

humerus; proximal epiphyseal fibula transfer

♀ 7 yo

1st referral : 14.01.09

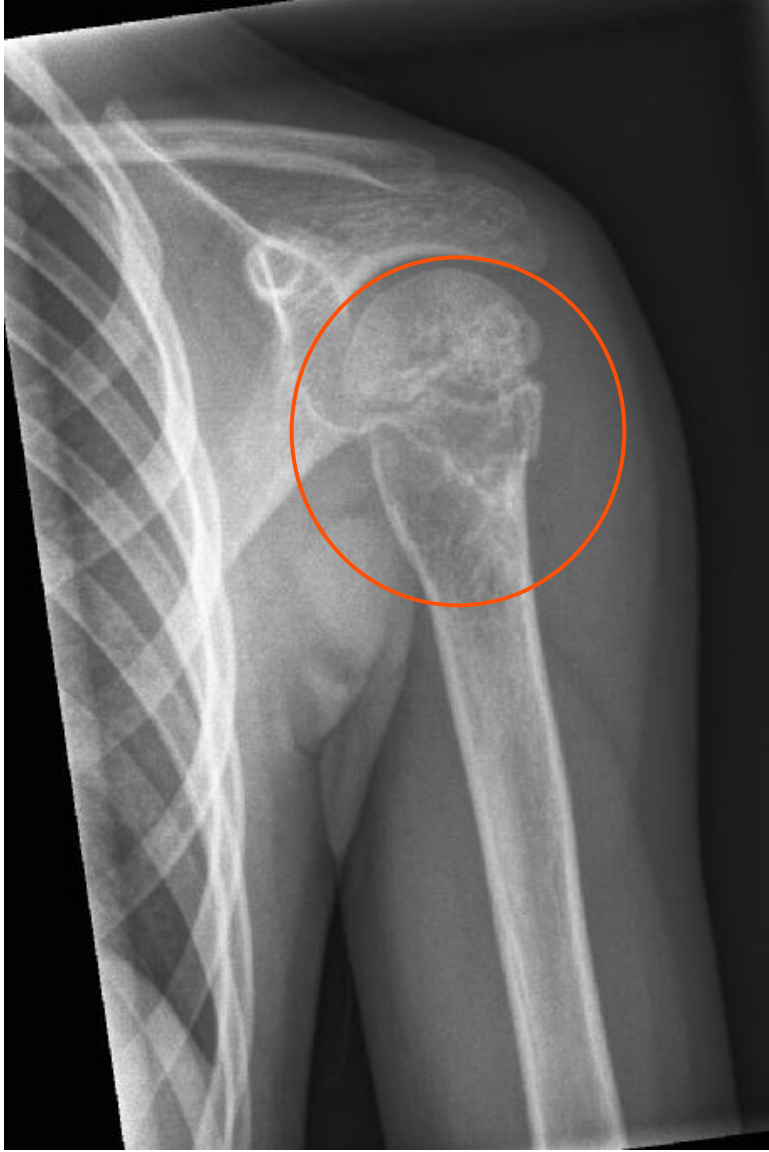
HPI : healthy, very active girl,

fall on icy ground → pain and functional limitation
in left arm

PMH : retrospectively preexistant discomfort in left
shoulder, no real complaints

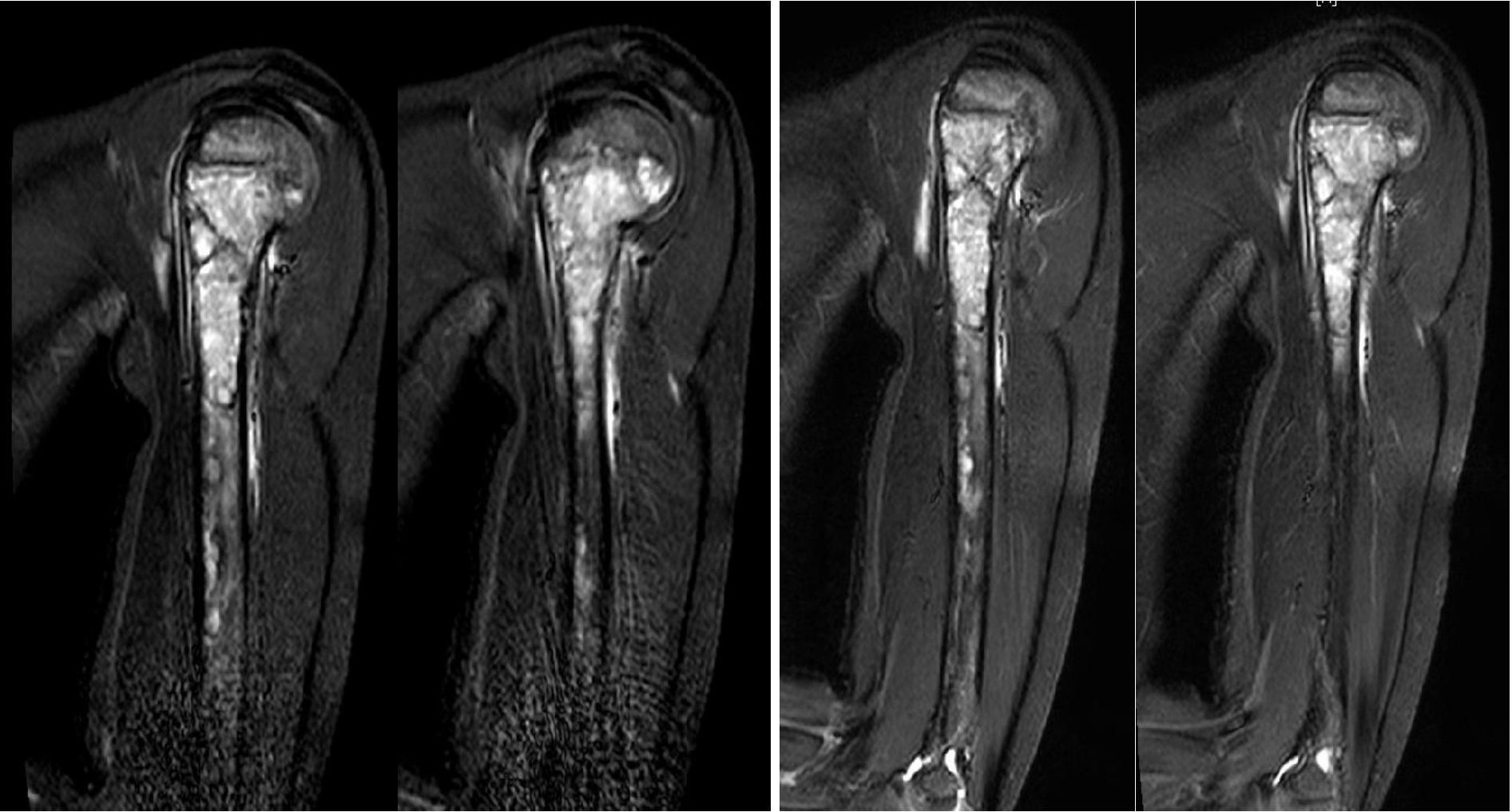
humerus; proximal epiphyseal fibula transfer

Jan 5, 2009



humerus; proximal epiphyseal fibula transfer

Jan 7, 2009



humerus; proximal epiphyseal fibula transfer

Jan 7, 2009



humerus; proximal epiphyseal fibula transfer

Jan 14, 2009

Clinical examination :

Intact skin

Left arm immobilized in Gilchrist bandage

**Neurology and vascular examination normal
(i.e. n. axillaris)**

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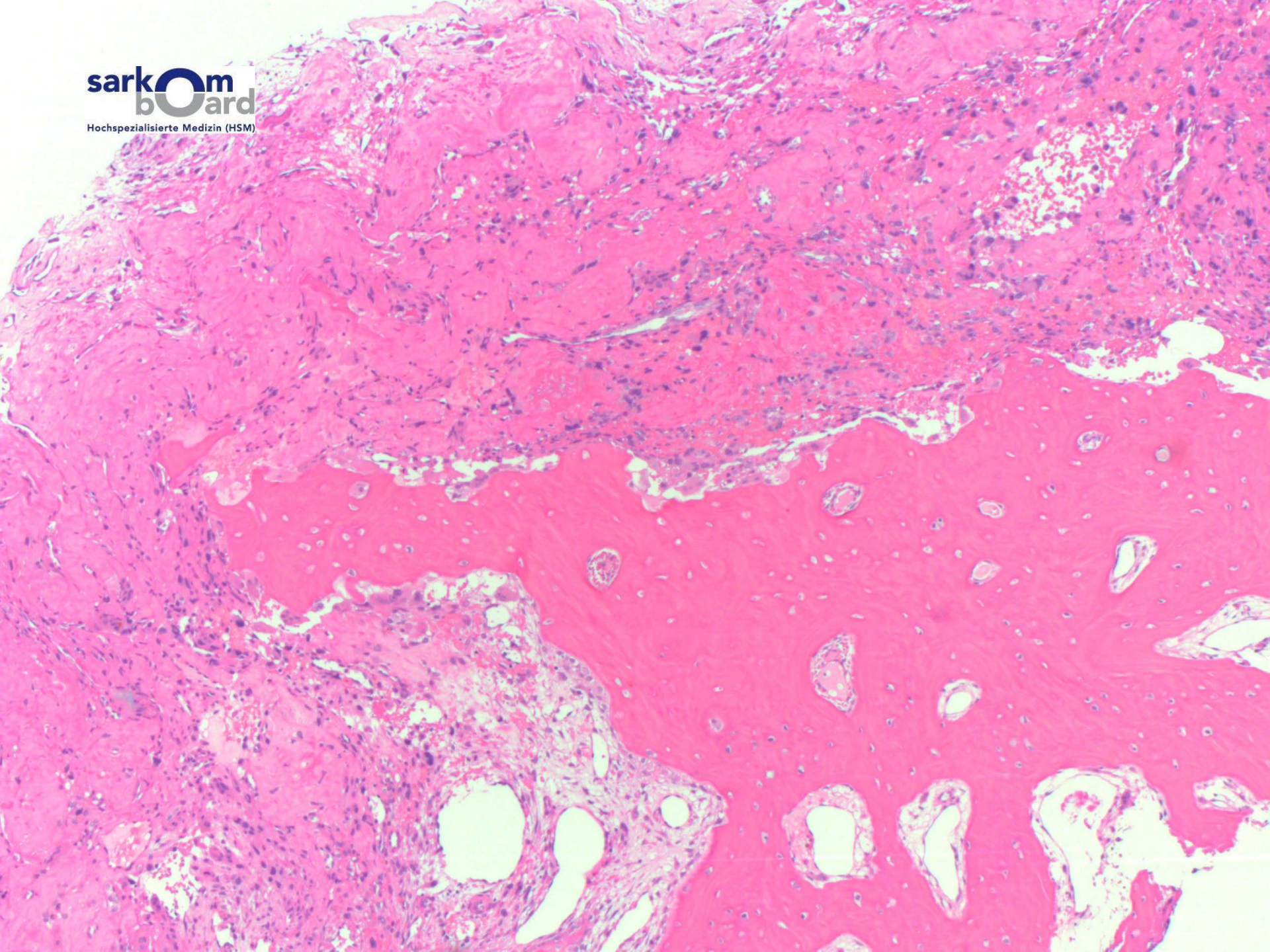
Jan 14, 2009

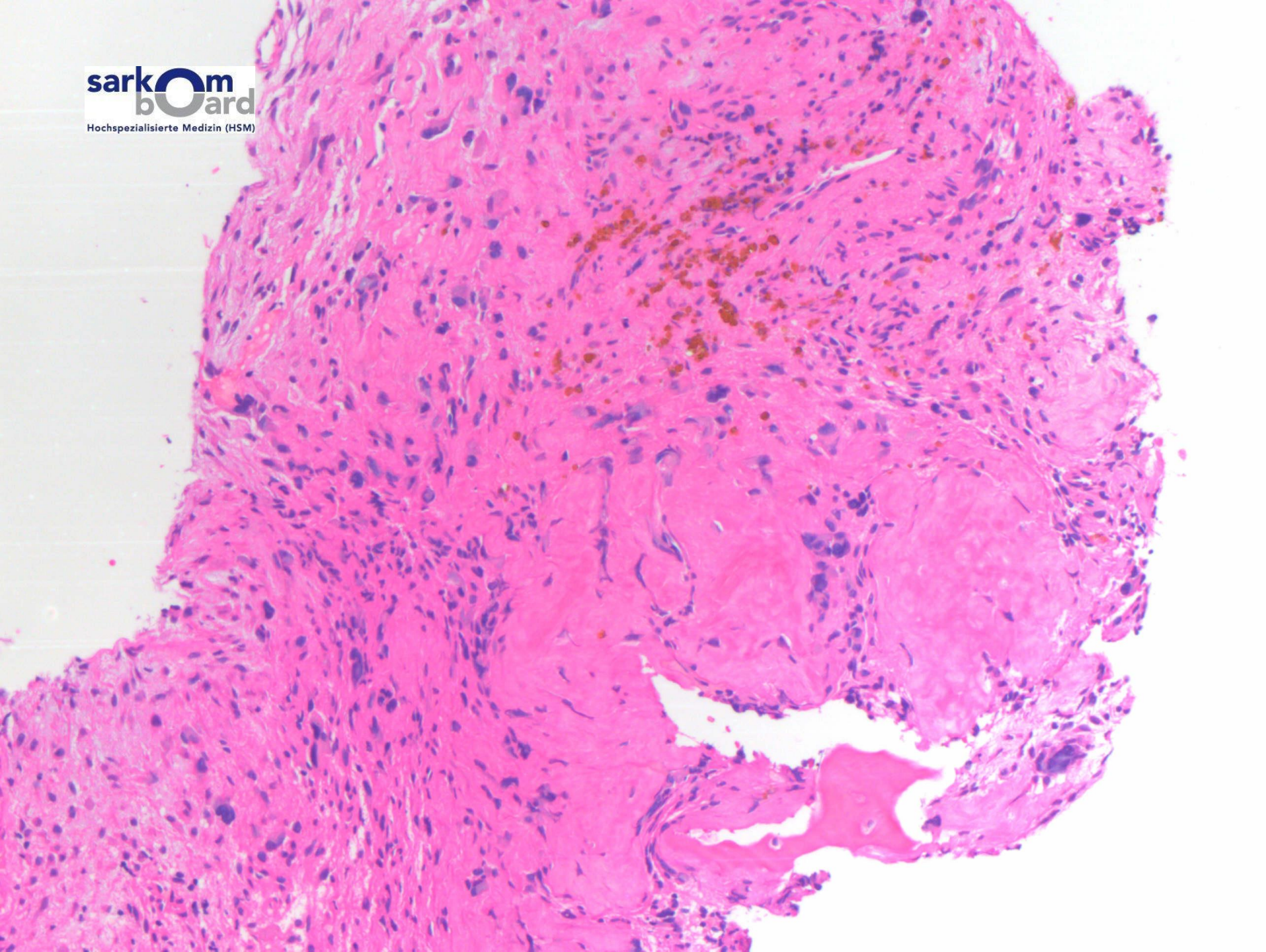
Trephine biopsy :

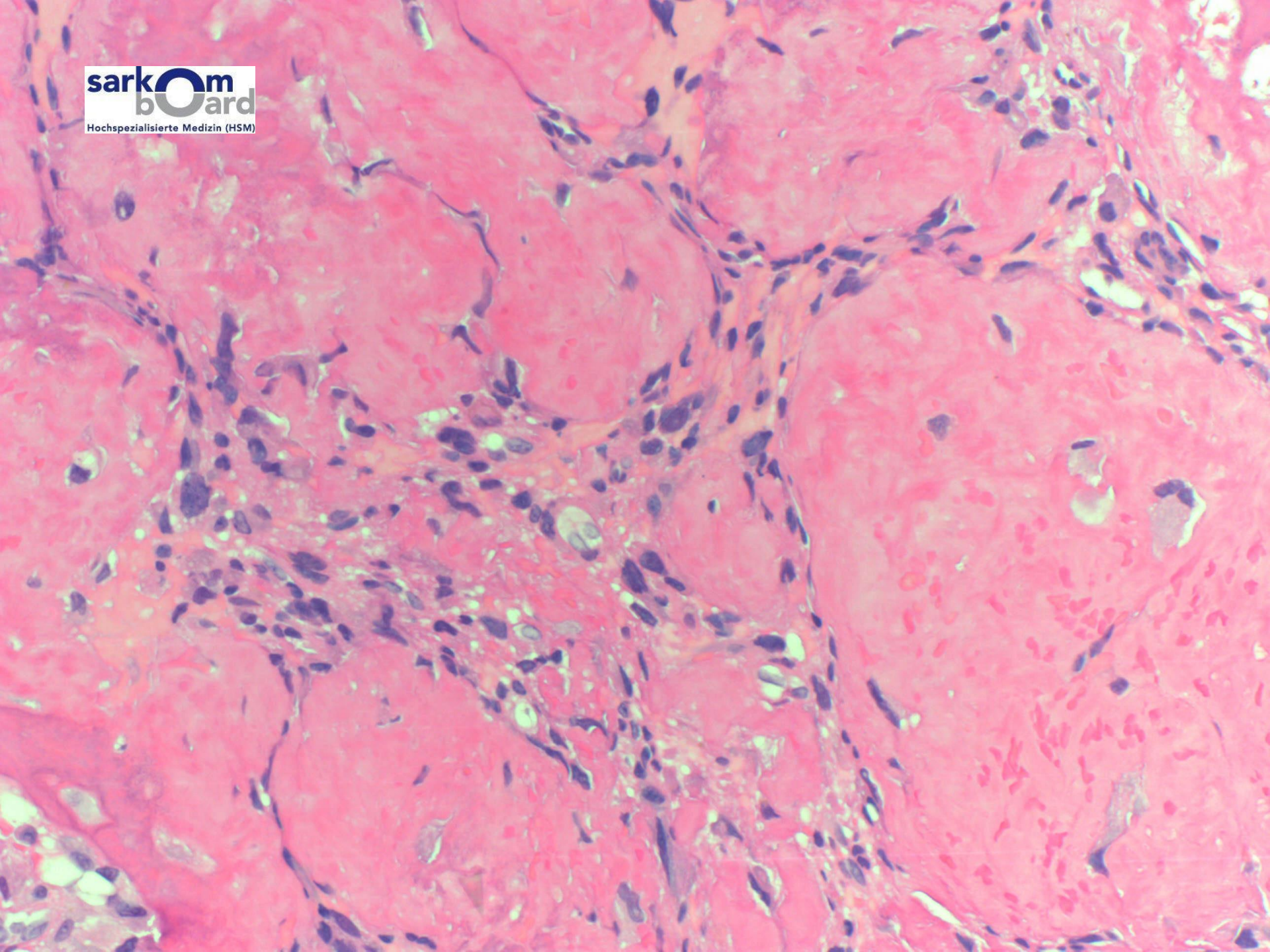
**Through m. deltoideus
(lateral of vena cephalica)**

