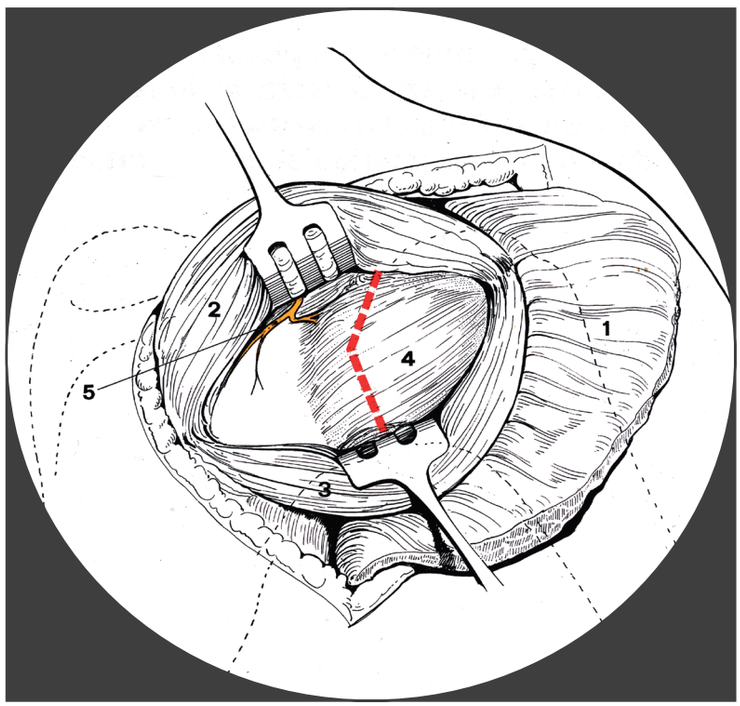


TABLE 18

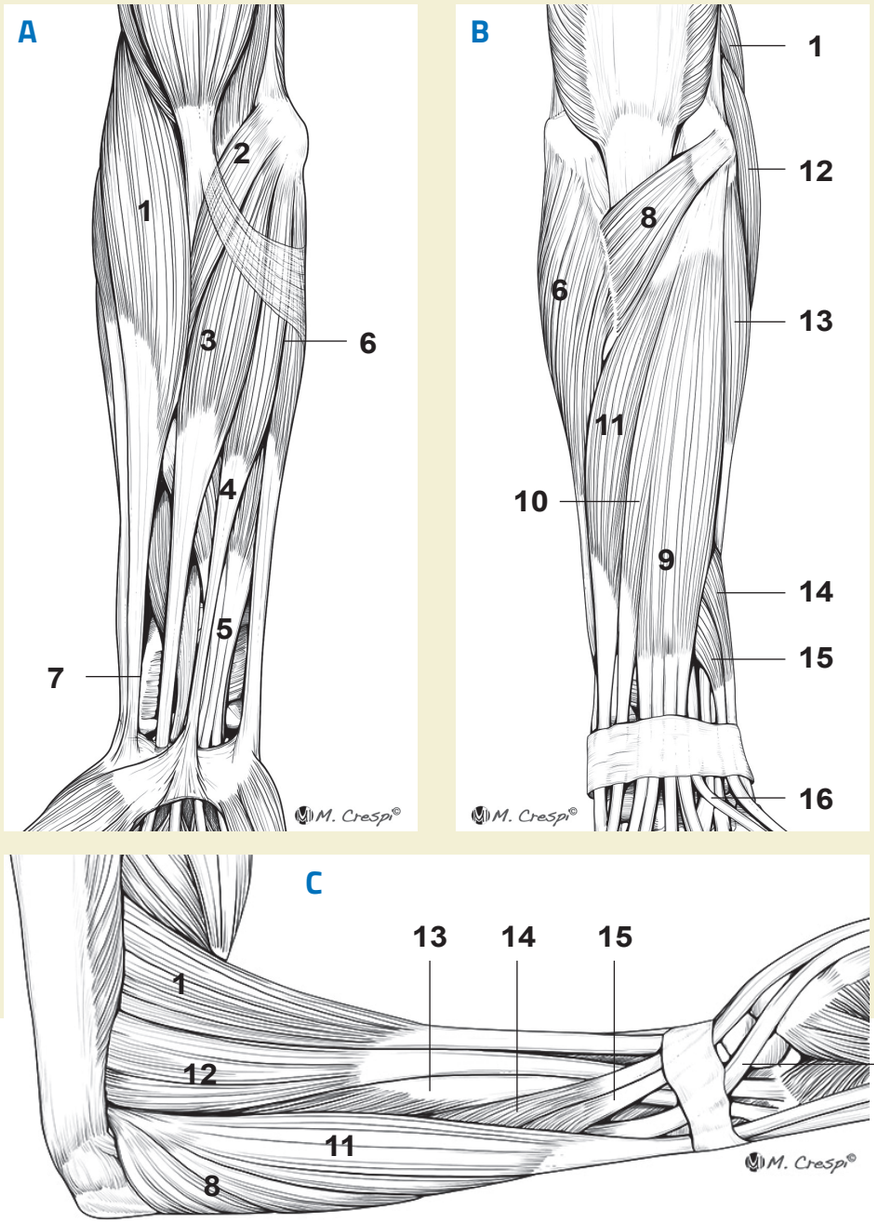


TABLE 50

A

1. long supinator
2. round pronator
3. flexor carpi radialis
4. palmaris longus
5. superficial flexor of the fingers
6. ulnar flexor of the wrist
7. quadratus

B

6. ulnar flexor of the wrist
8. anconaeus
9. common extensor of the fingers
10. extensor indicis
11. ulnar extensor of the wrist
14. abductor pollicis longus
15. extensor pollicis brevis
16. extensor pollicis longus

C

1. long supinator
