

# Reconstruction in Oral & Maxillofacial Surgery with free Flaps

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# Reconstruction in Oral & Maxillofacial Surgery

- skin transplantation

- local flaps

- pedicle Flaps

- free flaps (gold standard in oral reconstruction)

  - Fasciocutaneous flap (Radialis Forearm)

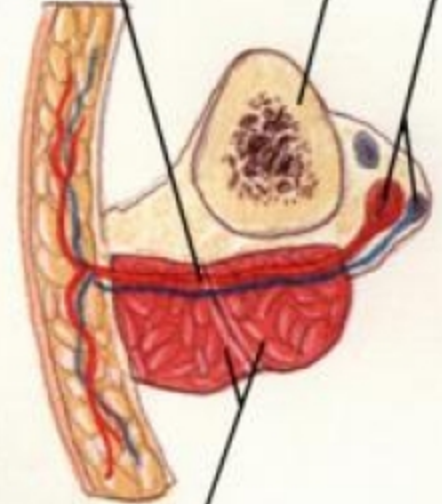
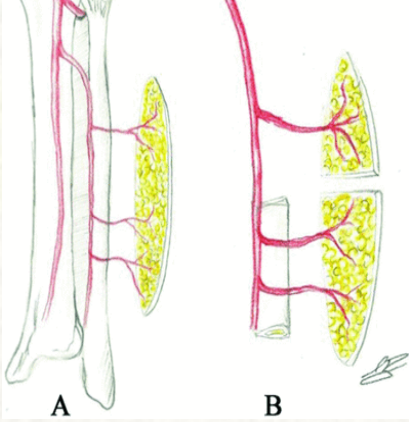
  - Fasciomyocutaneous flap (Lattisimus dorsi)

  - Osteomyocutaneous (Fibula)

# Fibula Flap ( osteomyocutaneous Flap )

# Advantages of free Fibular Flap

- long thin weight bearing bone
- initially used to reconstruct long bones
- 22 to 25 cms of bone can be harvested
- segmental multiple arteries of the bone can be osteomised into smaller fragments by keeping the periosteum intact)



Extensor digitorum longus m.

Extensor hallucis longus m.

Peroneus longus and brevis muscles

Tibialis posterior m.

Peroneal a. and v.

Septocutaneous perforator

Flexor hallucis longus m.

Tibialis anterior m.

Tibia

Deep peroneal n., anterior tibial a. and v.

Tibialis posterior m.

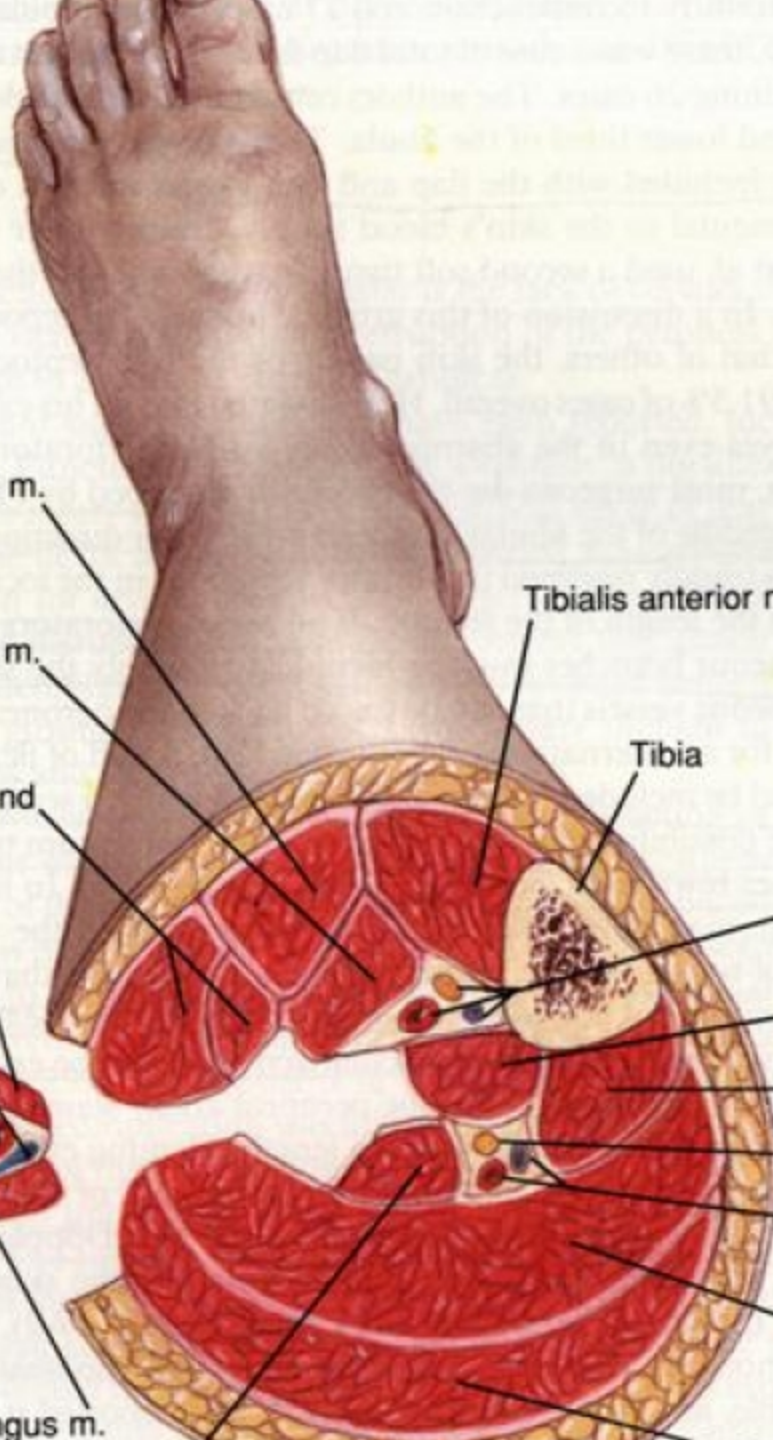
Flexor digitorum longus m.