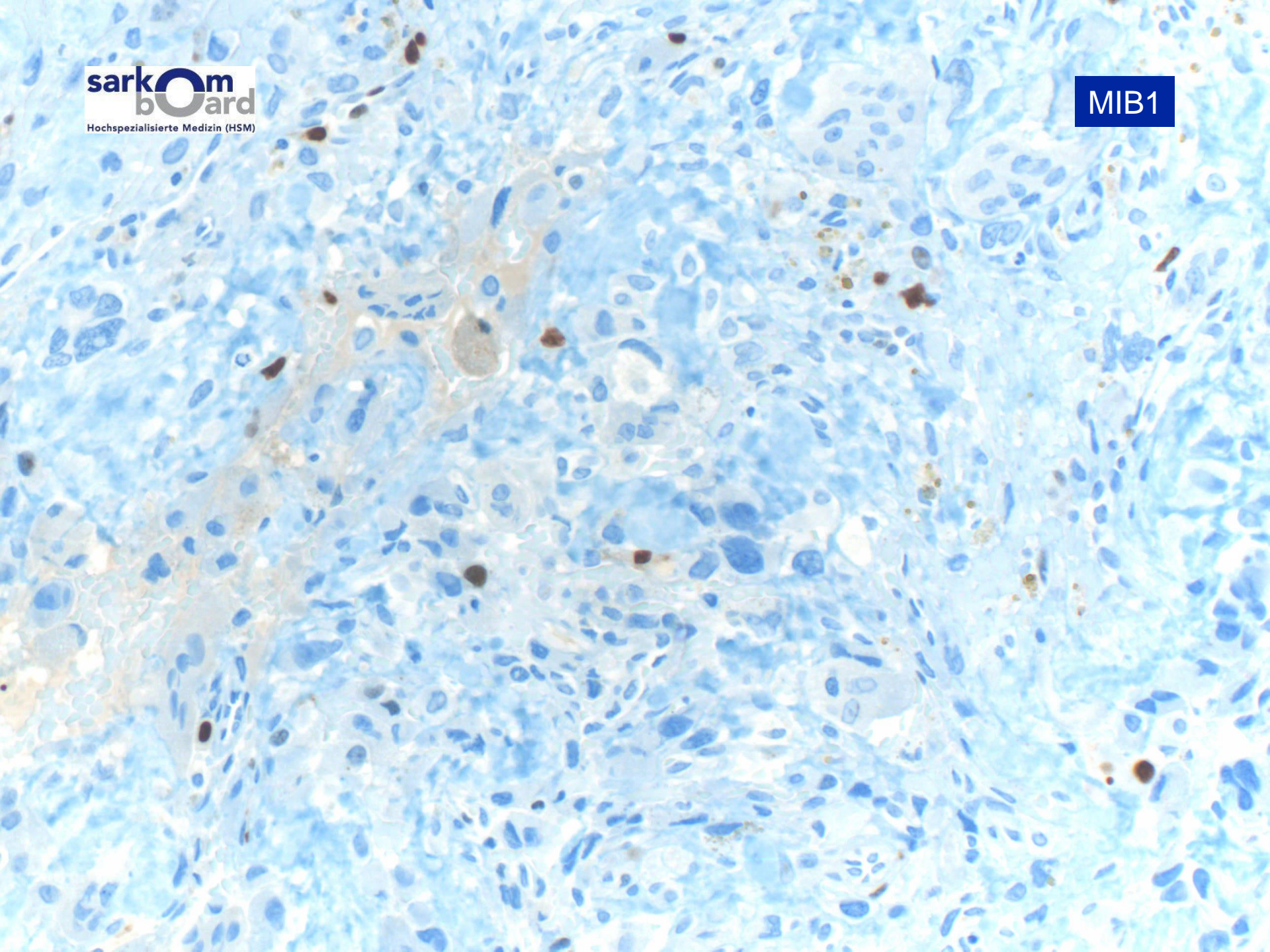
**No material from reactive
fracture zone**



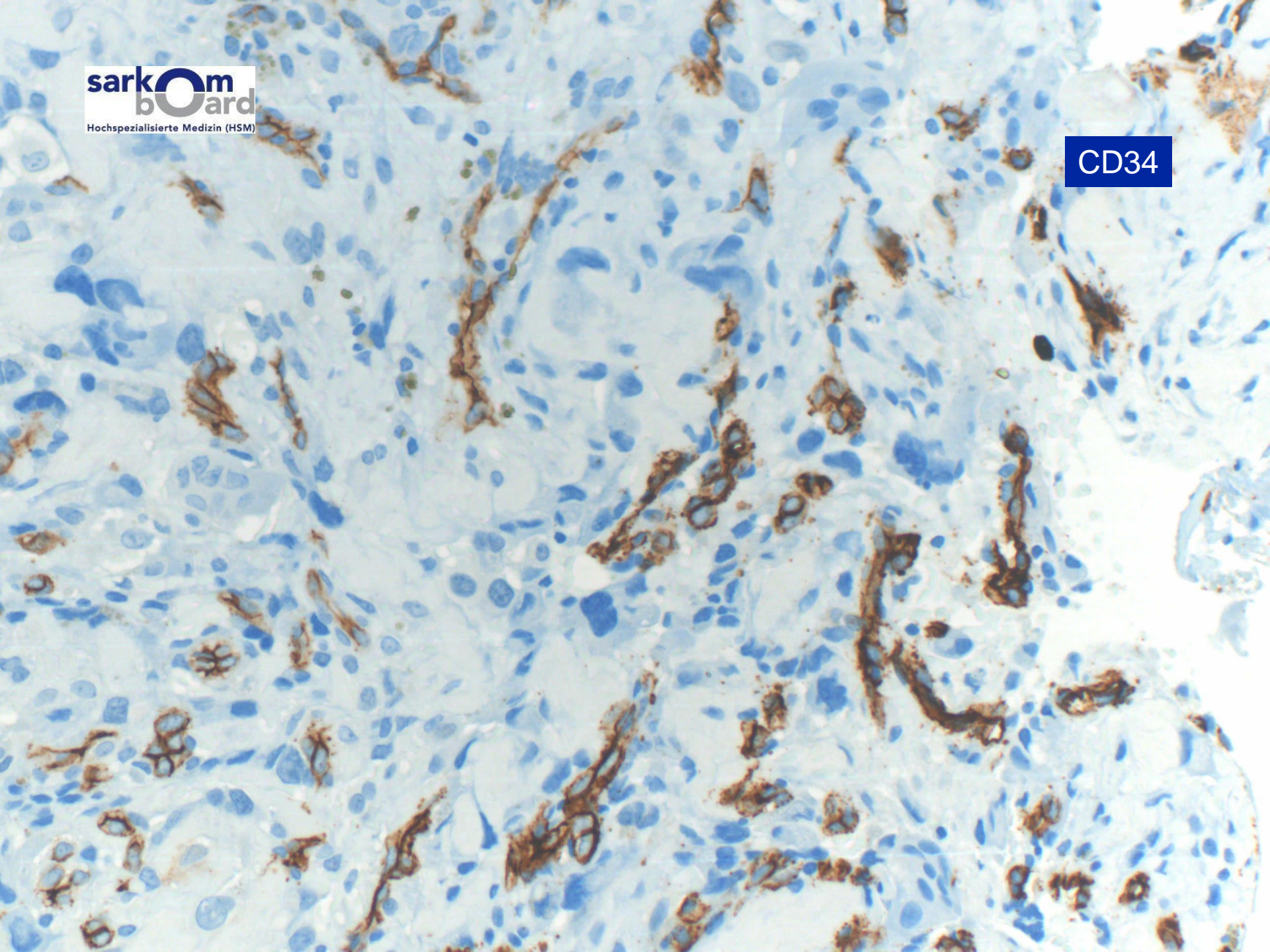








CD34



humerus; proximal epiphyseal fibula transfer

Diagnose

Nekrotisches Knochengewebe neben Anteilen einer matrixproduzierenden Läsion mit Zellatypien (proximaler Humerus links; vgl. Kommentar).

Histologisch liegt das Bild einer chondrogenen Läsion nicht vor. Kein Ewing-Sarkom, kein Non-Hodgkin-Lymphom. Die präzise Entitätszuordnung und insbesondere Dignitätsbestimmung gestaltet sich schwierig. Insgesamt ist die Läsion malignitätsverdächtig (am ehesten high grade-Osteosarkom mit teleangiektatischen Anteilen), allerdings ausgeprägte reaktive Veränderungen können nicht definitiv ausgeschlossen.

Eine erneute Biopsieentnahme muss empfohlen werden.

Die Schnittpräparate wurden ausführlich mit Prof. von Hochstetter (Referenz-Pathologe der EURAMOS-Studie) am 19.01.09 im Rahmen des mesenchymalen Kolloquiums diskutiert.

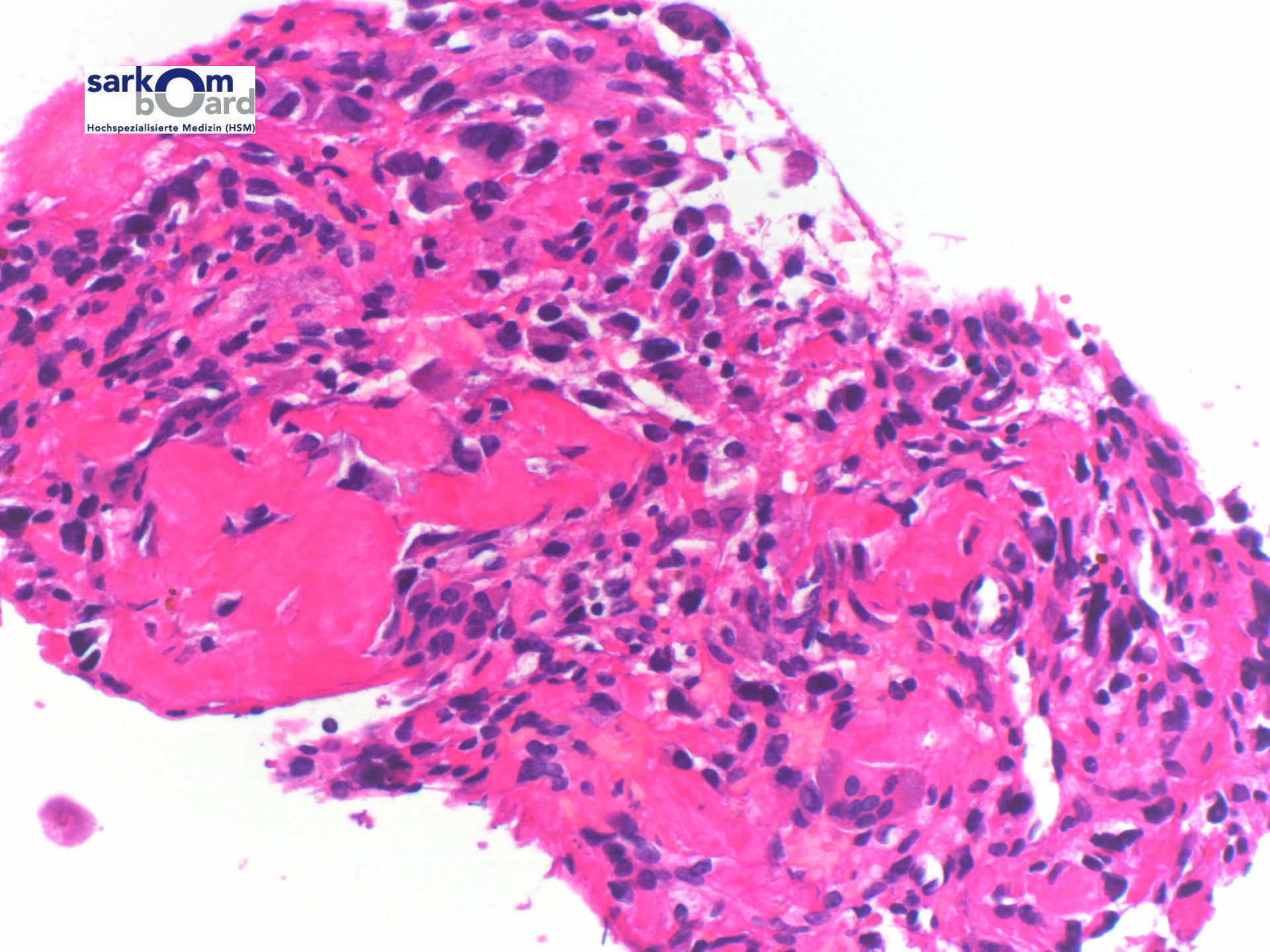
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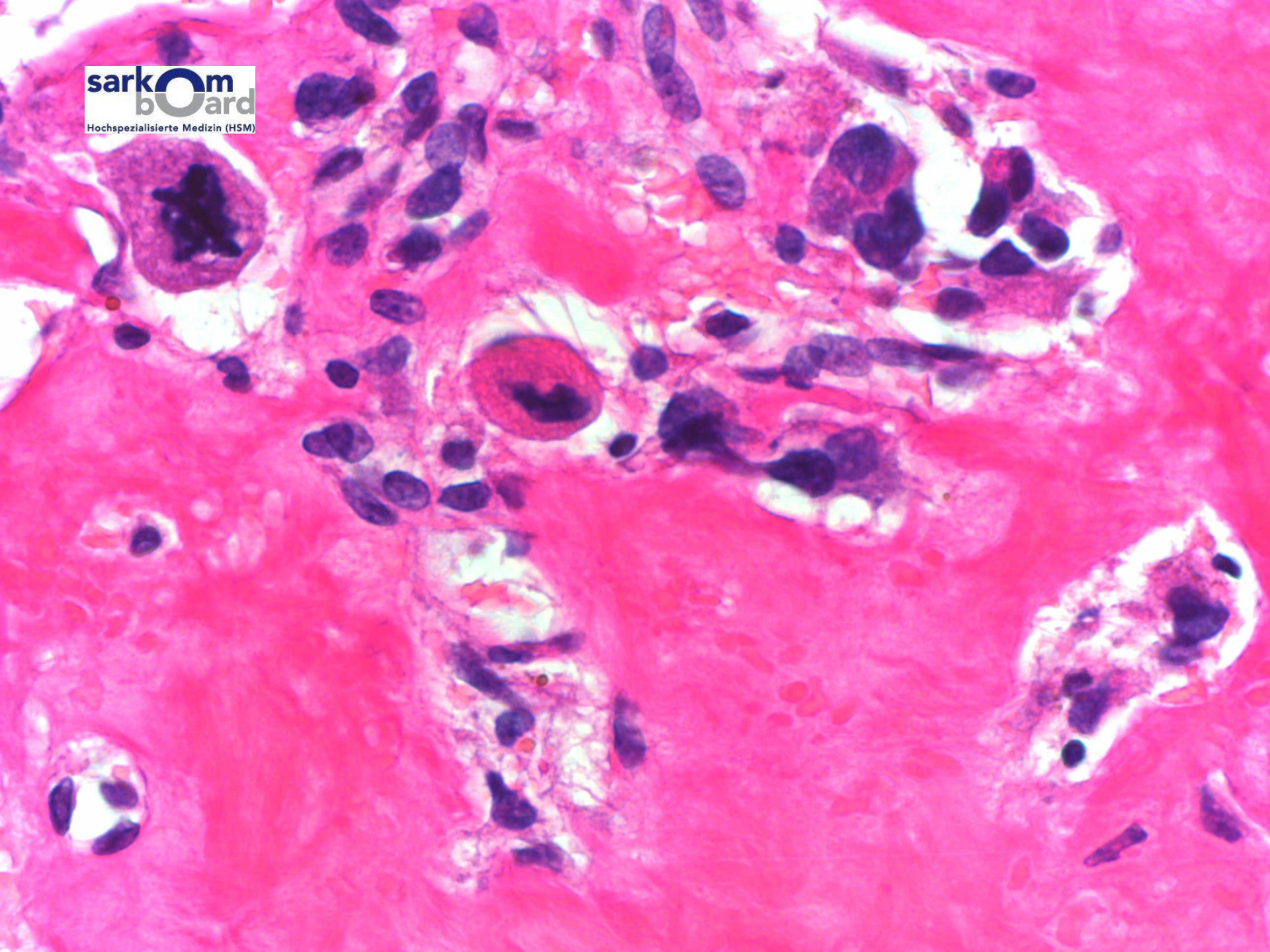
Jan 14, 2009

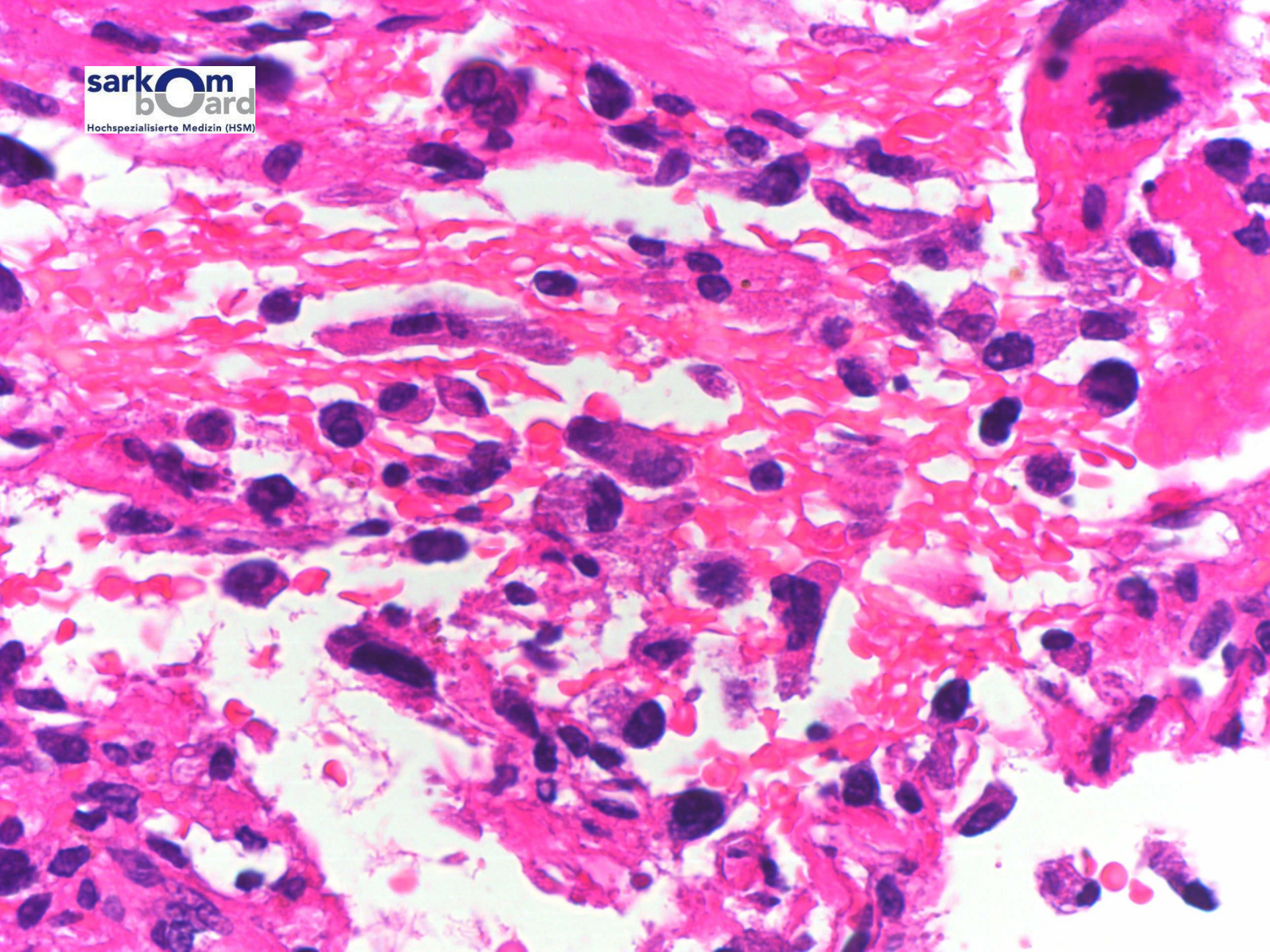
Histology:

No chondrogenous lesion, no Ewing-sarcoma, no Non-Hodgkin-lymphoma. No clear diagnosis possible.

Suspicion of malignancy (probably osteosarcoma with telangiectatic elements, high grade, new biopsy required)







humerus; proximal epiphyseal fibula transfer

Diagnose

High grade Osteosarkom, überwiegend vom osteoblastischen Typ (Humerus links proximal).

Codierung

B 2009.5736: P11410 (Exzizat);T10020; M91803

Klinische Angaben

Status nach Fraktur 5. Januar 09, Status nach Biopsie 15. Januar 09, inkonklusive Histologie.
Teleangiektatisches Osteosarkom?