8. anconaeus
11. ulnar extensor of the wrist
12. first radial
13. second radial
14. abductor pollicis longus
15. extensor pollicis brevis
16. extensor pollicis longus

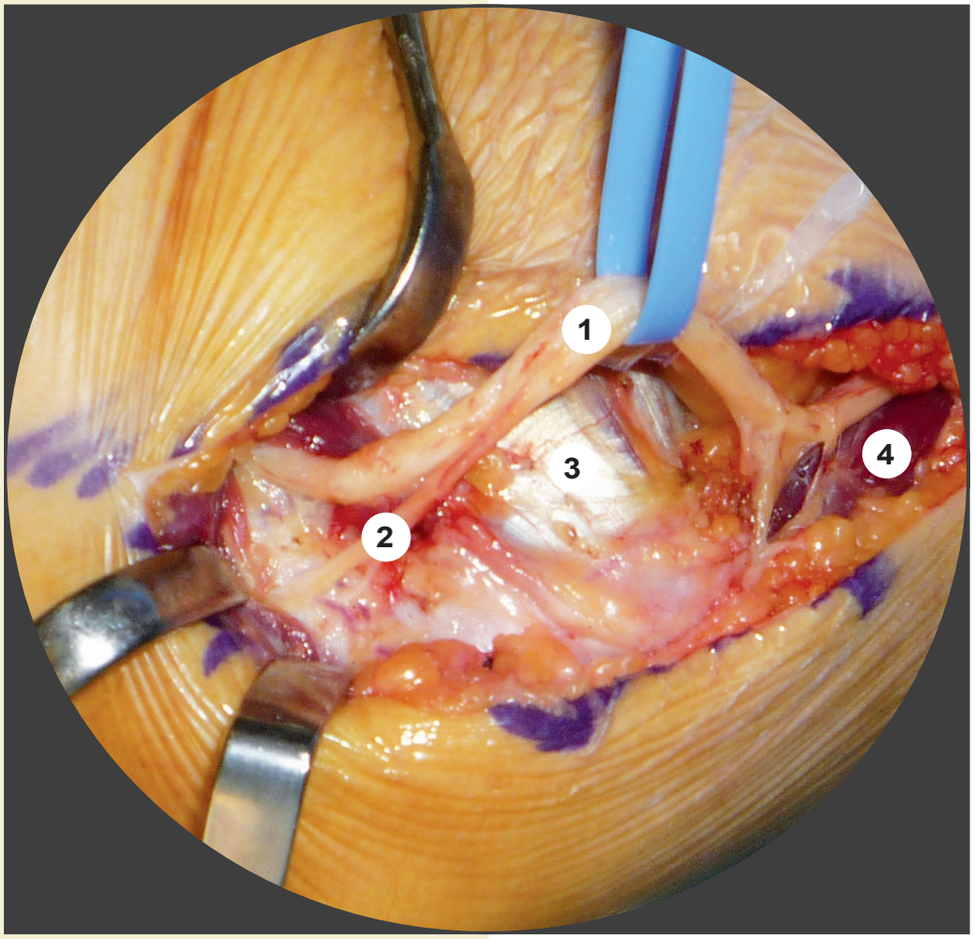


FIGURE 83

Operating field. The ulnar nerve, before disappearing between the two heads of the ulnar flexor of the wrist, provides a sensory branch to the joint capsule. The motor branches destined for the ulnar flexor of the wrist are not visible because they emerge more anteriorly.