Angaben zur Probe

Proximaler Humerus links

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Feb 6, 2009

New bone-trap biopsy

Histology:

High grade osteosarcoma, predominantly osteoblastic

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Feb 5, 2009

External CT Thorax :

3 very little non-specific lesions

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External skeletal scintigraphy :

No other bone lesions

Echocardiography and audiometry normal

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Feb 17, 2009

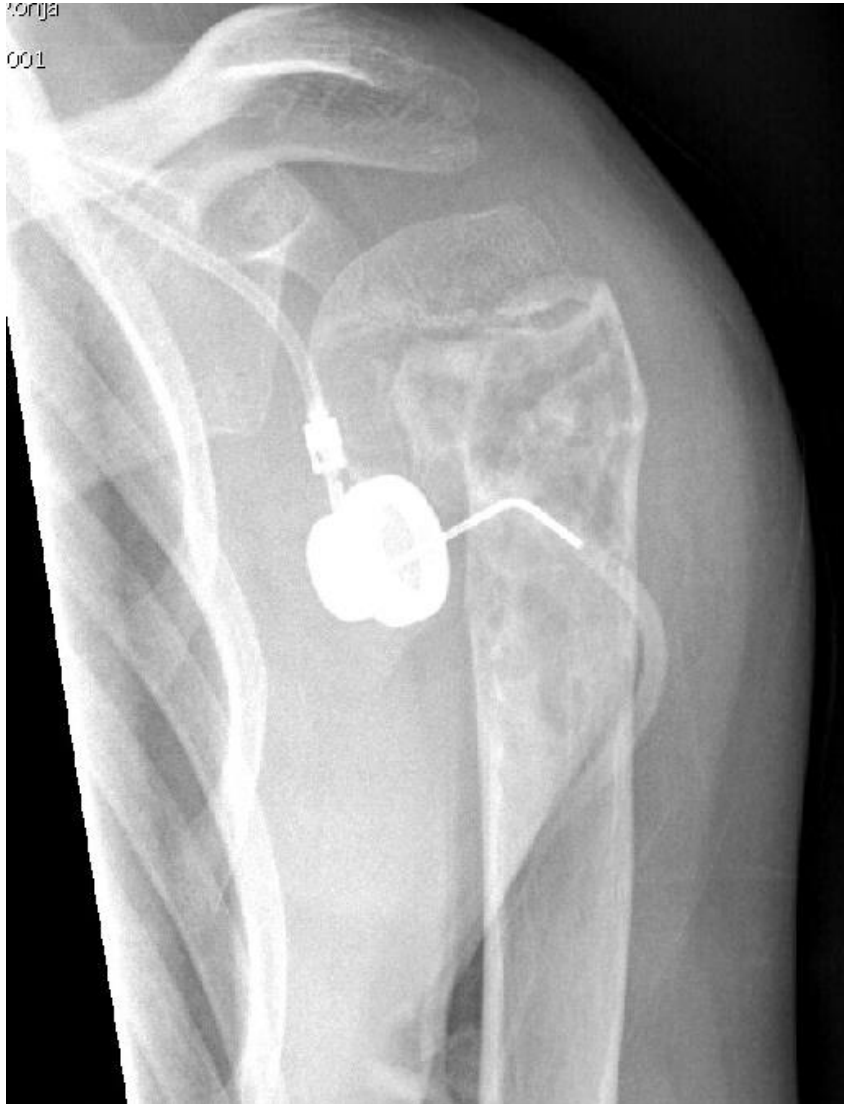
Porth-à-cath implantation :

Neoadjuvant chemotherapy until Apr 27, 2009

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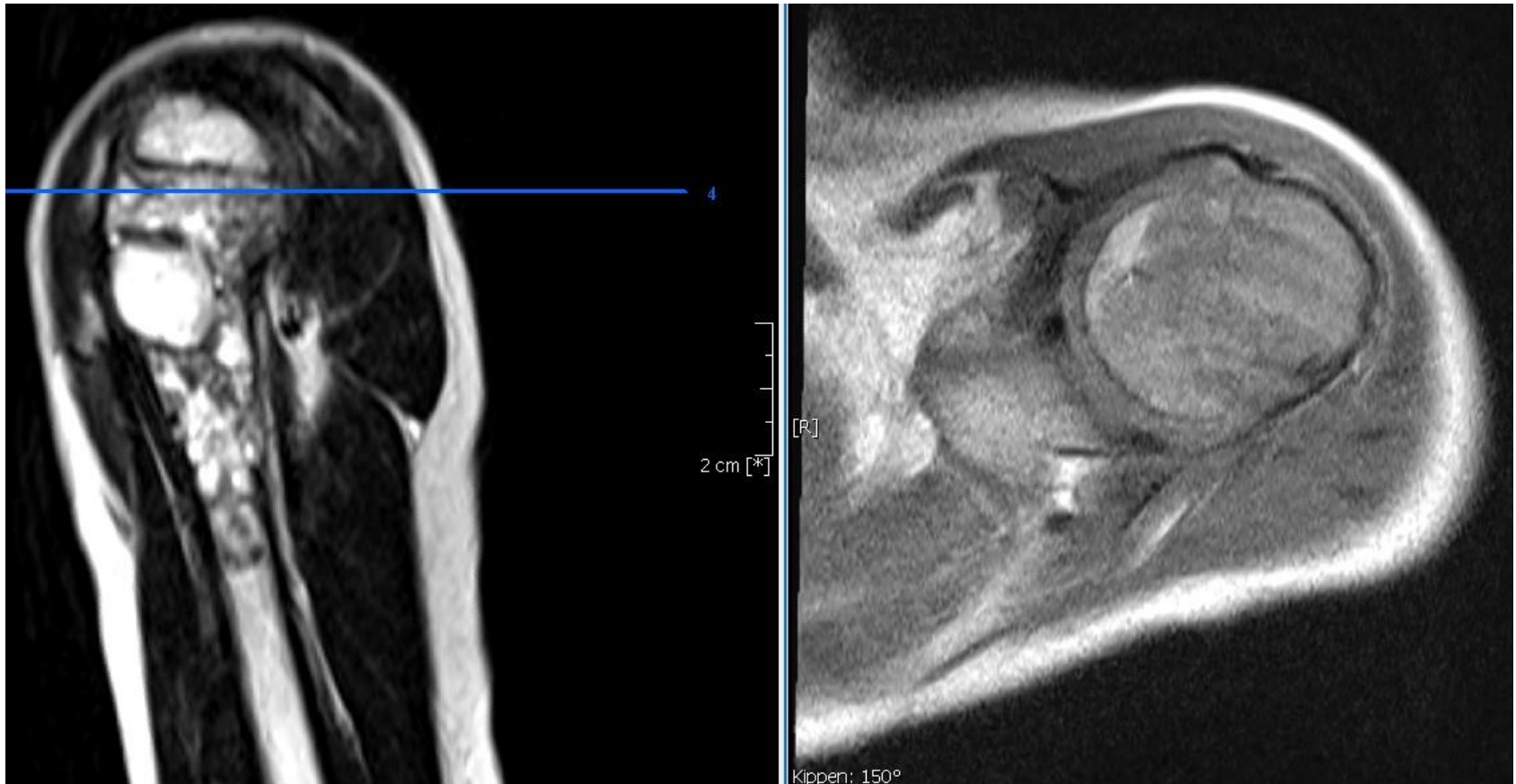
sarkoma
bOard
Hochspezialisierte Medizin (HSM)

May 4, 2009



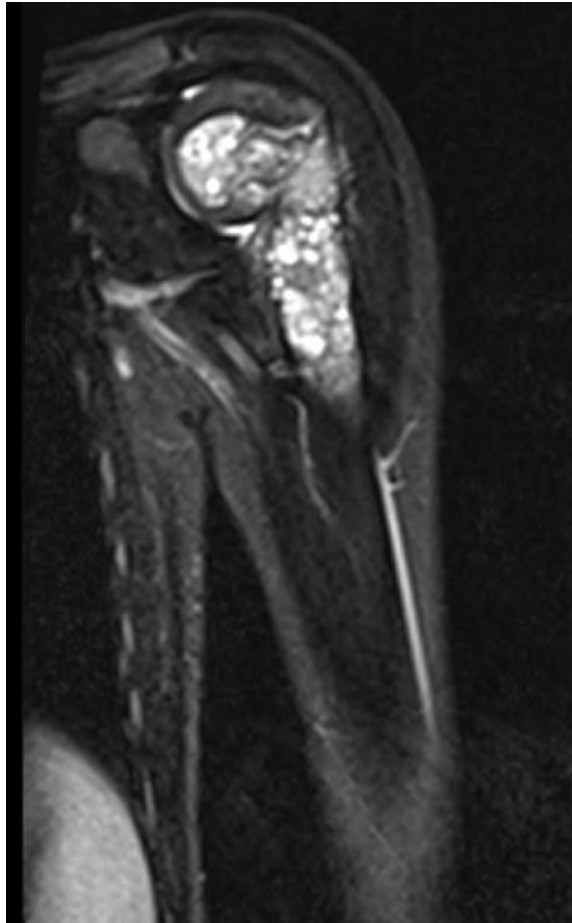
humerus; proximal epiphyseal fibula transfer

May 4, 2009



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May 4, 2009



humerus; proximal epiphyseal fibula transfer



humerus; proximal epiphyseal fibula transfer

May 5, 2009

Surgical procedure :

**Osteosarcoma resection proximal left
Humerus and reconstruction with ipsilateral
vascularised Fibula including transfer of the
physeal plate**

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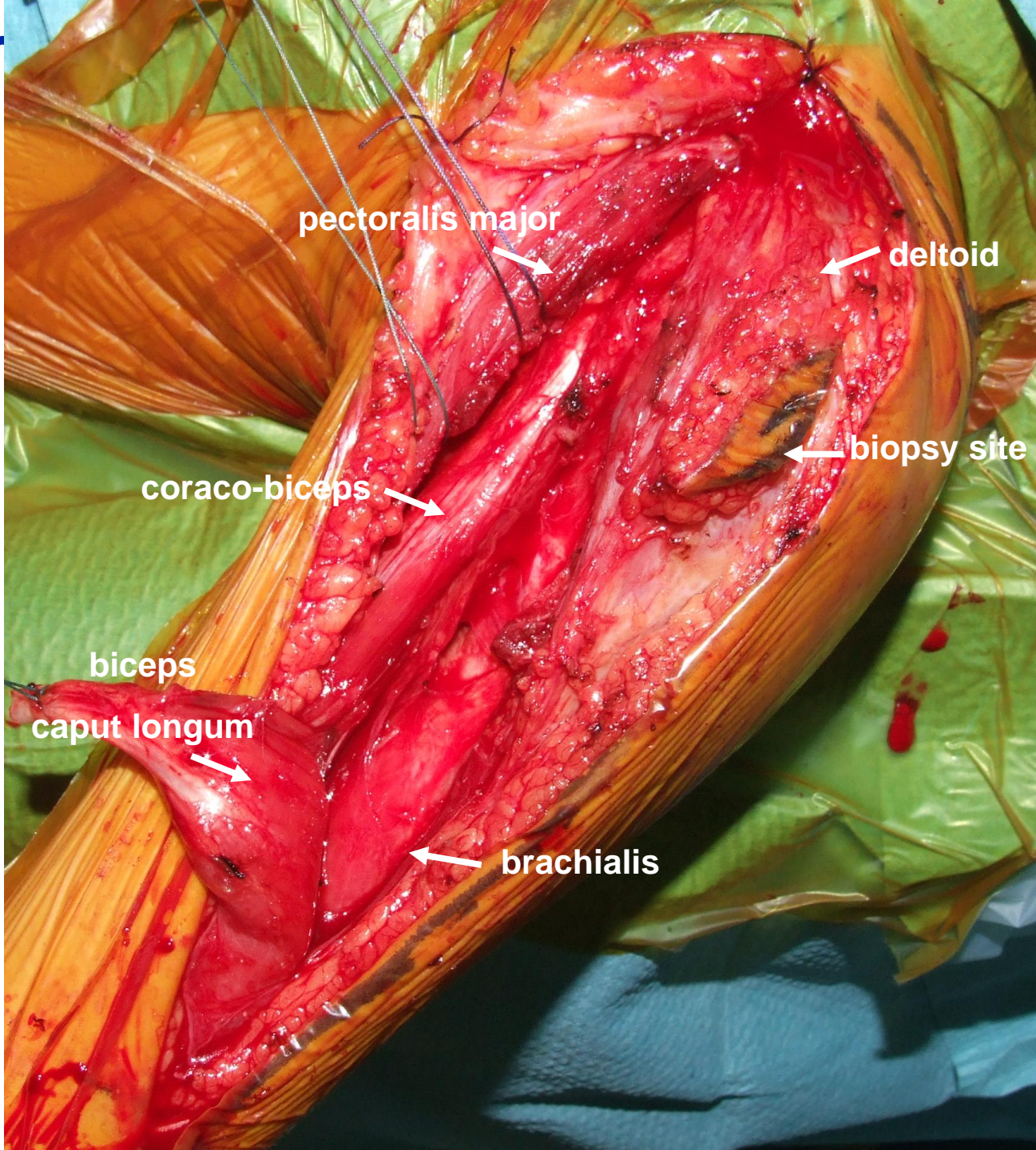
sarkom
board
Hochspezialisierte Medizin (HSM)

May 5, 2009



humer

transfer



pectoralis major

deltoid

coraco-biceps

biopsy site

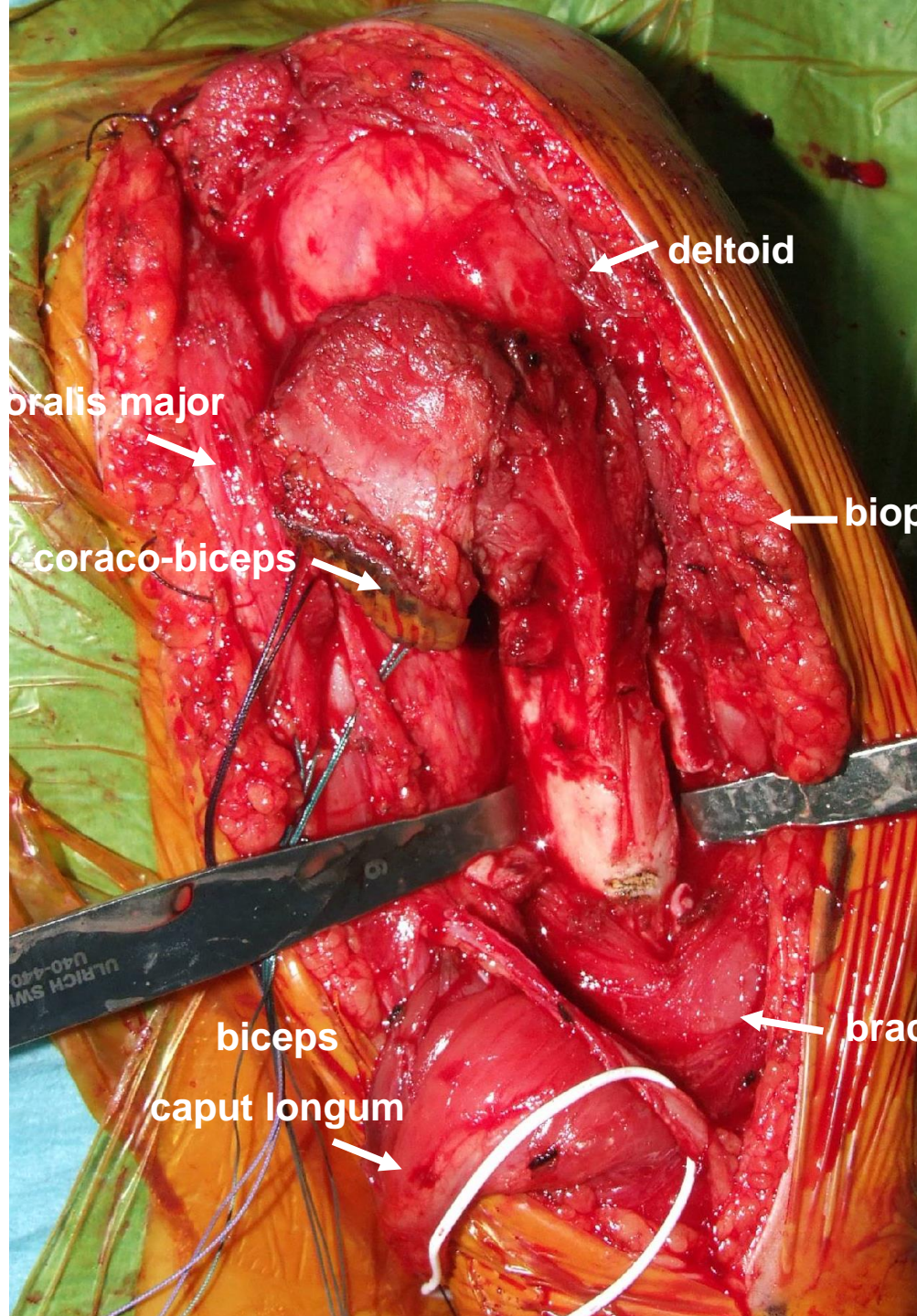
biceps

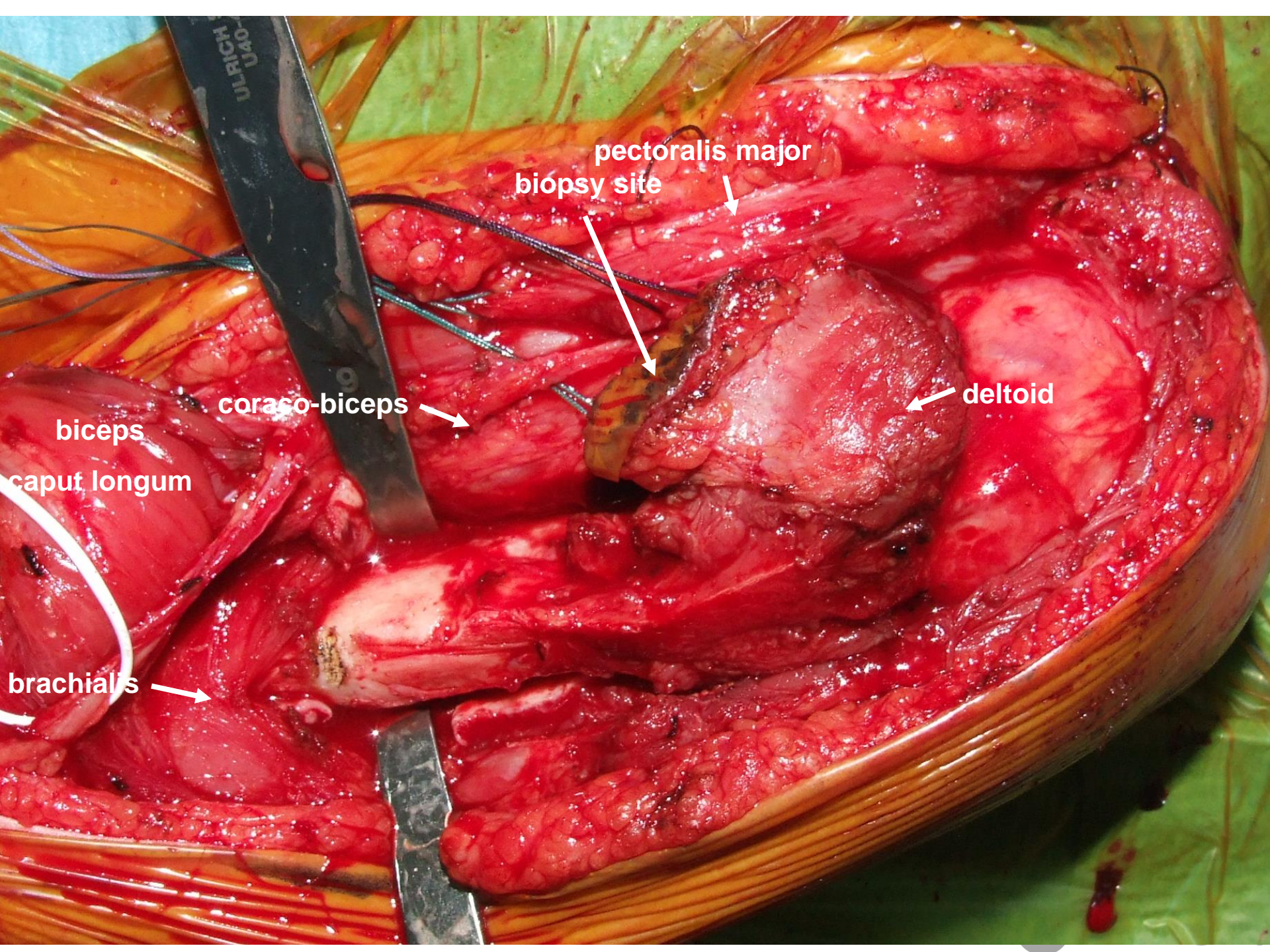
caput longum

brachialis

humerus;

triceps transfer





pectoralis major
biopsy site

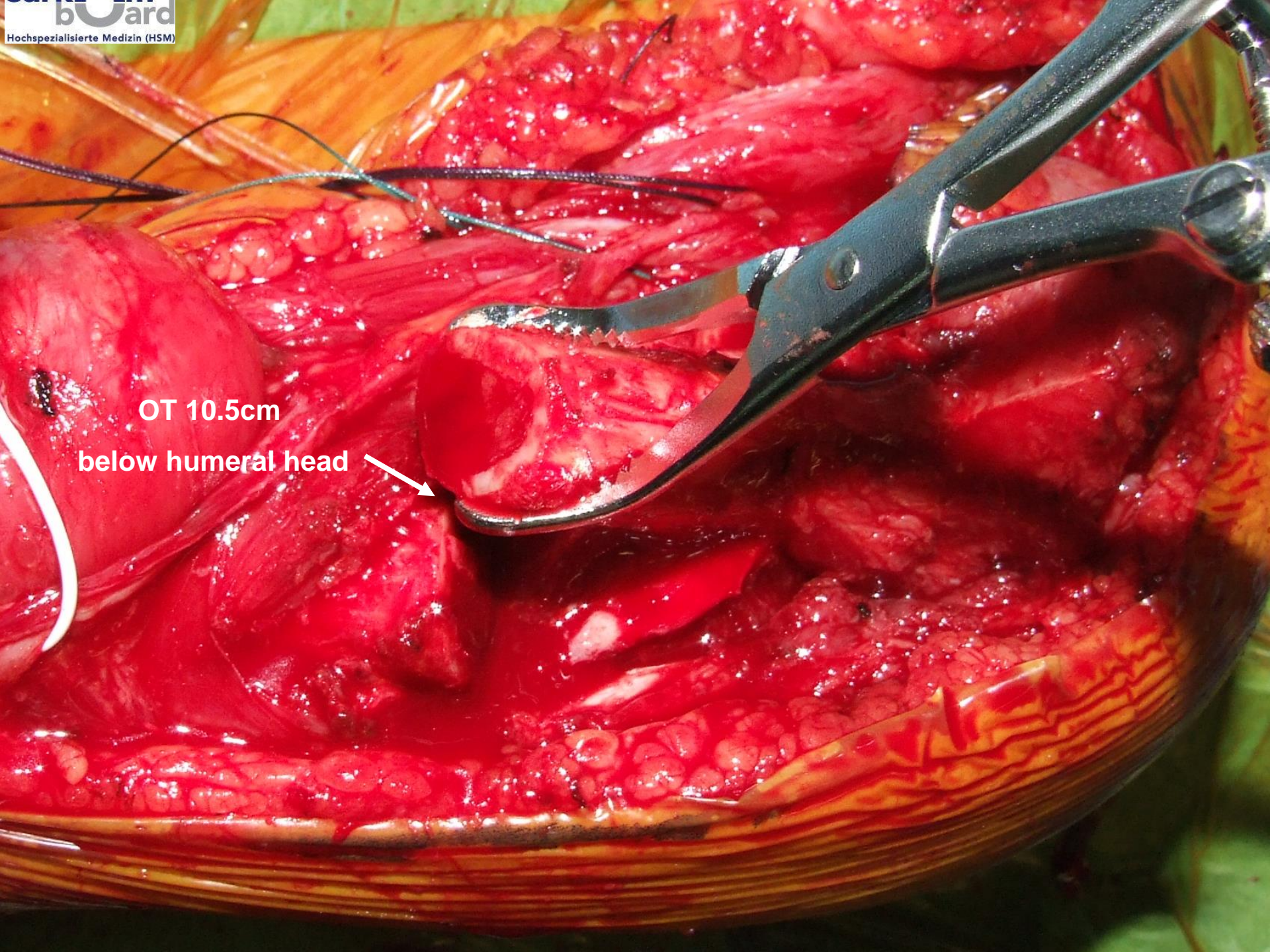
coraco-biceps

deltoid

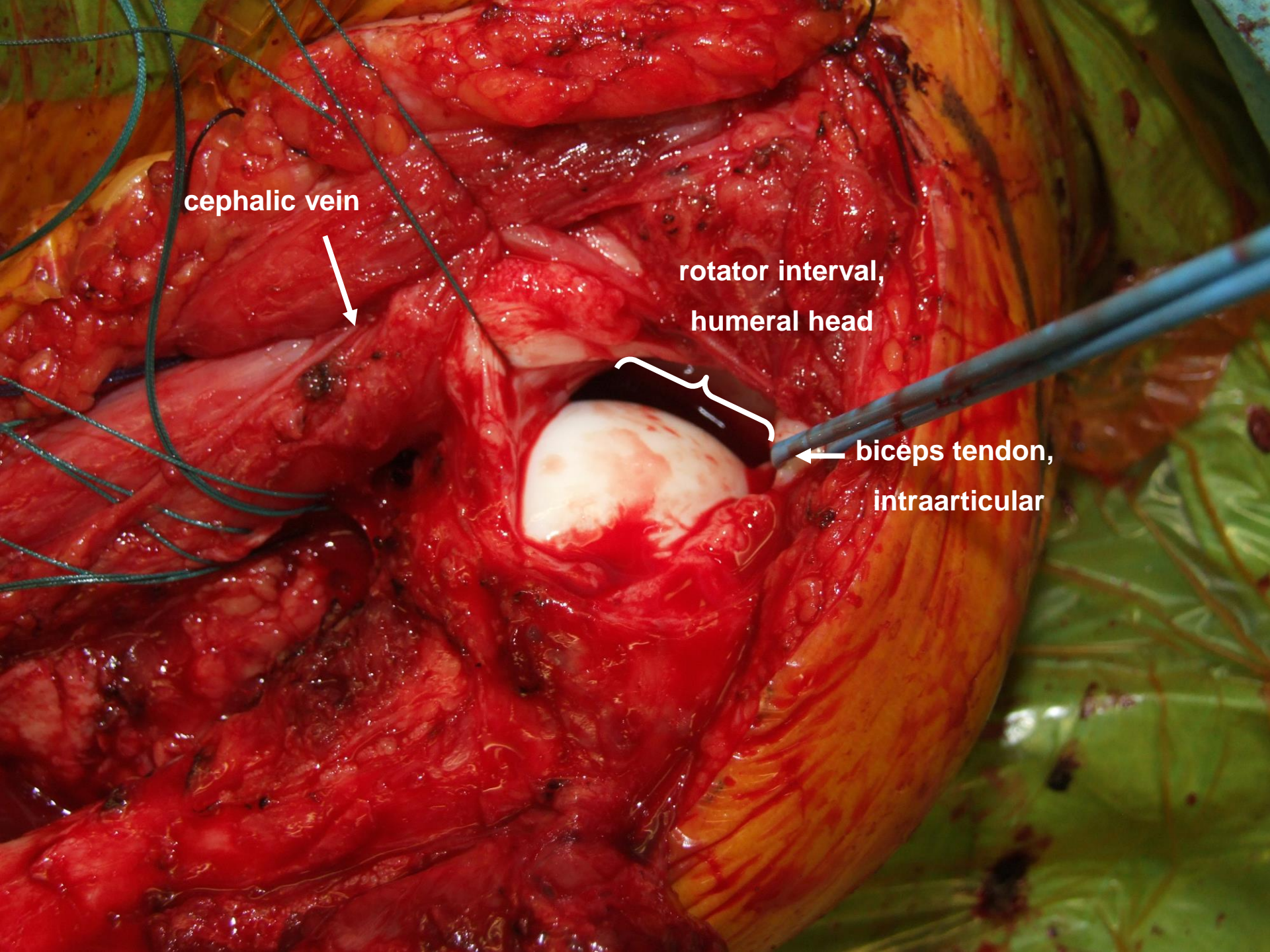
biceps

caput longum

brachialis



OT 10.5cm
below humeral head



cephalic vein



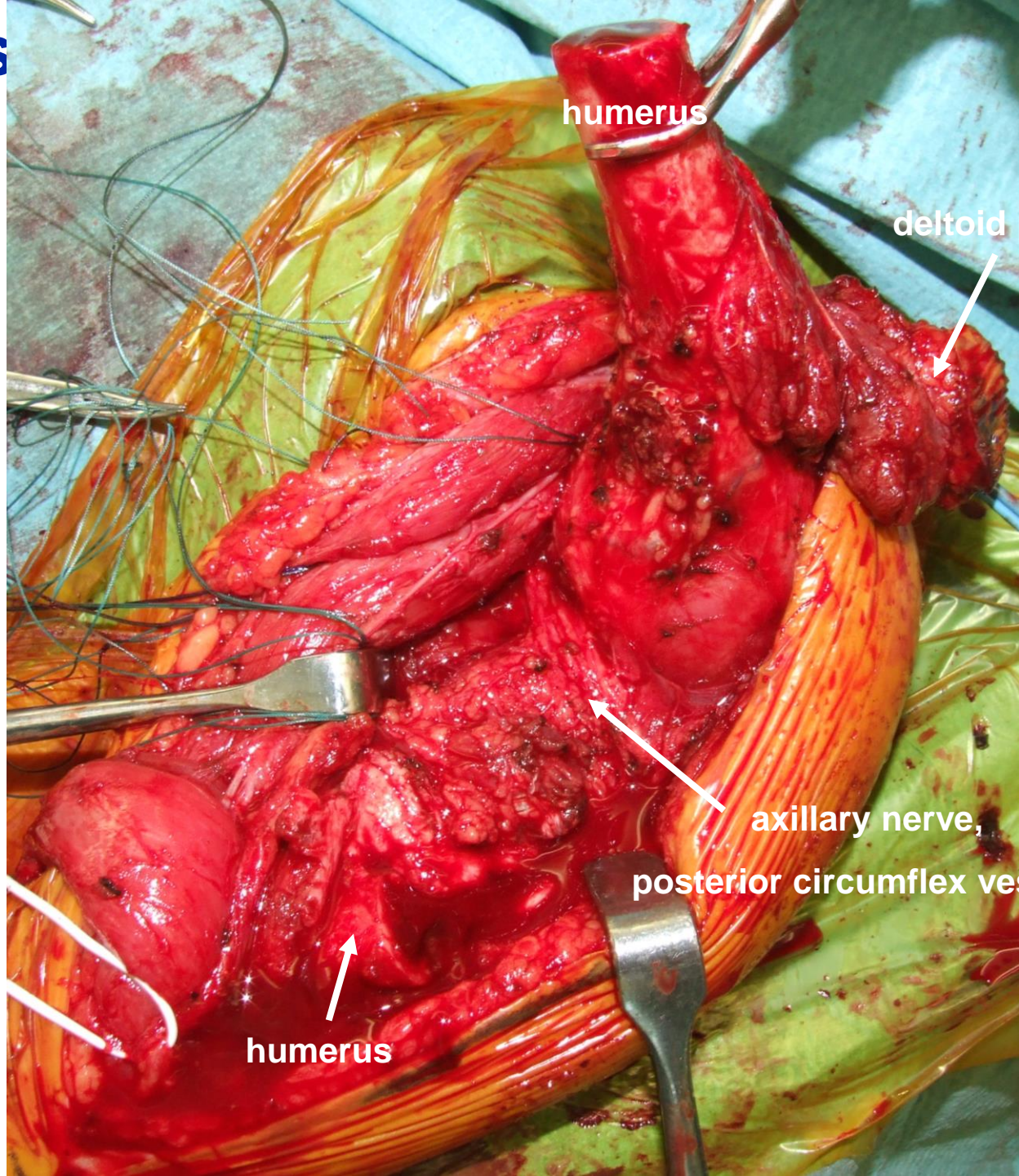
rotator interval,
humeral head



biceps tendon,
intraarticular

humerus

transfer



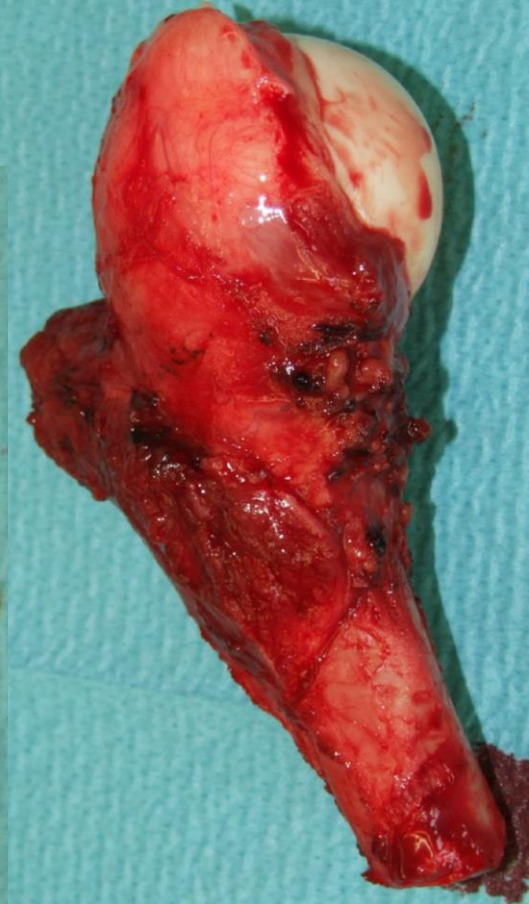
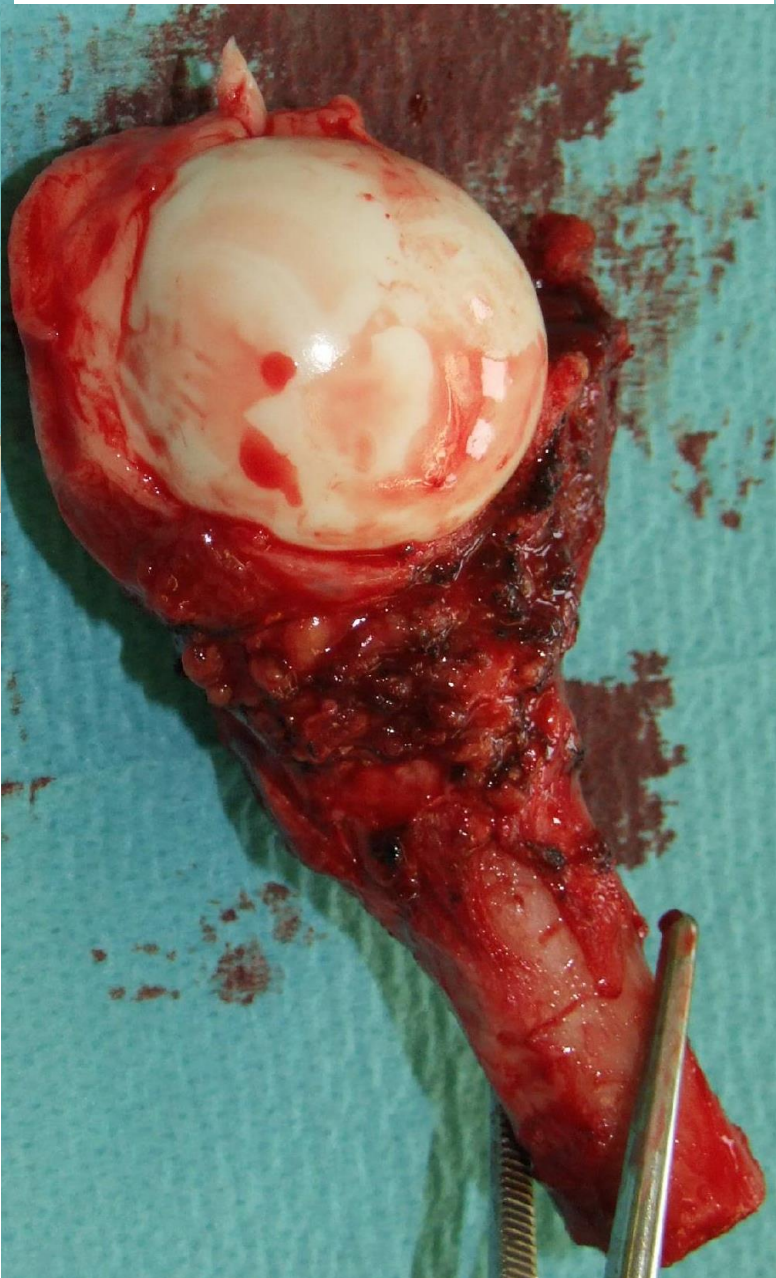
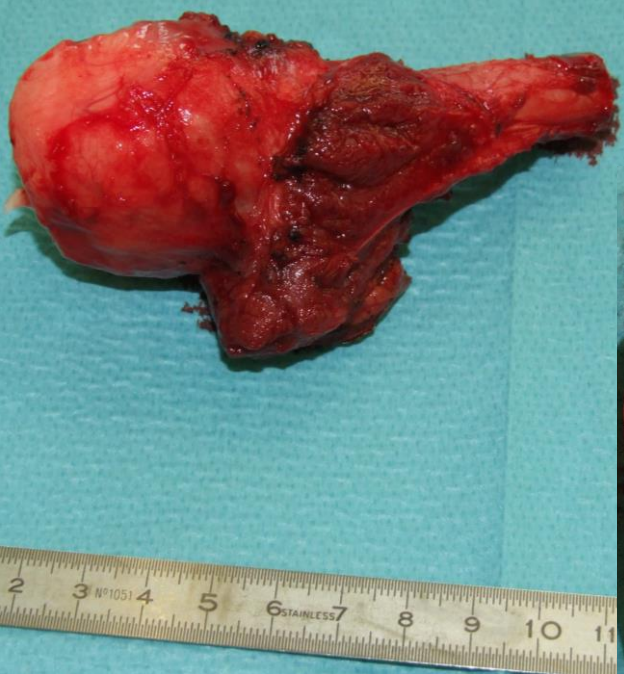
humerus