1. ulnar nerve
2. articular sensory branch
3. insertion of the epitrochlear muscles
4. triceps

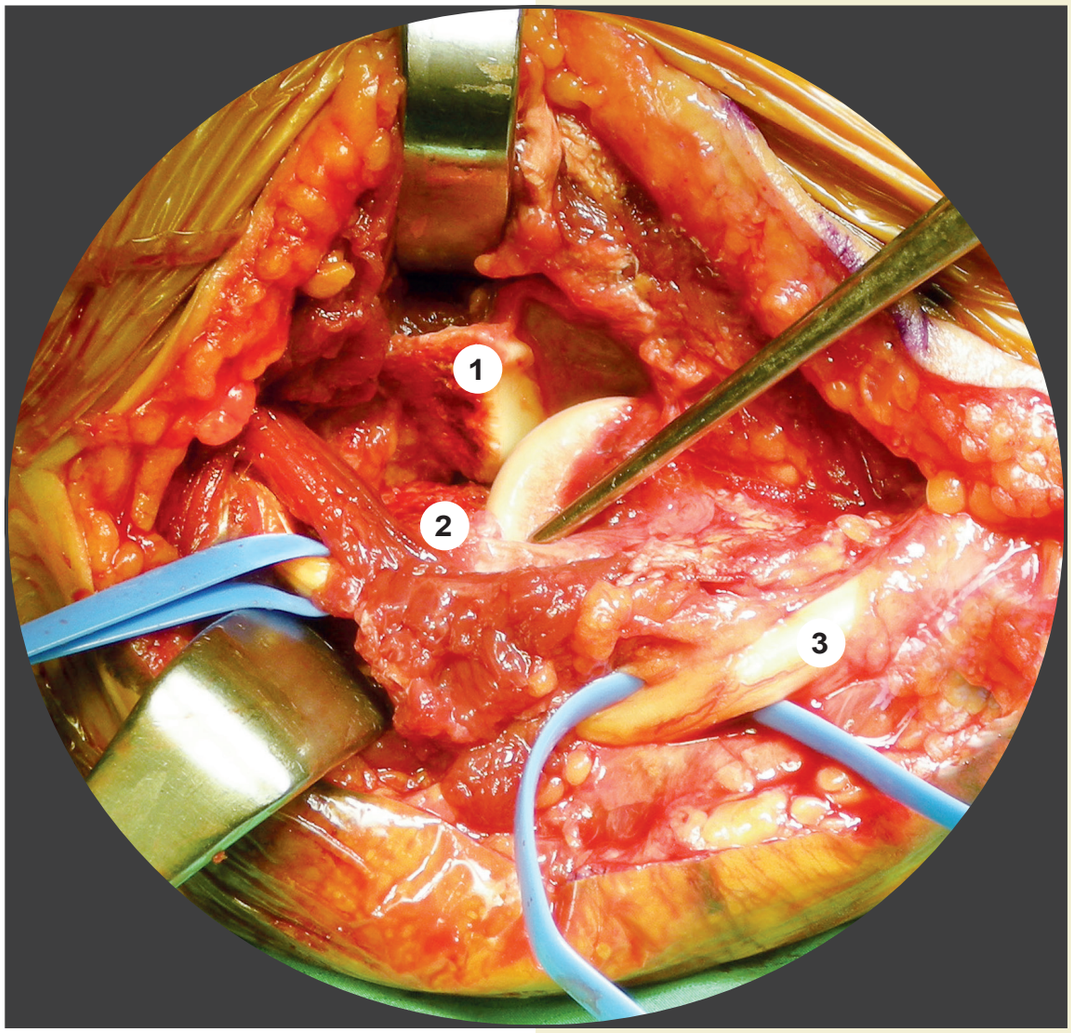


FIGURE 86

Hotchkiss approach, photo of the operating field.

1. dislocated coronoid fragment
2. site of detachment
3. ulnar nerve

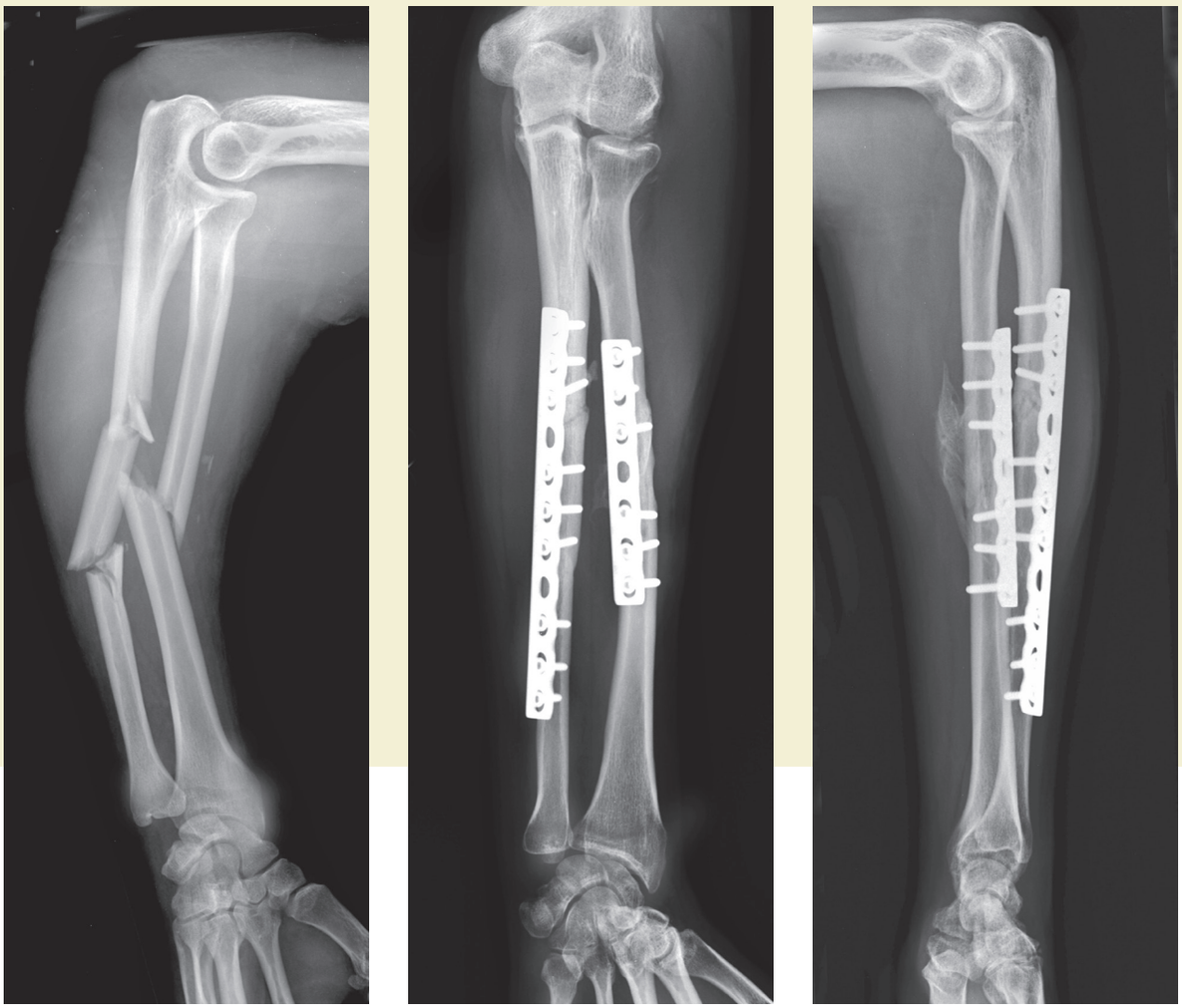


FIGURE 106
Combined approach. Biosseous fracture undergoing osteosynthesis with two separate accesses: a direct approach to the ulna as shown in TABLE 69 and a direct approach to the radius as shown in TABLE 71