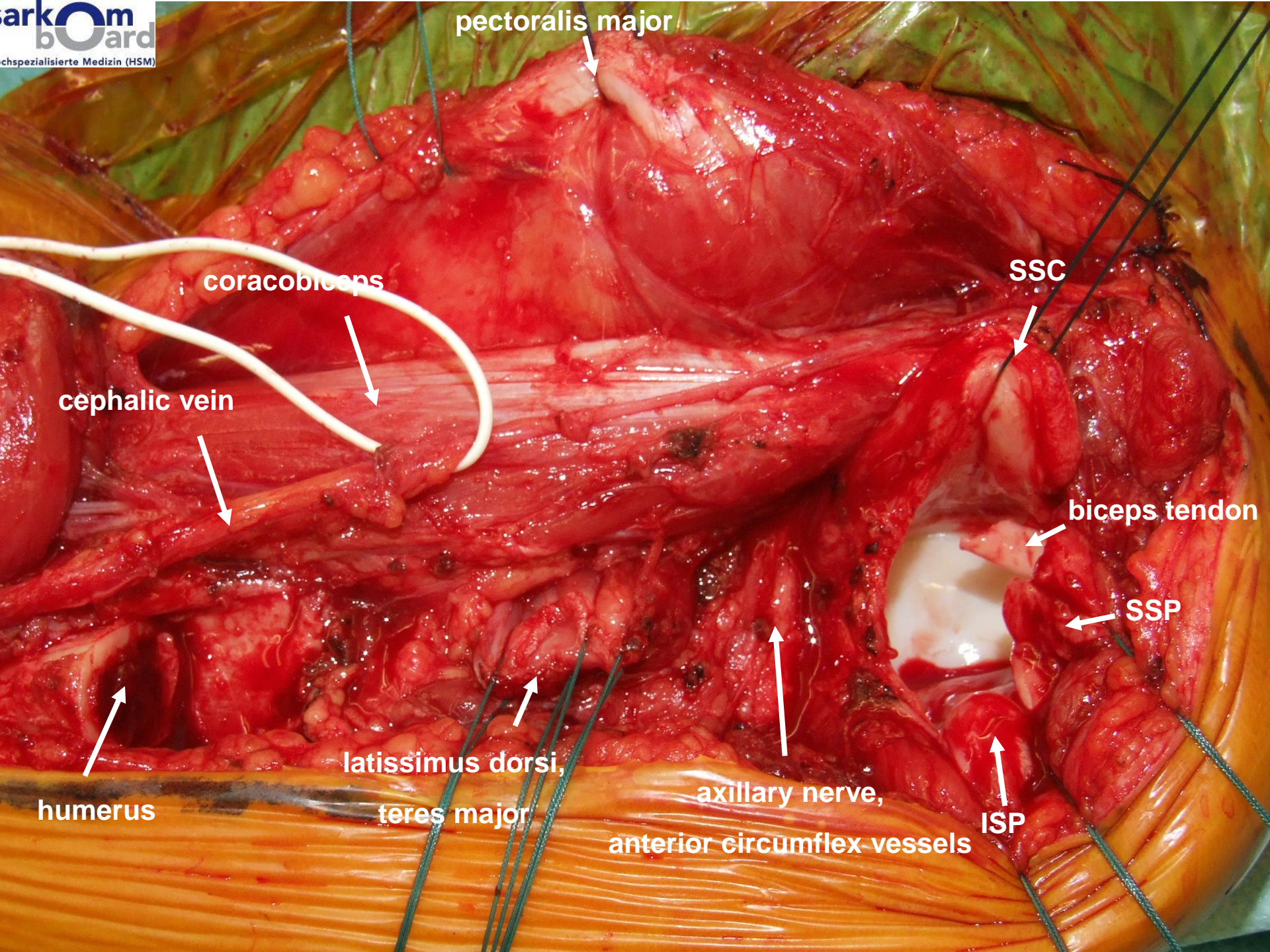
deltoid

axillary nerve,
posterior circumflex ves

humerus

Proximal epiphyseal fibrosarcoma





pectoralis major

coracobiceps

SSC

cephalic vein

biceps tendon

SSA

humerus

latissimus dorsi,
teres major

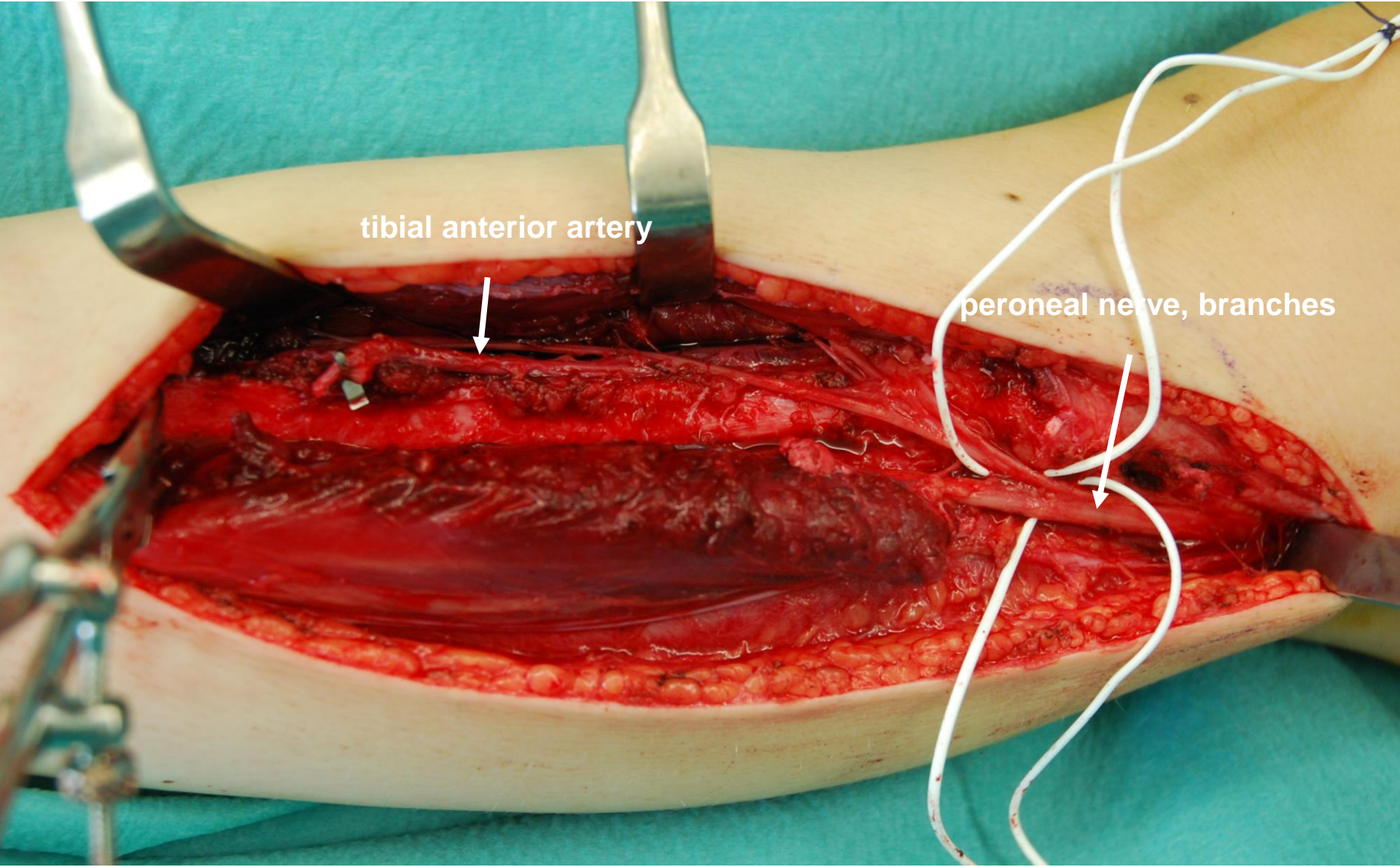
axillary nerve,

anterior circumflex vessels

ISP



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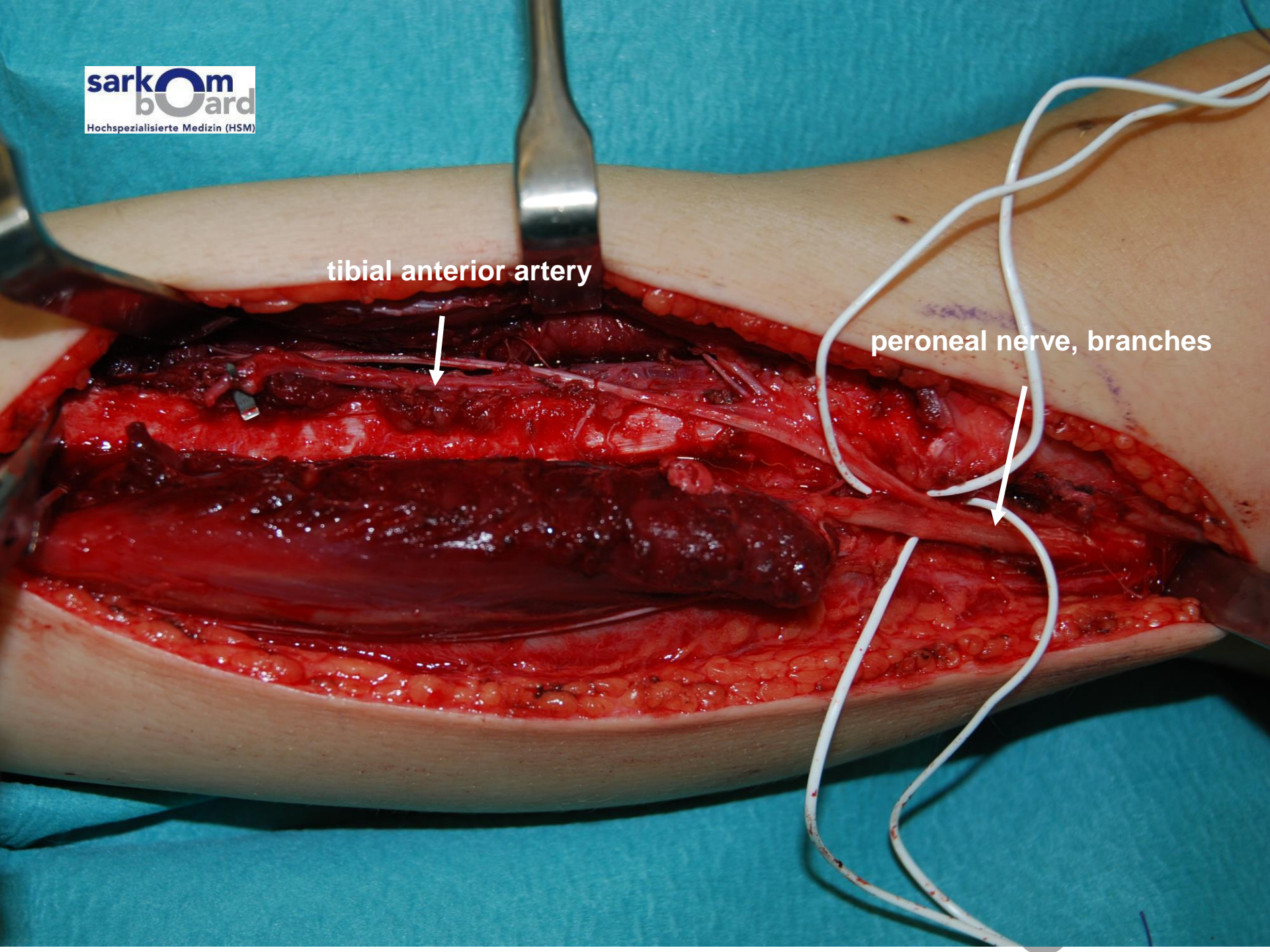
tibial anterior artery

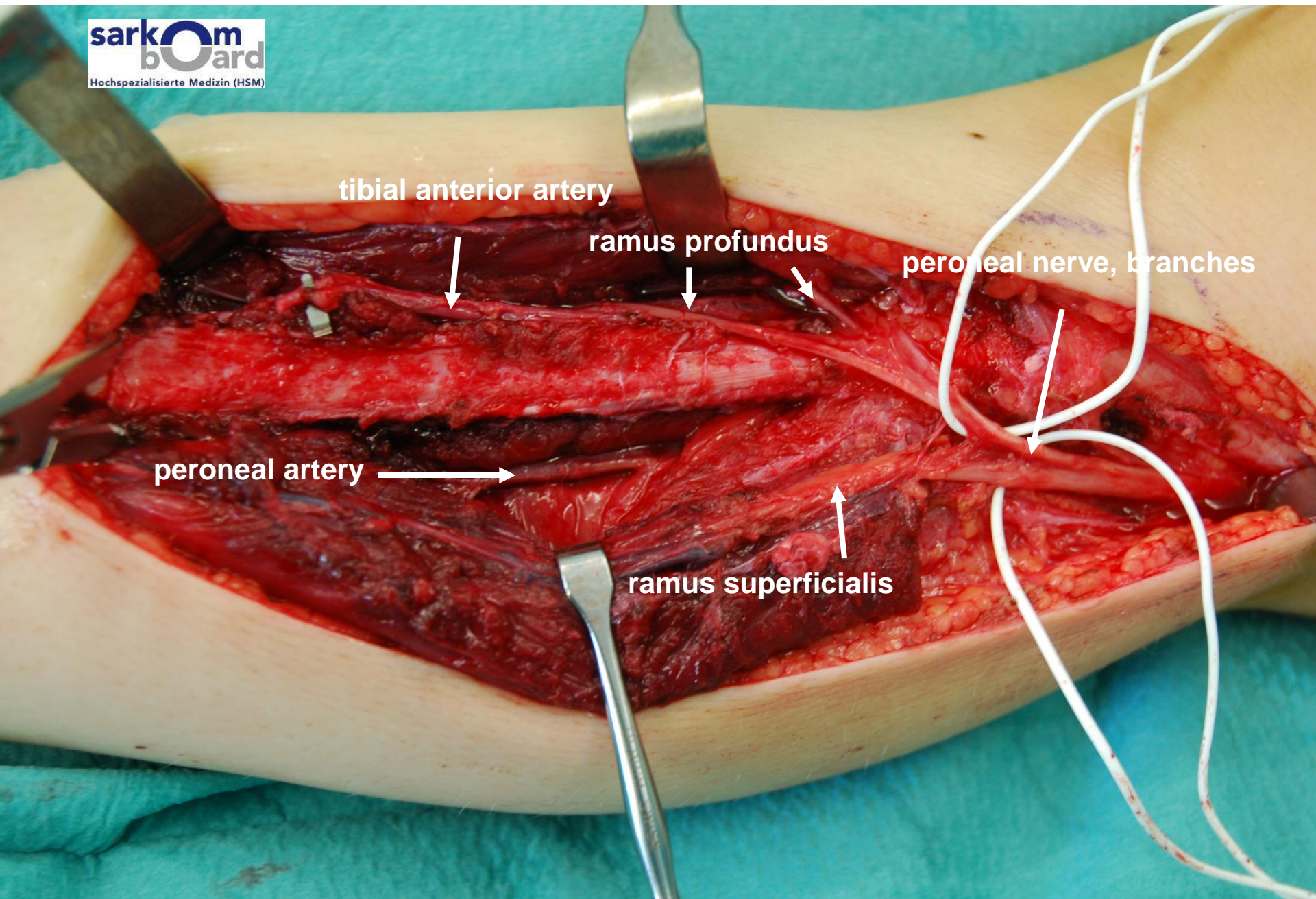
peroneal nerve, branches

tibial anterior artery



peroneal nerve, branches

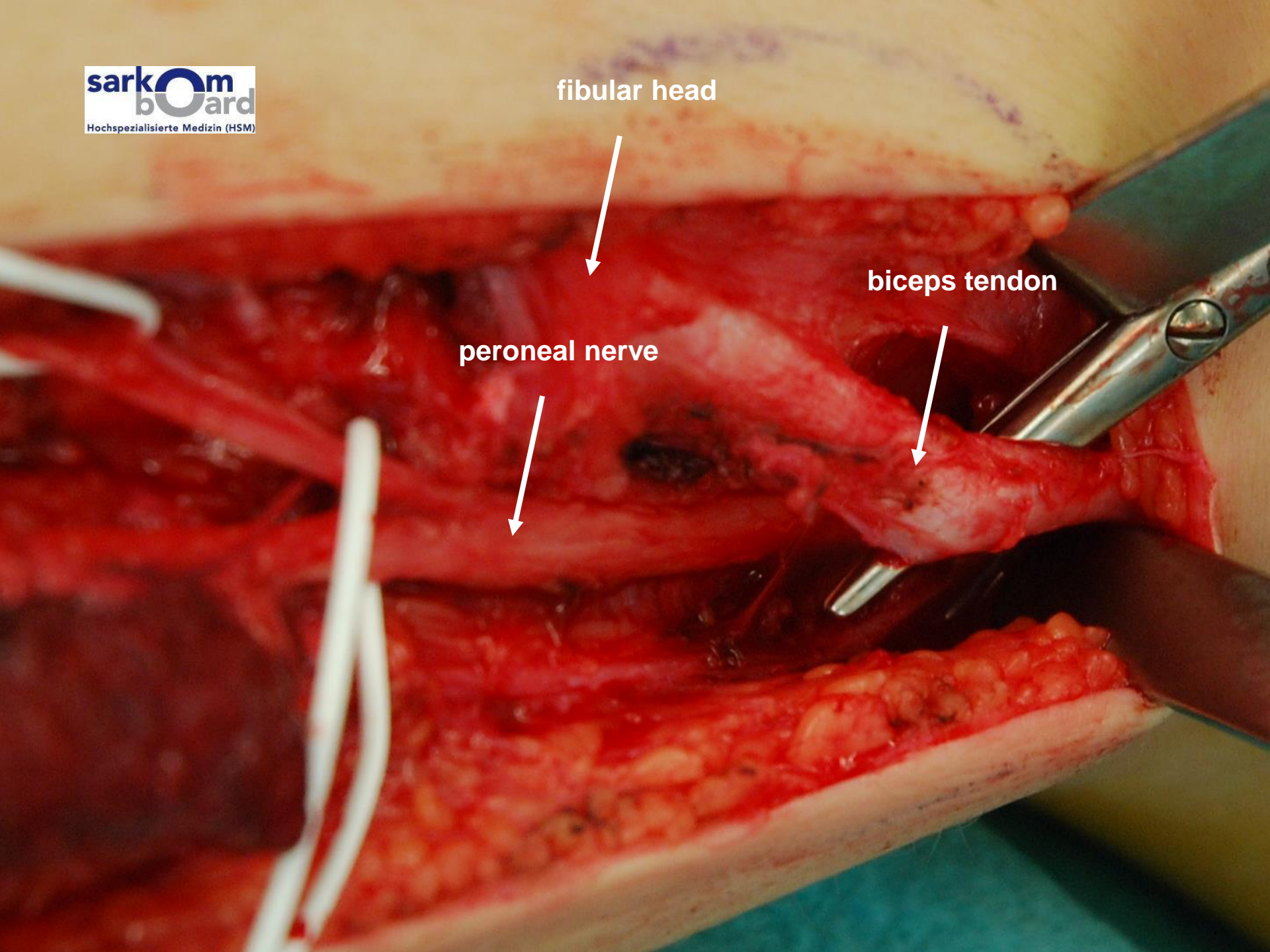




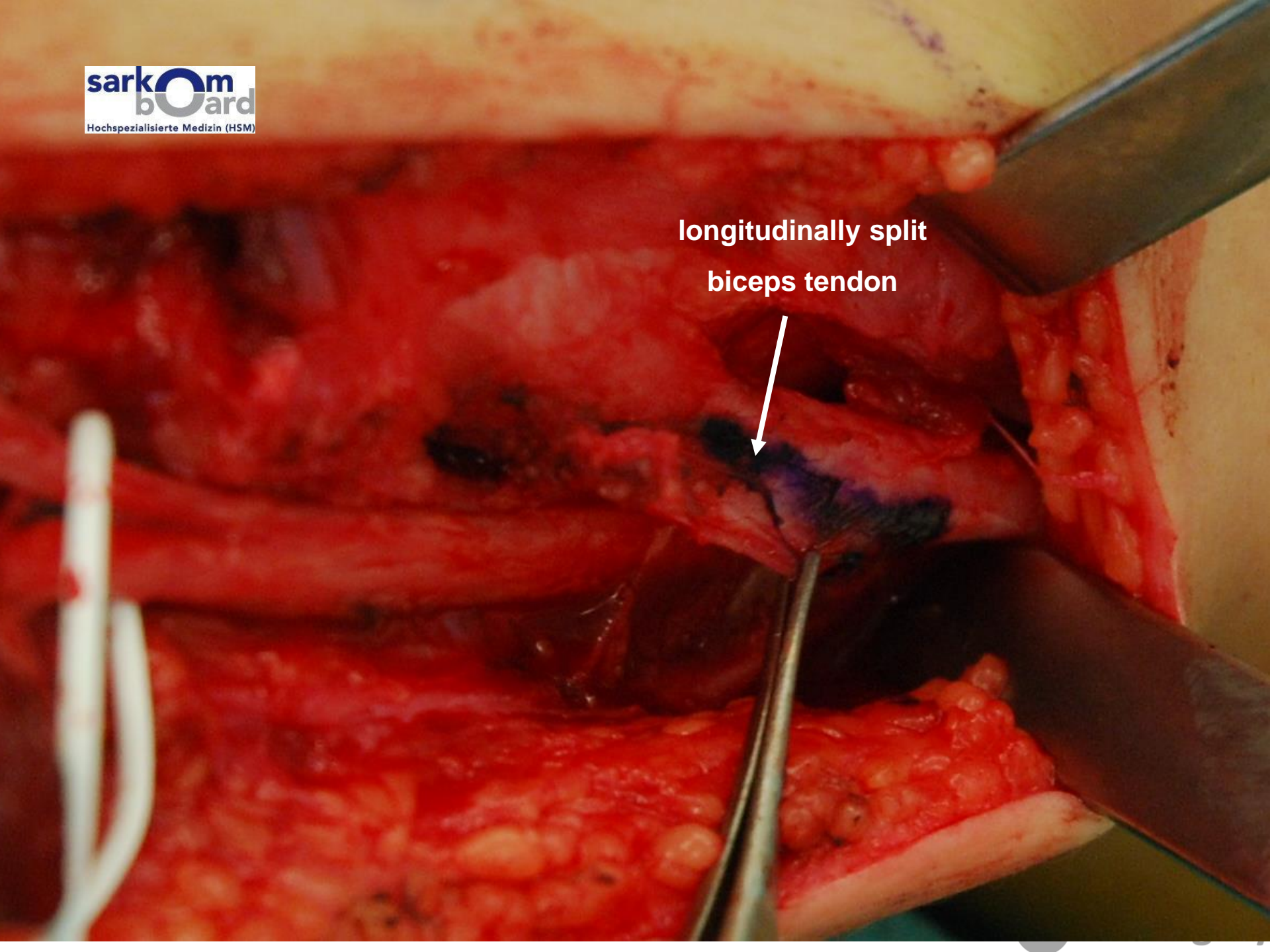
fibular head

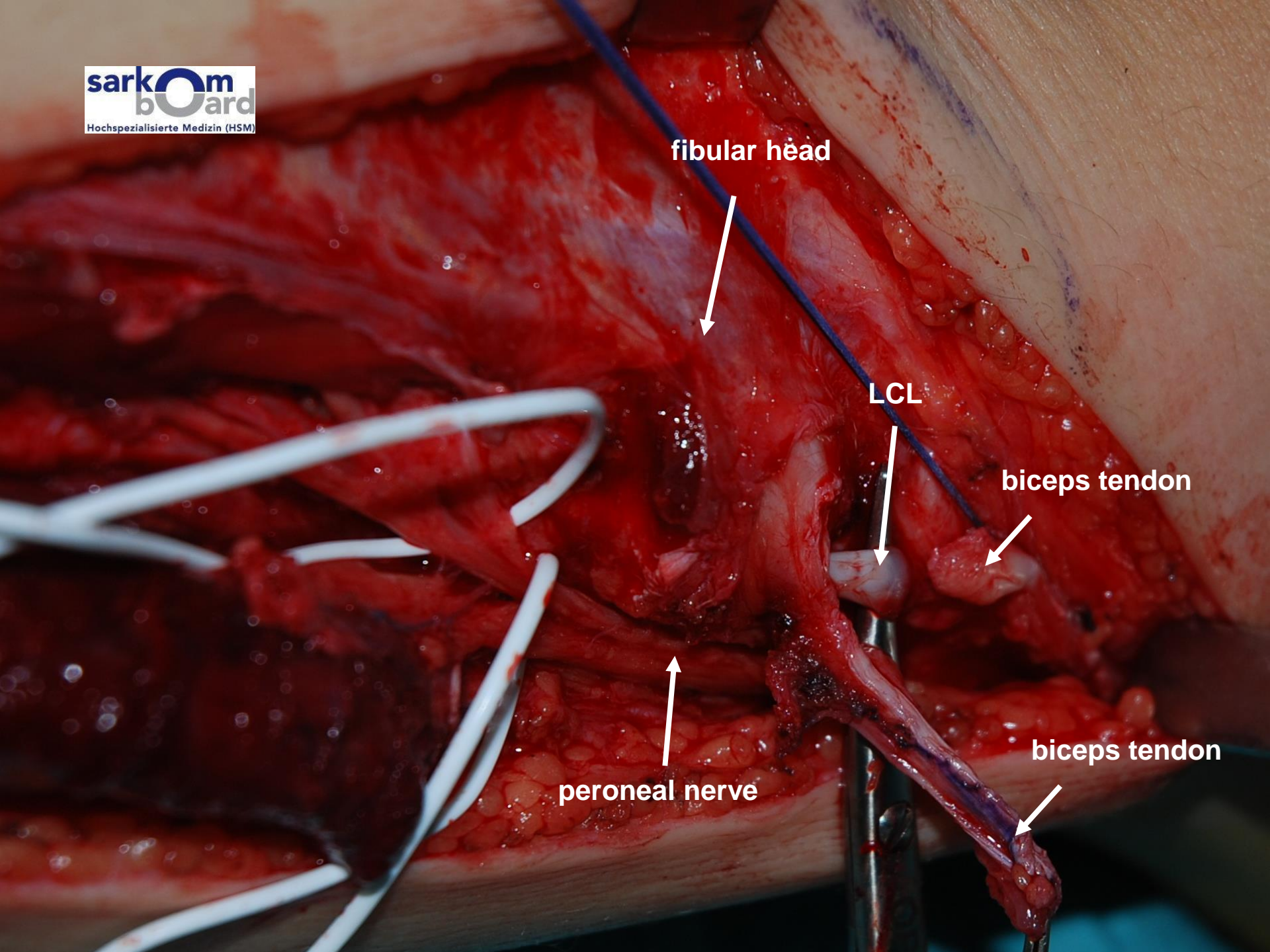
biceps tendon

peroneal nerve



longitudinally split
biceps tendon





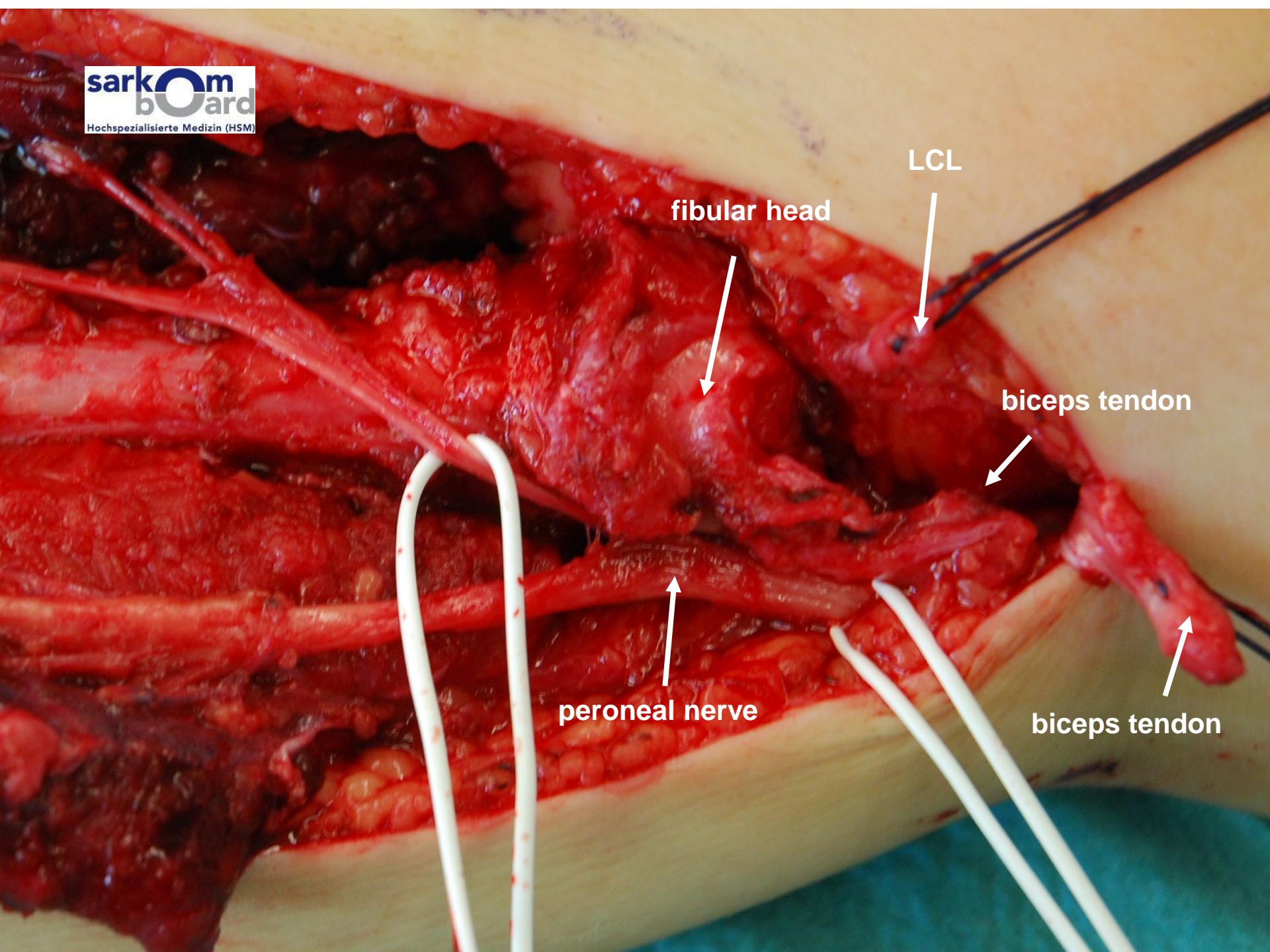
fibular head

LCL

biceps tendon

biceps tendon

peroneal nerve



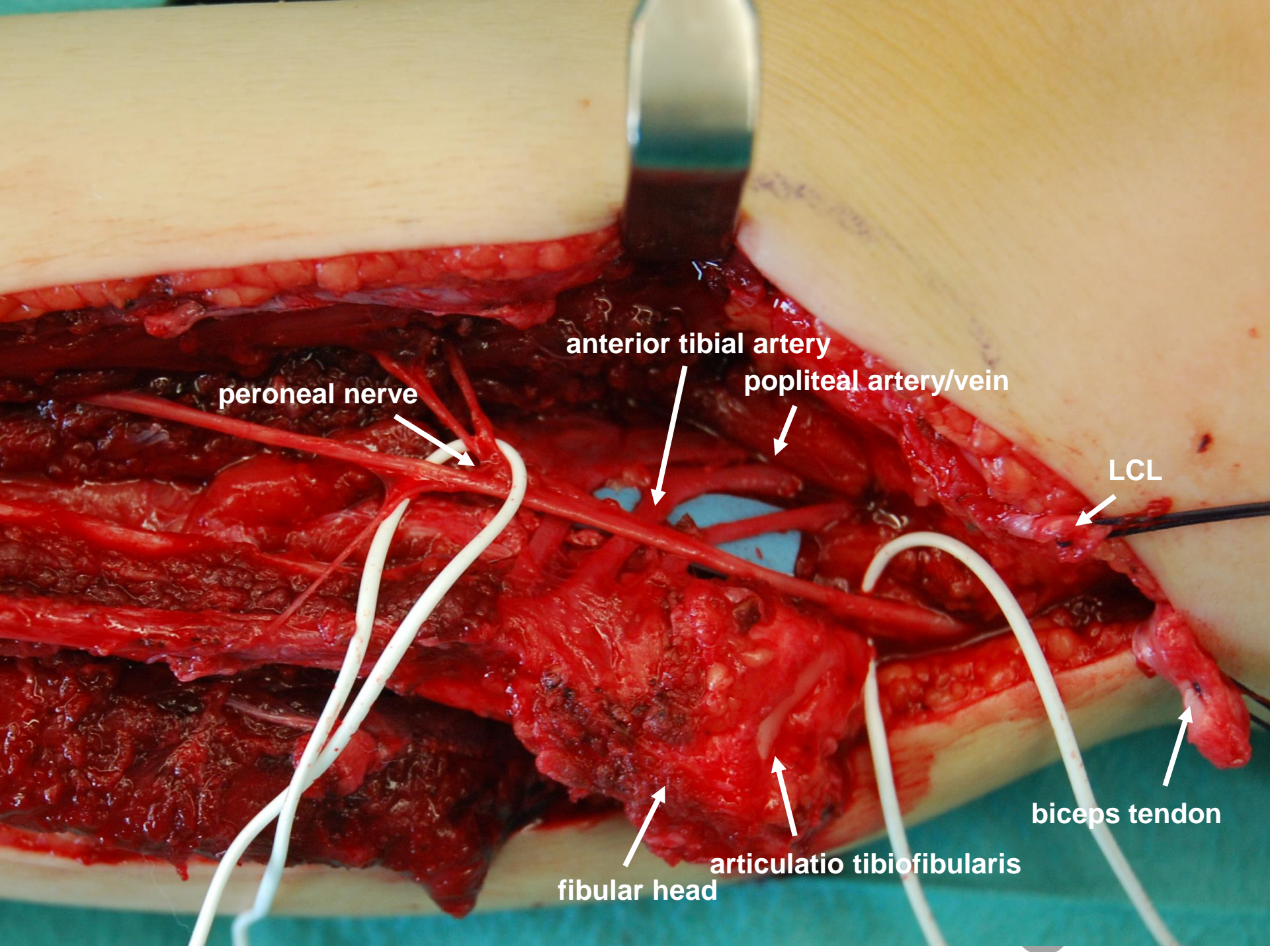
fibular head

LCL

biceps tendon

peroneal nerve

biceps tendon



peroneal nerve

anterior tibial artery

popliteal artery/vein

LCL

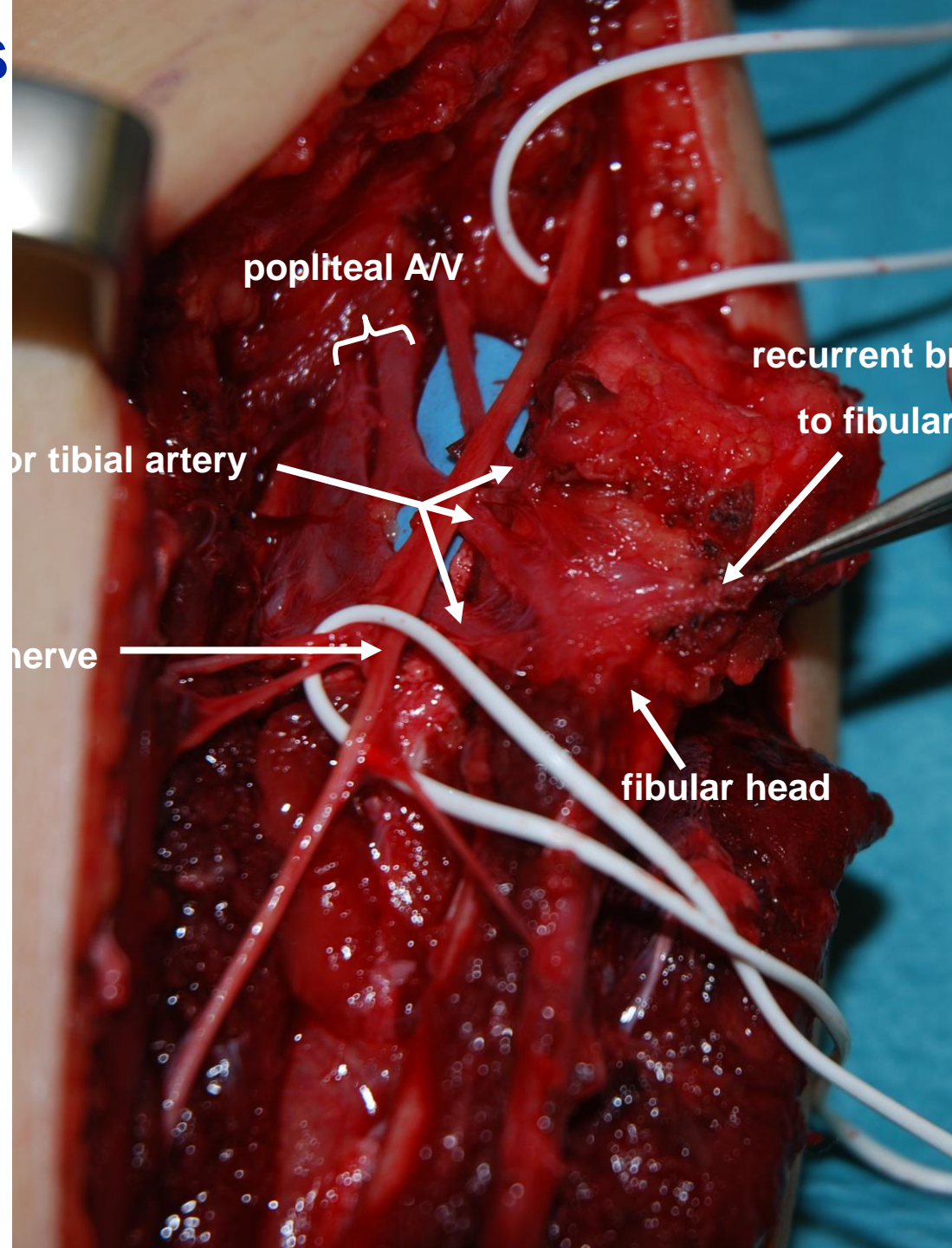
biceps tendon

fibular head

articulatio tibiofibularis

humerus

a transfer



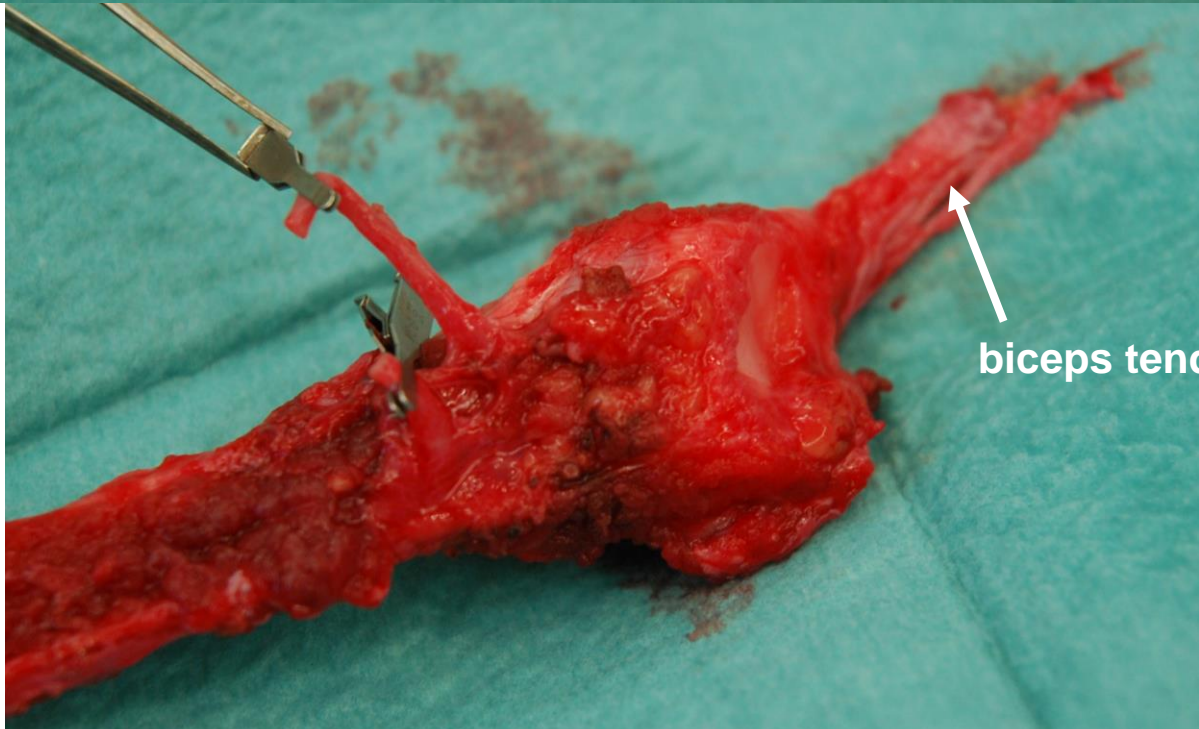
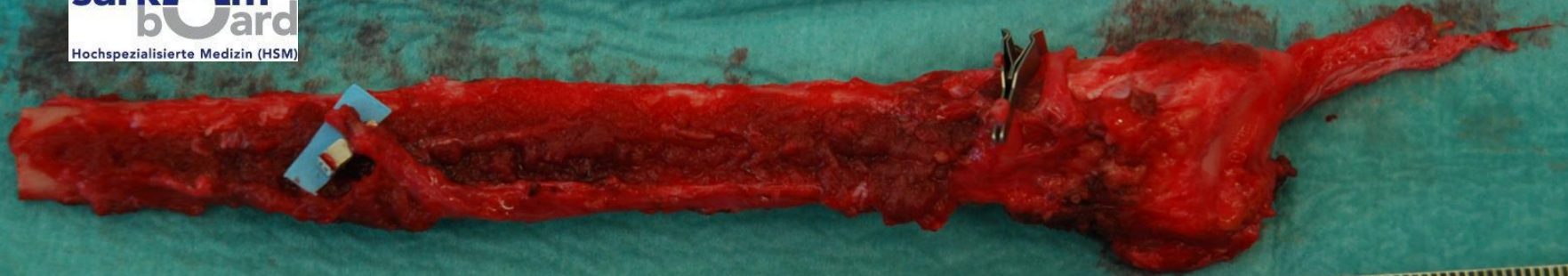
popliteal A/V