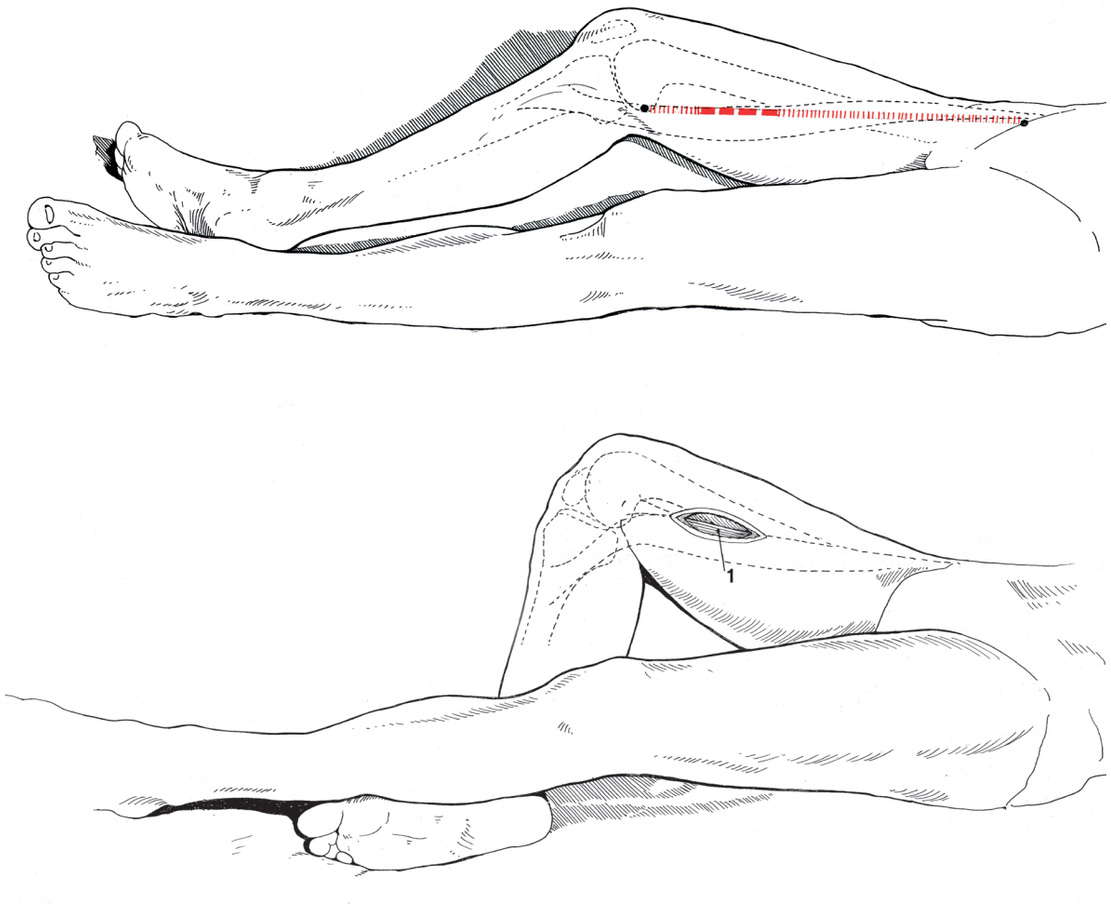


TABLE 49

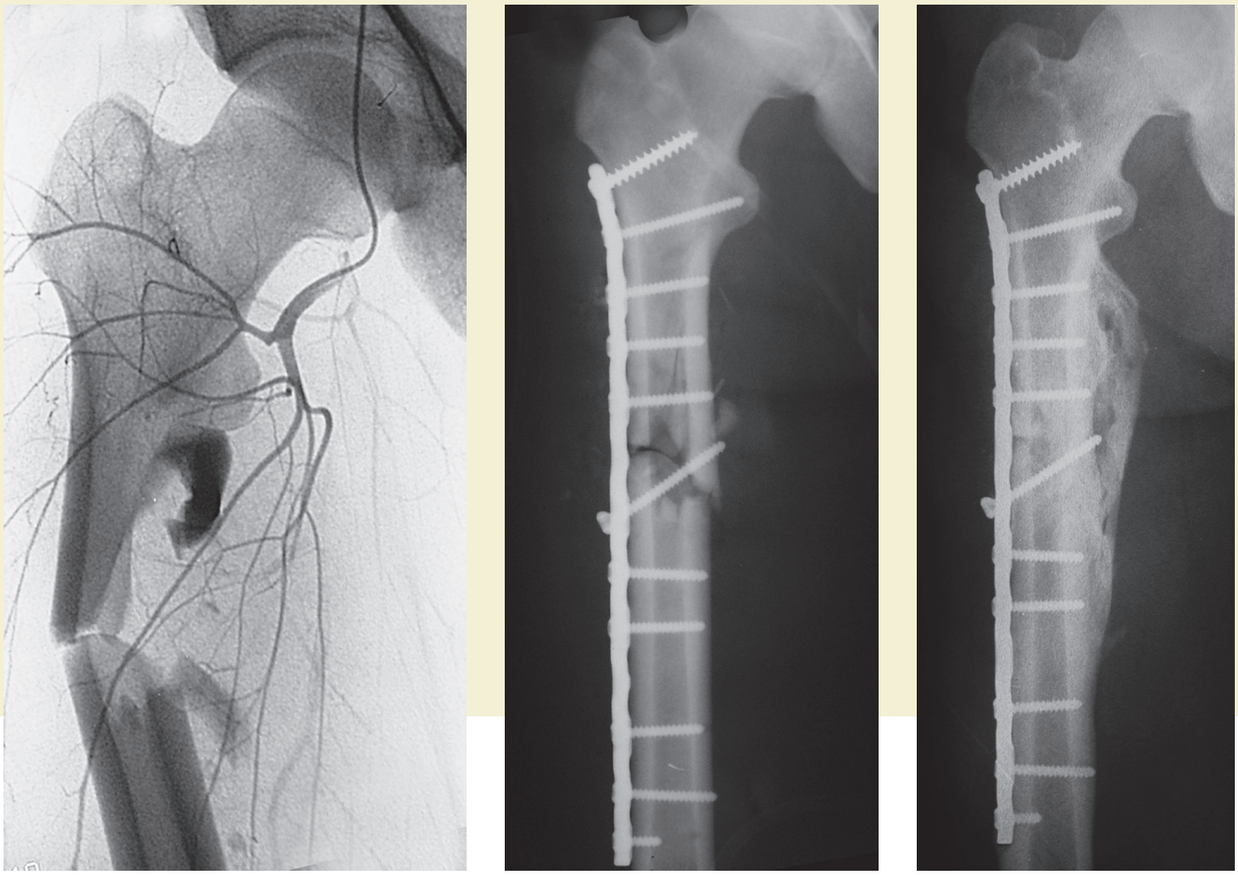


FIGURE 88

Diaphyseal fracture with comminution of the medial cortex and superficial femoral lesion.
An “open sky” approach was chosen to reposition the voluminous torsional wedge seen on the preoperative AP radiograph.
Osteosynthesis with interfragmentary screw and neutralization plate through an extensive access route, as described in TABLES 58 and 59.
In the images on the right, postoperative control and one-year follow-up

Approach to the midshaft of the fibula

Indications: fibular osteosynthesis, hemidiaphysectomy, and/or resection for graft harvesting.

The patient lies on their side with the knee moderately flexed.

The incision, linear and roughly perpendicular to the fracture site or the presumed graft harvesting area, follows the posterior margin of the fibula.

After incising the fascia and identifying the belly of the *peroneus longus*[1], the chosen segment of the diaphysis is freed by dissecting along the red dashed line, separating the two peroneal muscles.

In order to perform a hemidiaphysectomy or harvesting a segment of massive bone, the isolated diaphysis segment should be ample.

The two *peroneal muscles*[1,2] can be retracted either upward or downward according to the requirements (as in **TABLE 80** and in figures 120 and 121).

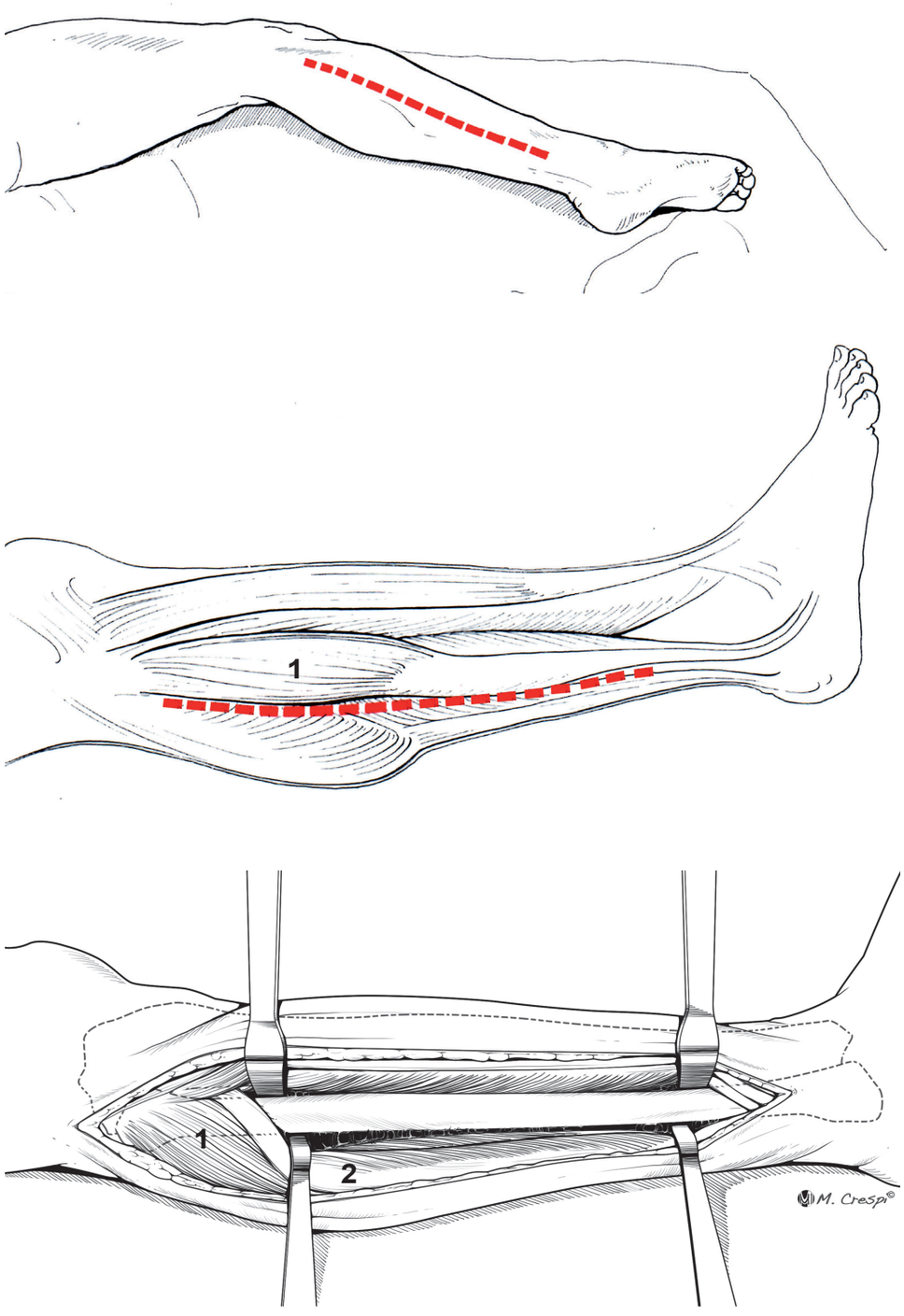


TABLE 80

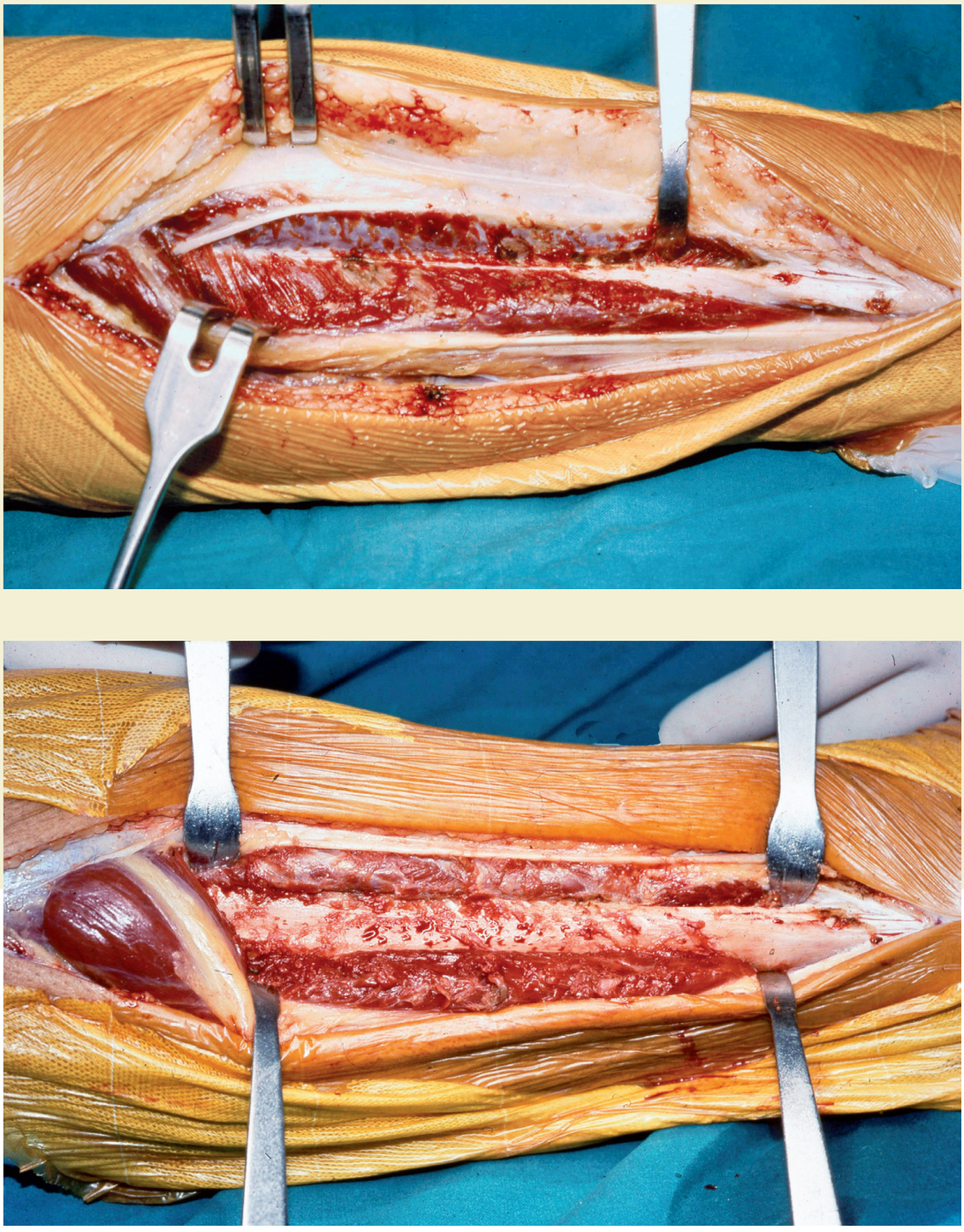


FIGURE 120

Access route to the fibula for a midshaft resection procedure.