recurrent br
to fibular

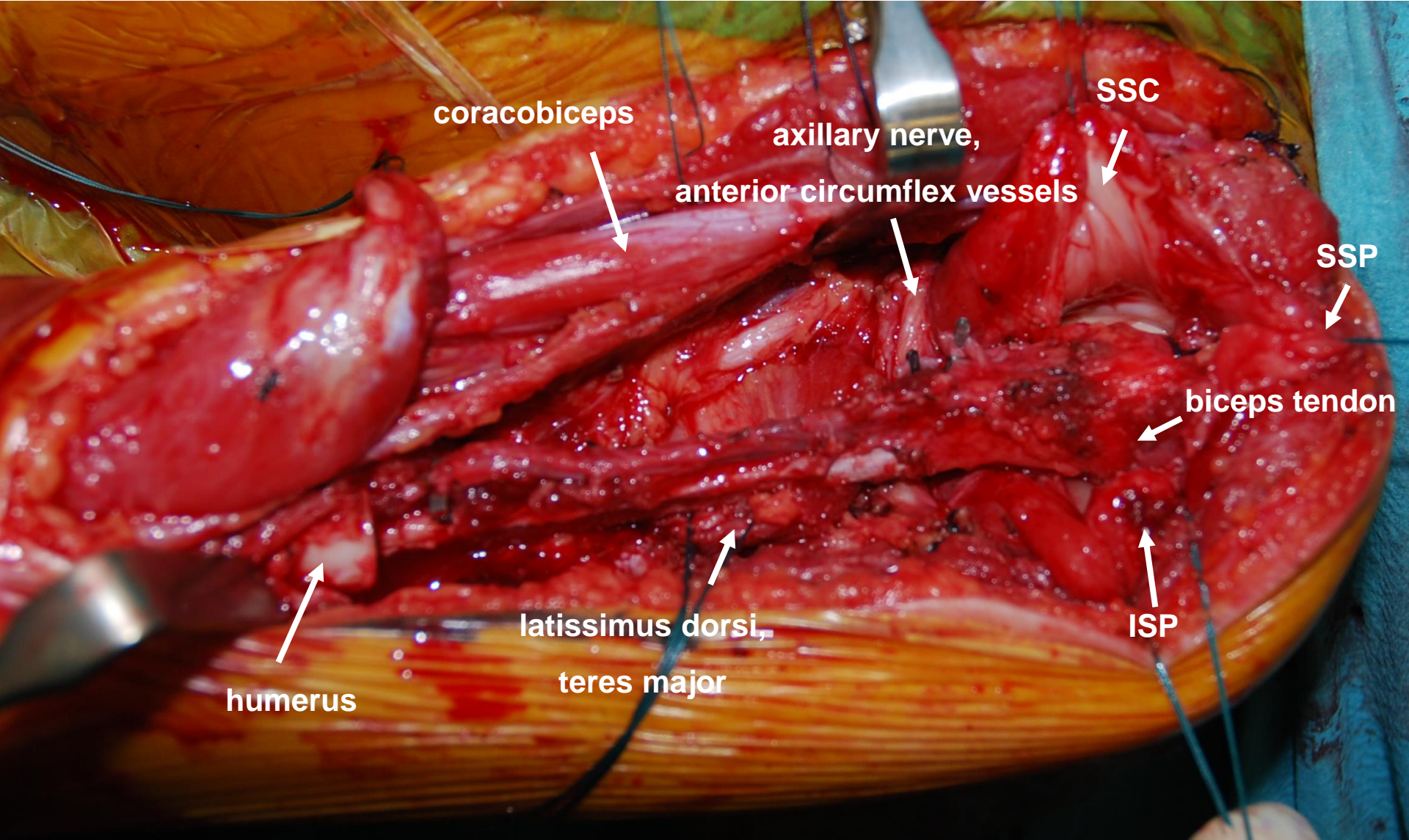
or tibial artery

nerve

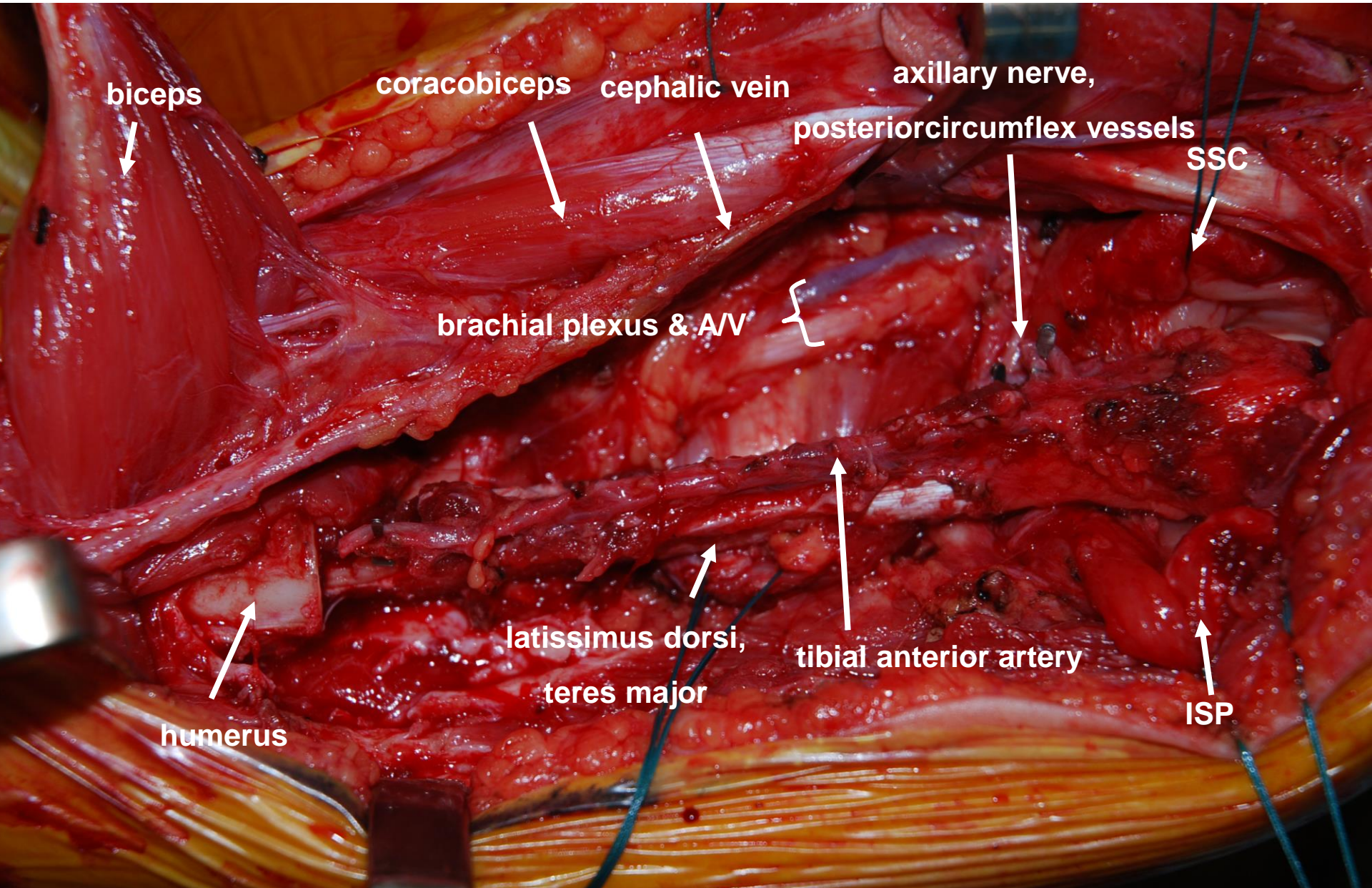
fibular head



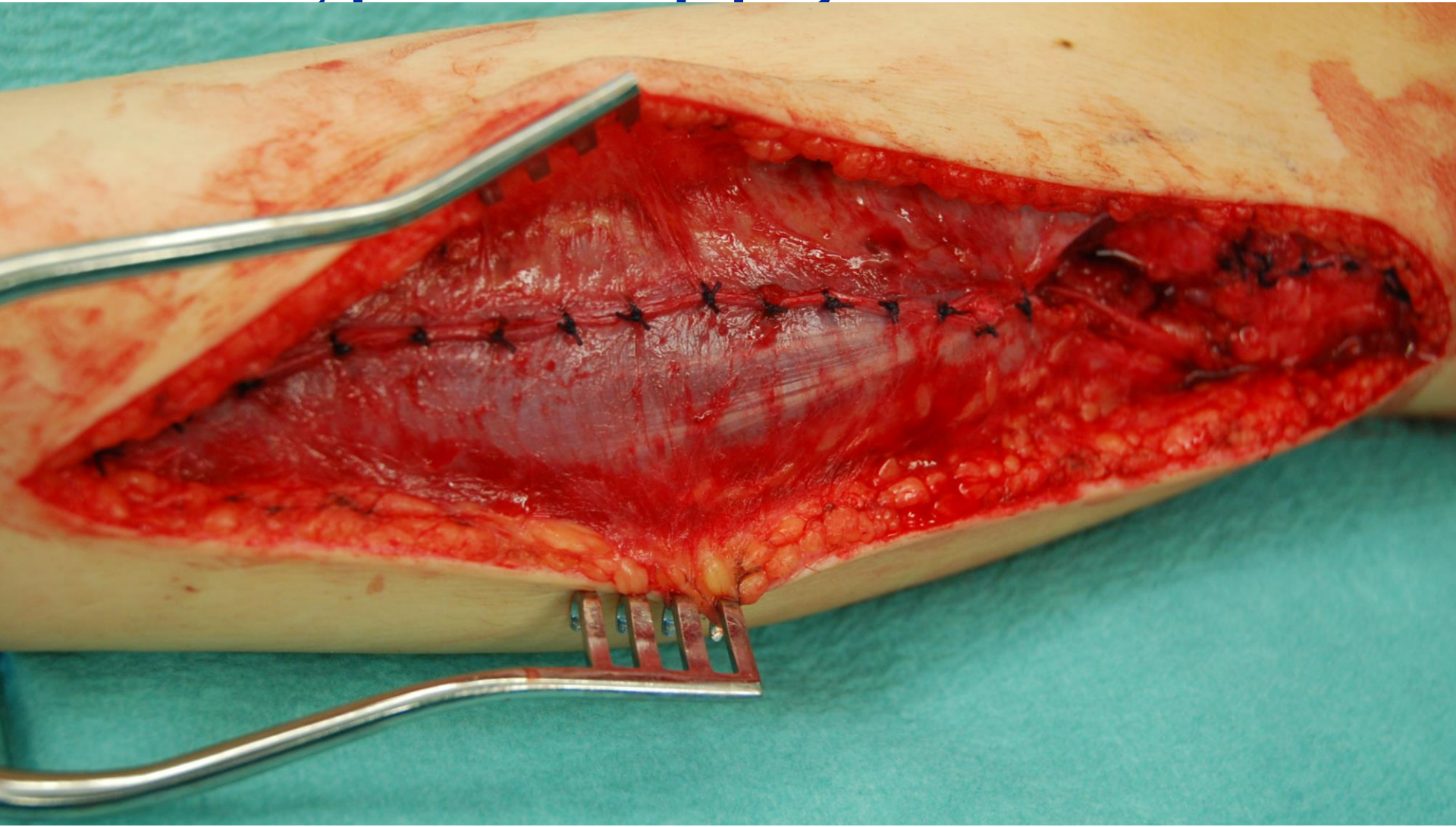
humerus; proximal epiphyseal fibula transfer



humerus; proximal epiphyseal fibula transfer

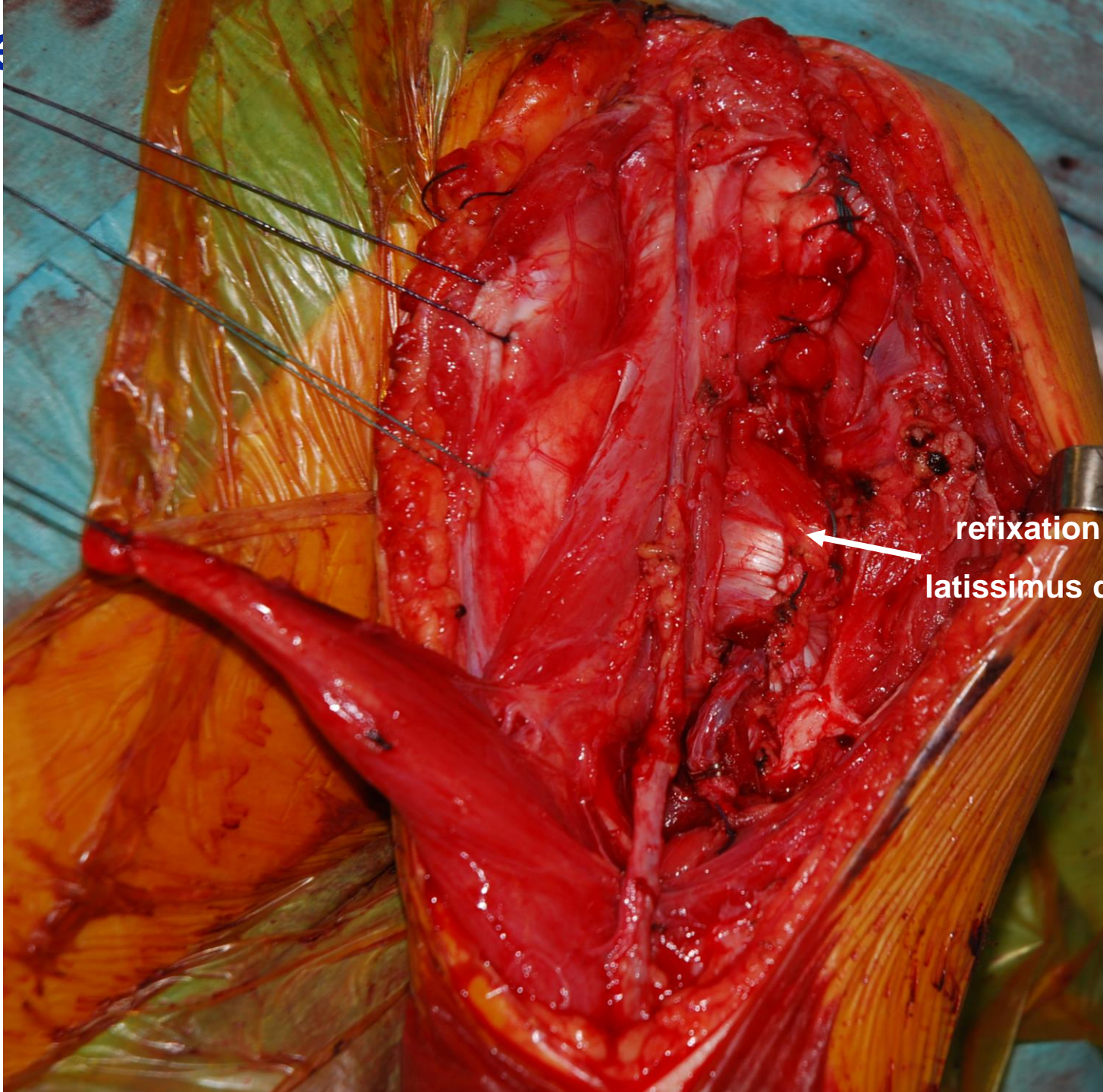


humerus; proximal epiphyseal fibula transfer



humer

transfer



refixation
latissimus d

hSurgery

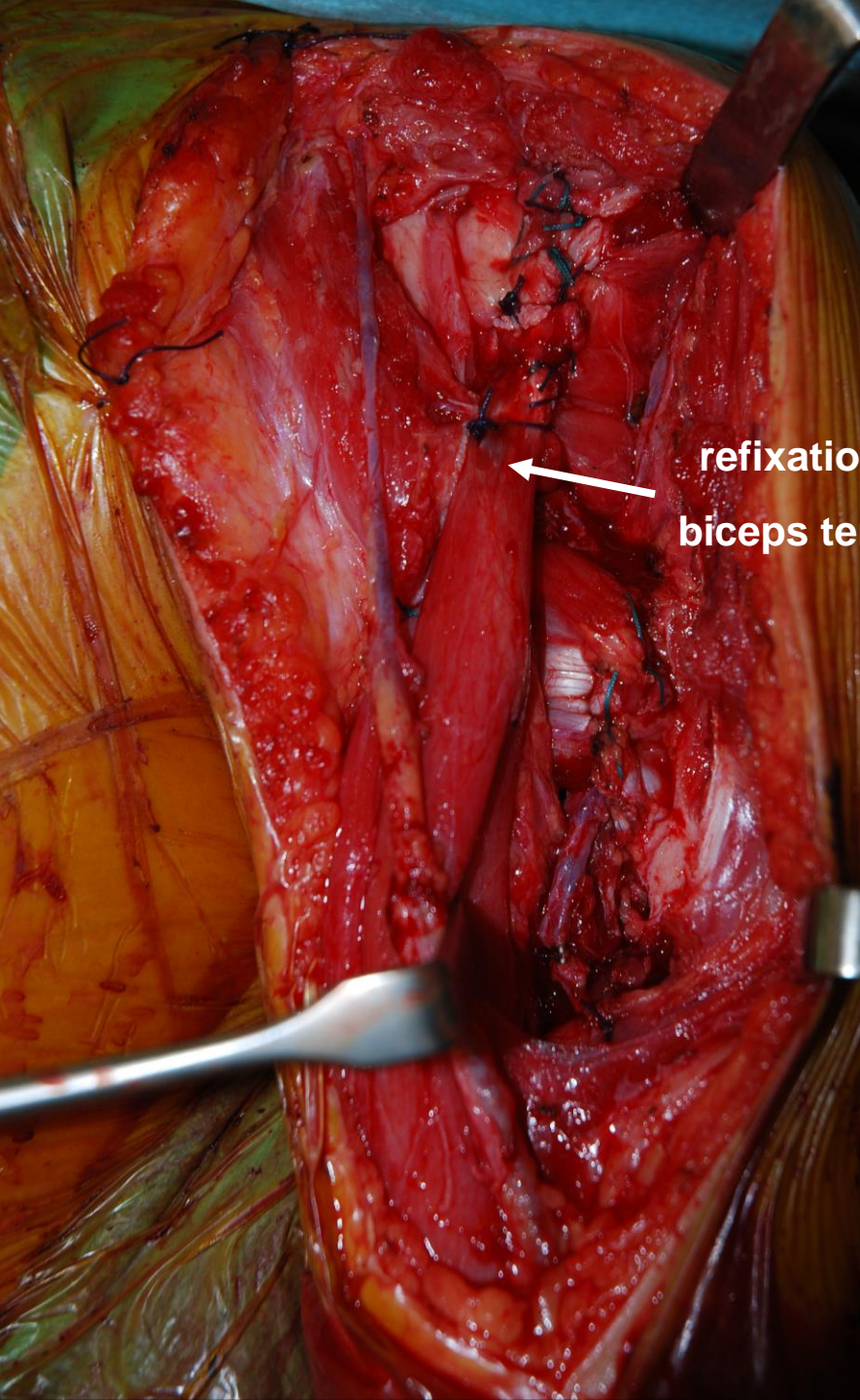
humerus;

la transfer



humerus; p

scapula transfer

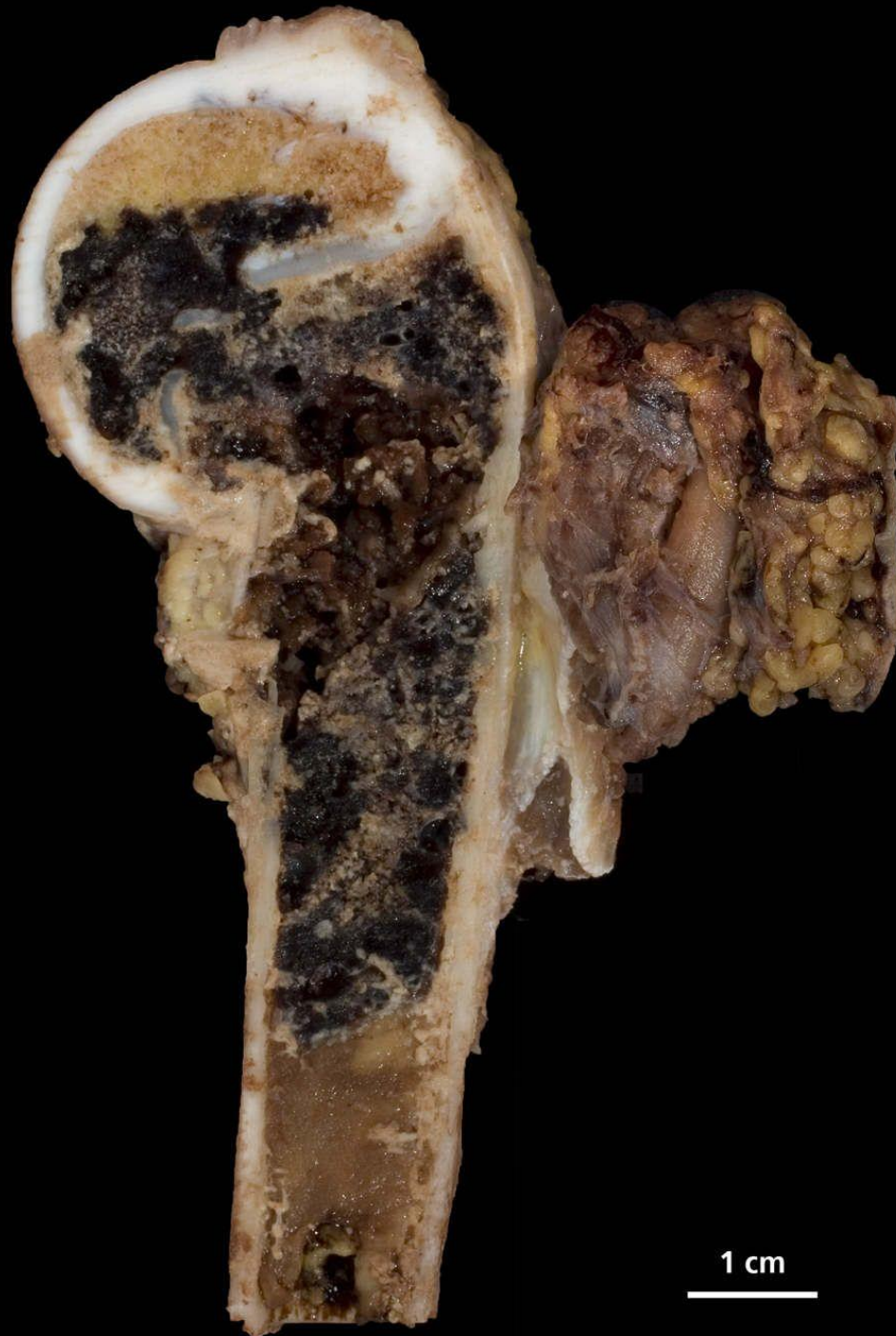


refixatio
biceps te

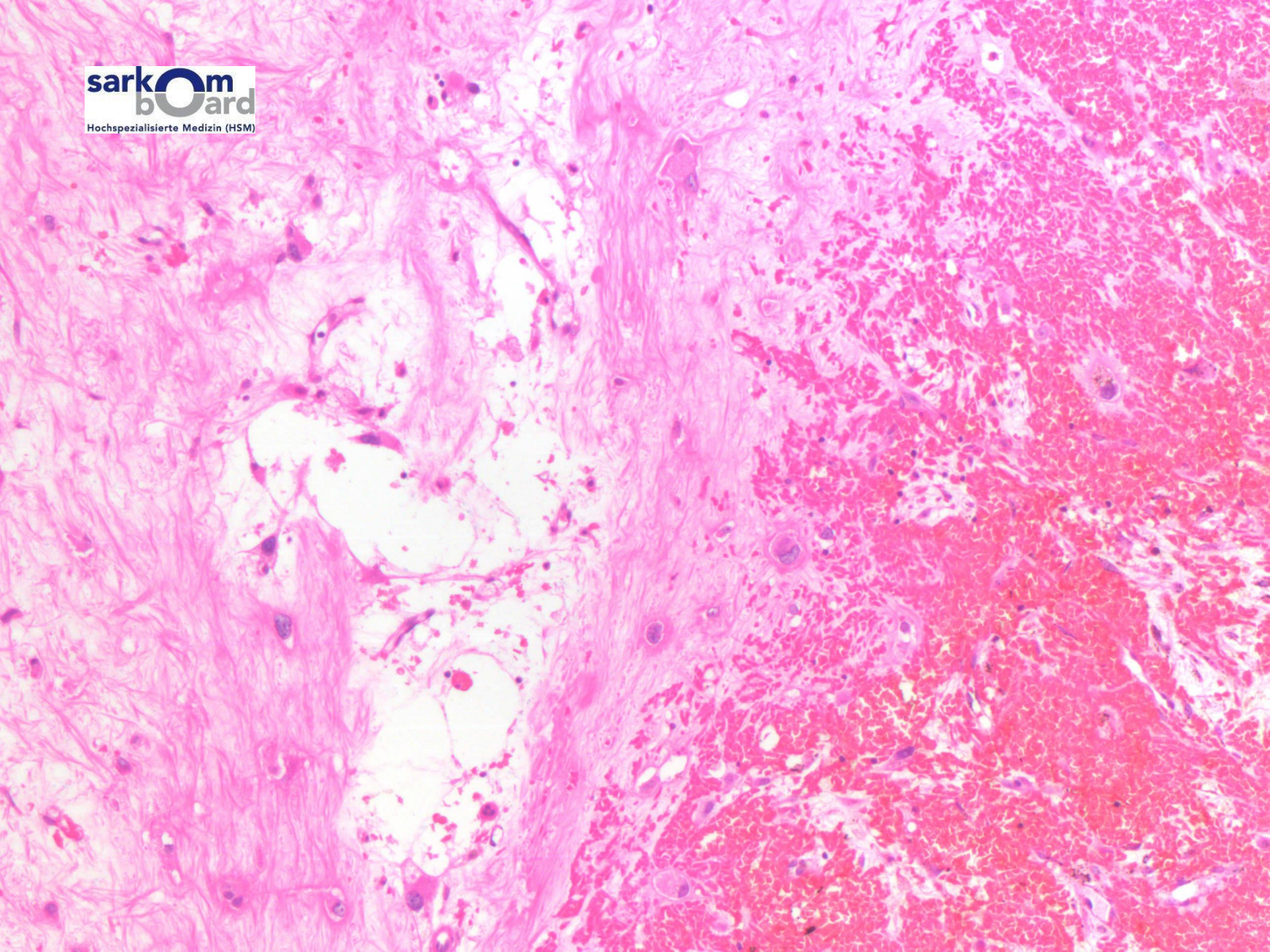
h

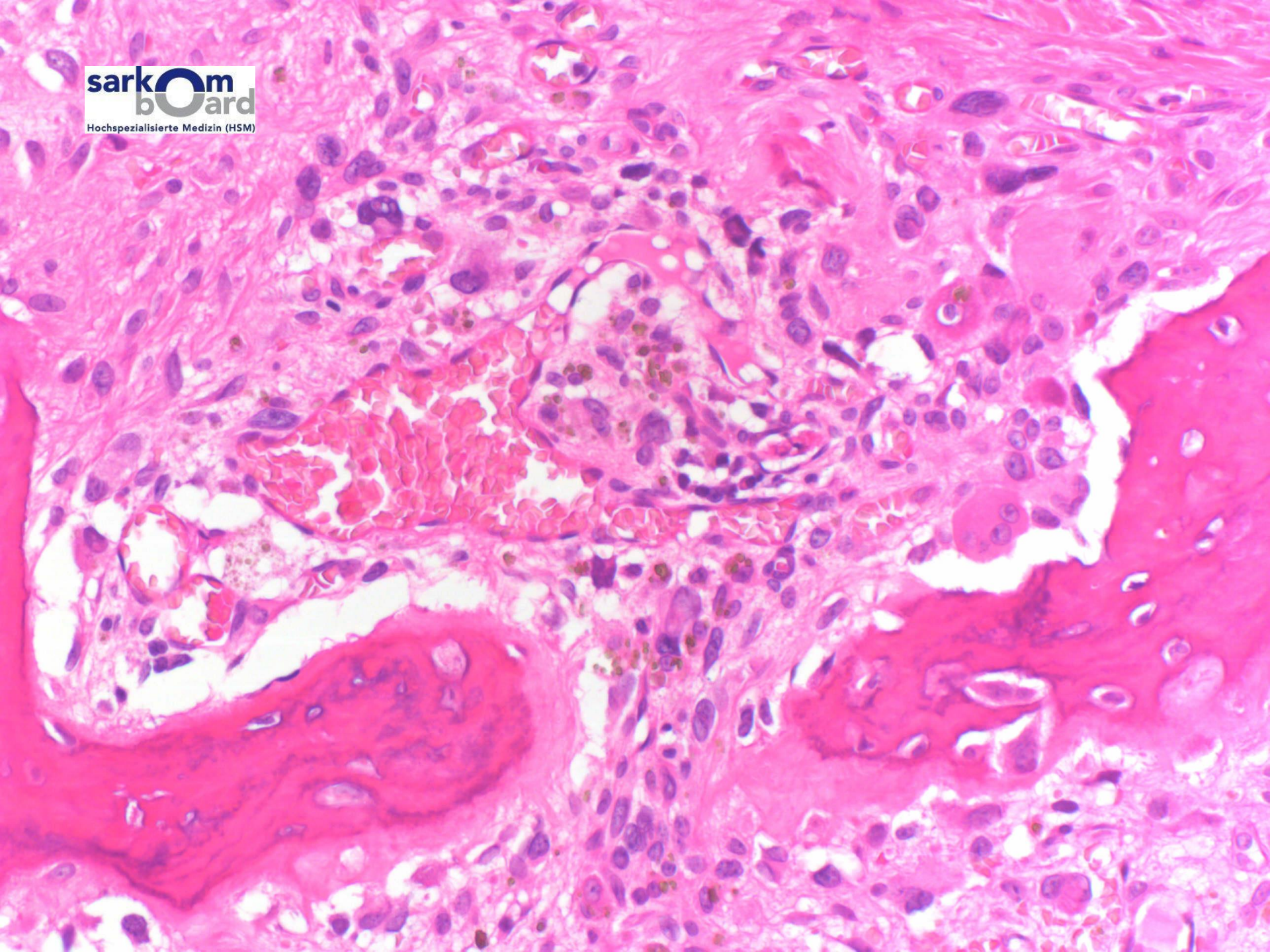
al epiphyseal fibula transfer





1 cm





humerus; proximal epiphyseal fibula transfer

Diagnose

Resektat des proximalen Humerus links mit *high grade*, vorwiegend osteoblastischem Osteosarkom bei Status nach vorausgegangener, neoadjuvanter Chemotherapie: Ausgedehnte Tumornekrosen mit kleinen vitalen (<10% der Tumorschnittfläche) Tumorresten (Responder; Regressionsgrad III nach Salzer-Kuntschik). Tumordurchbruch durch die Kortikalis, jedoch kein Periostdurchbruch. Infiltration und Durchbruch der Epiphysenfuge. Kein Gelenkeinbruch. Tumorfreier ossärer Resektatrand (Abstand 2,3 cm). Keine Infiltration der mitresezierten Hautspindel.

humerus; proximal epiphyseal fibula transfer

May 5, 2009

Histology:

Extensive tumoral necrosis with little vital rests (>10% of tumoral cross section) (responder ; resection grade III Salzer-Kuntschik). Tumoral penetration through cortex, no periosteal breakthrough. Infiltration and perforation of the physeal plate. No intraarticular contamination. Tumorfree osseous resectionborder (distance 2.3 cm). No infiltration of resected biopsy channel).

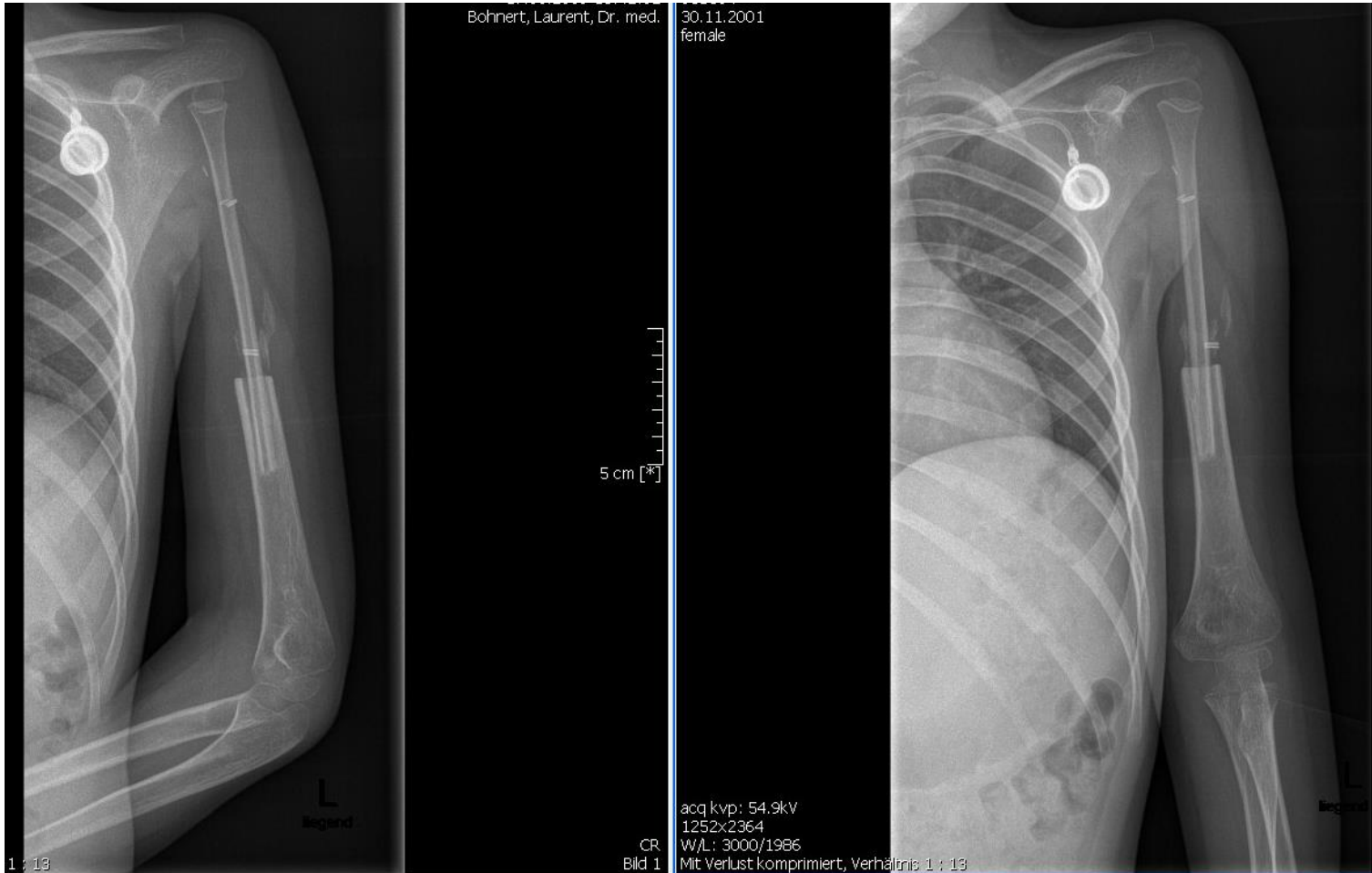
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Current situation :

Ongoing adjuvant chemotherapy
arm in sling, pendulum exercises

humerus; proximal epiphyseal fibula transfer

June 17, 2009



humerus; proximal epiphyseal fibula transfer

Dec 17, 2009



humerus; proximal epiphyseal fibula transfer

sarkom
board
Hochspezialisierte Medizin (HSM)

Jan 27, 2010



humerus; proximal epiphyseal fibula transfer

Follow-up: February 2, 2011



humerus; proximal epiphyseal fibula transfer

Follow-up: February 2, 2011



Supraroach fibula transfer

Swimming: May 1, 2011



humerus; proximal epiphyseal fibula transfer

Swimming: May 1, 2011



humerus; proximal epiphyseal fibula transfer

X-rays left humerus: April 29, 2011



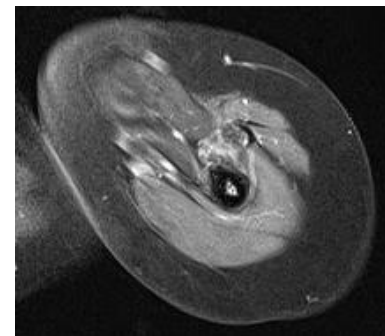
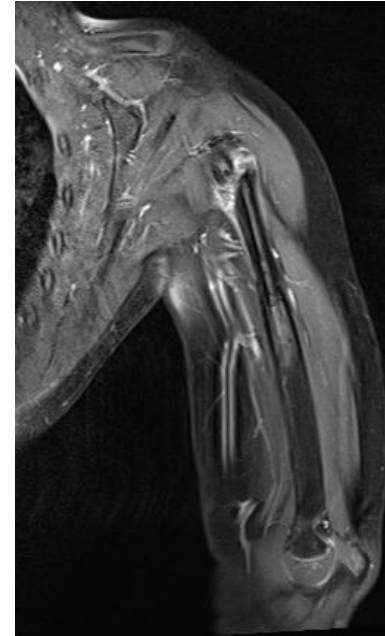
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Follow-up MRI : April 2011 – Nov. 2012

Follow-up MRIs (every 6 months):

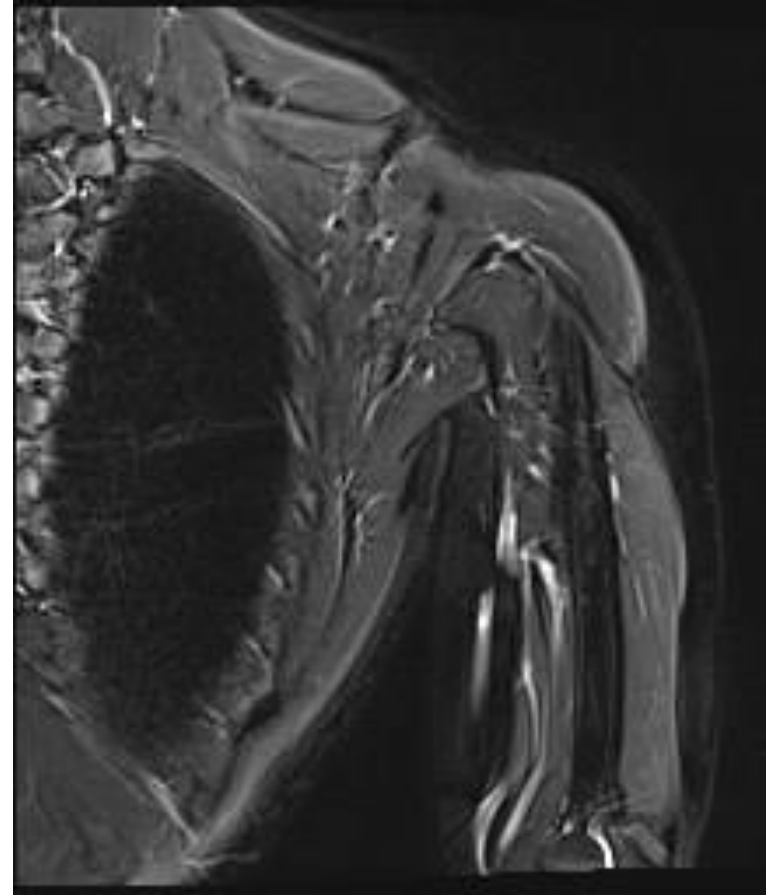
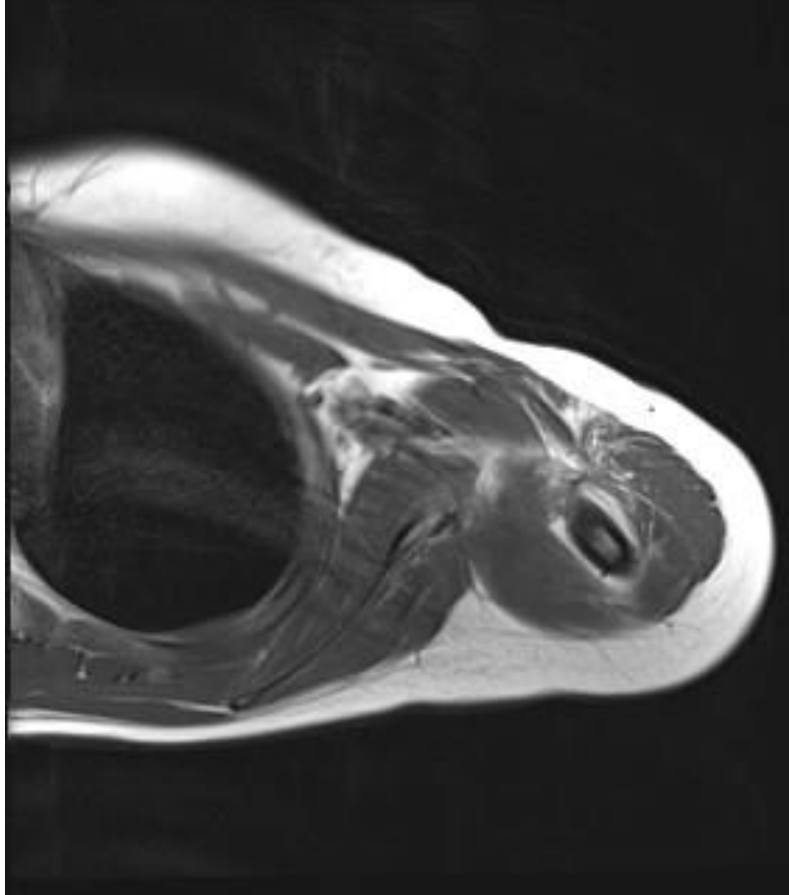
- April 29, 2011
- November 11, 2011
- May 4, 2012
- November 9, 2012

➤ No local recurrence.



humerus; proximal epiphyseal fibula transfer

MRI Nov 15, 2013



No signs of local recurrence or re- fracture

humerus; proximal epiphyseal fibula transfer 2014 / 5 yrs postop