The two levers are loaded downward, just after the disinsertion of the two peroneal muscles from the fibular shaft →

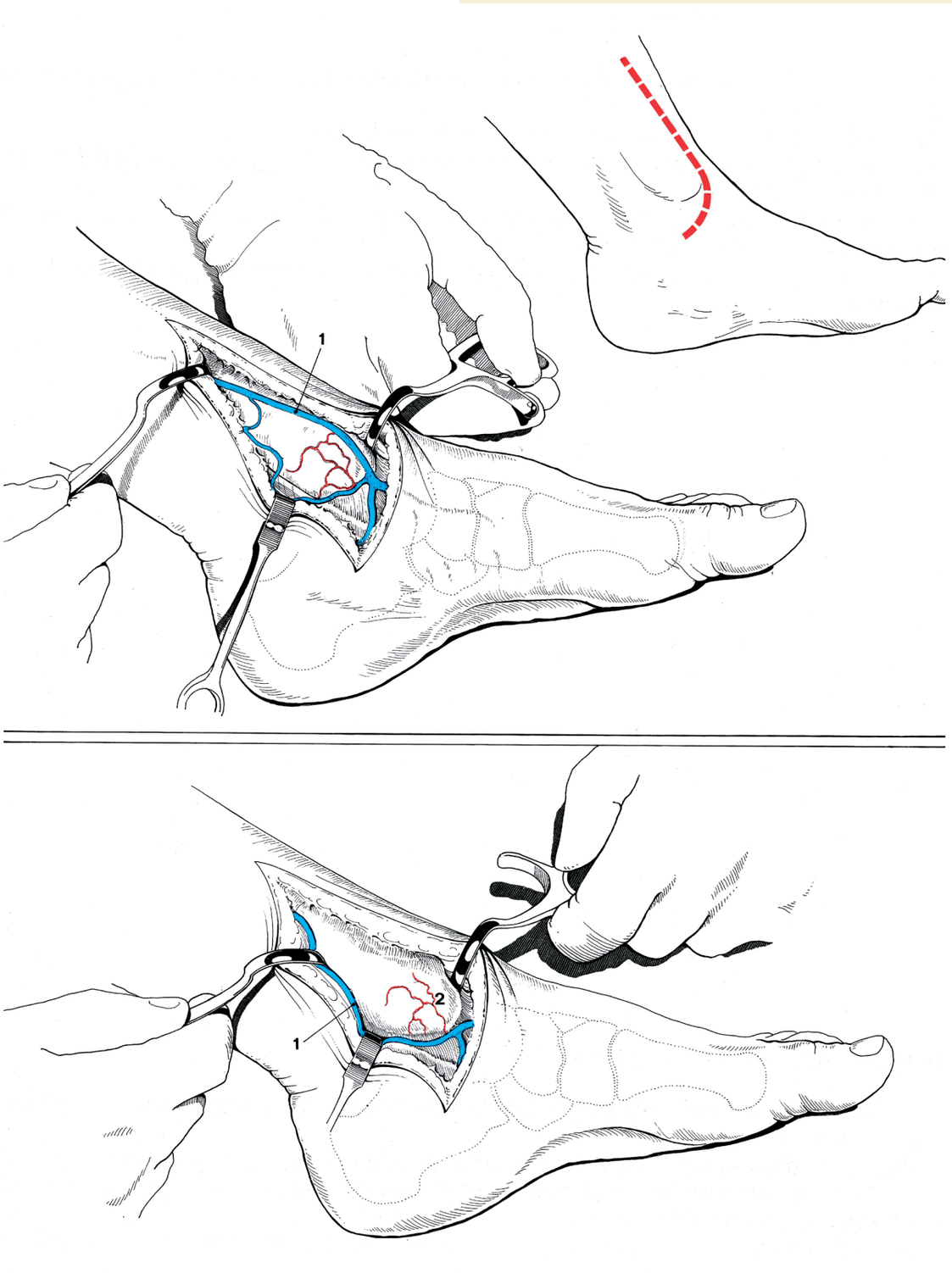


TABLE 85

→ FIGURE 141
Surgical treatment as described in TABLE 93. Easy reduction and osteosynthesis with cancellous screw and wire. Radiographic control at 2 months post-surgery