Tibial n.

Posterior tibial a. and v.

Soleus m.

Flexor hallucis longus and soleus m. cuff





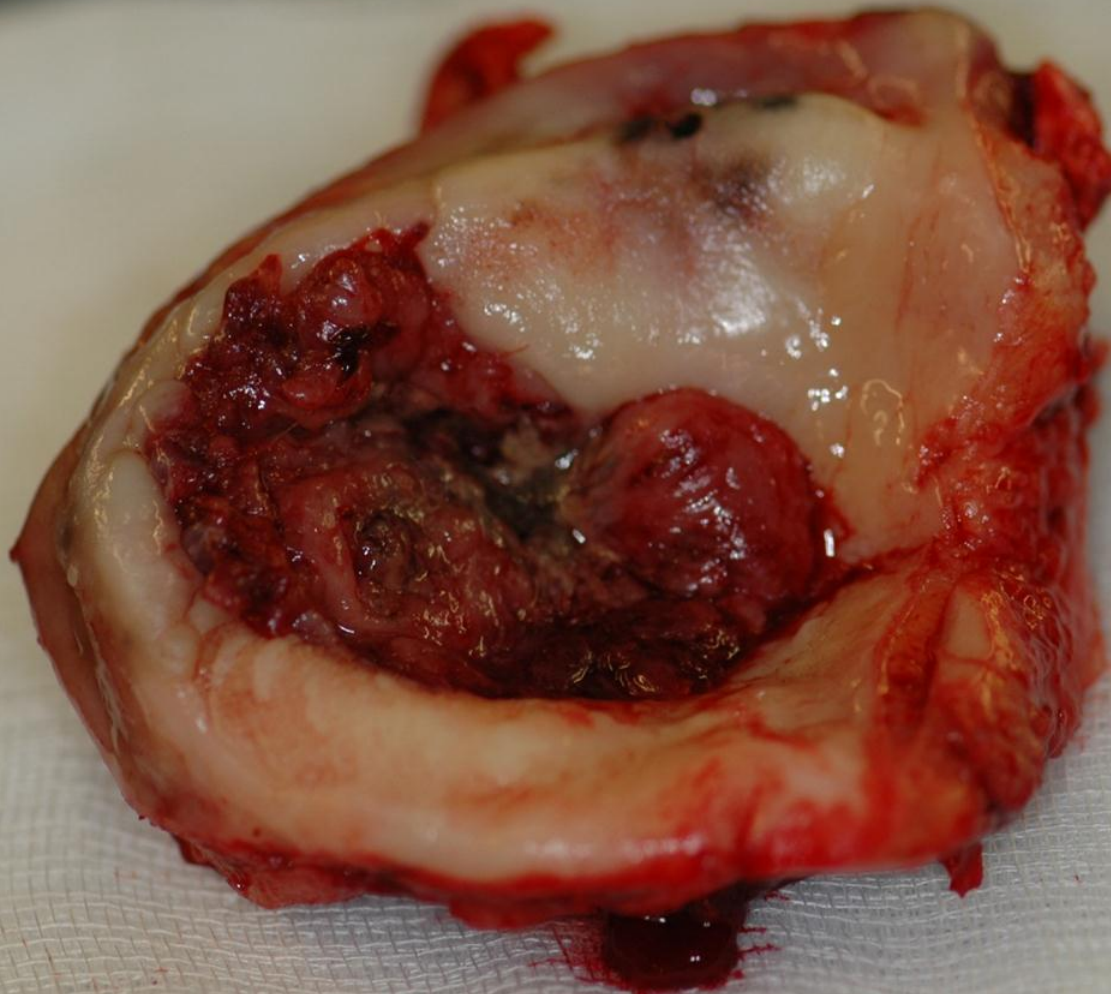
# Reconstruction after malignoma

# Melanoma of the hard and soft palate

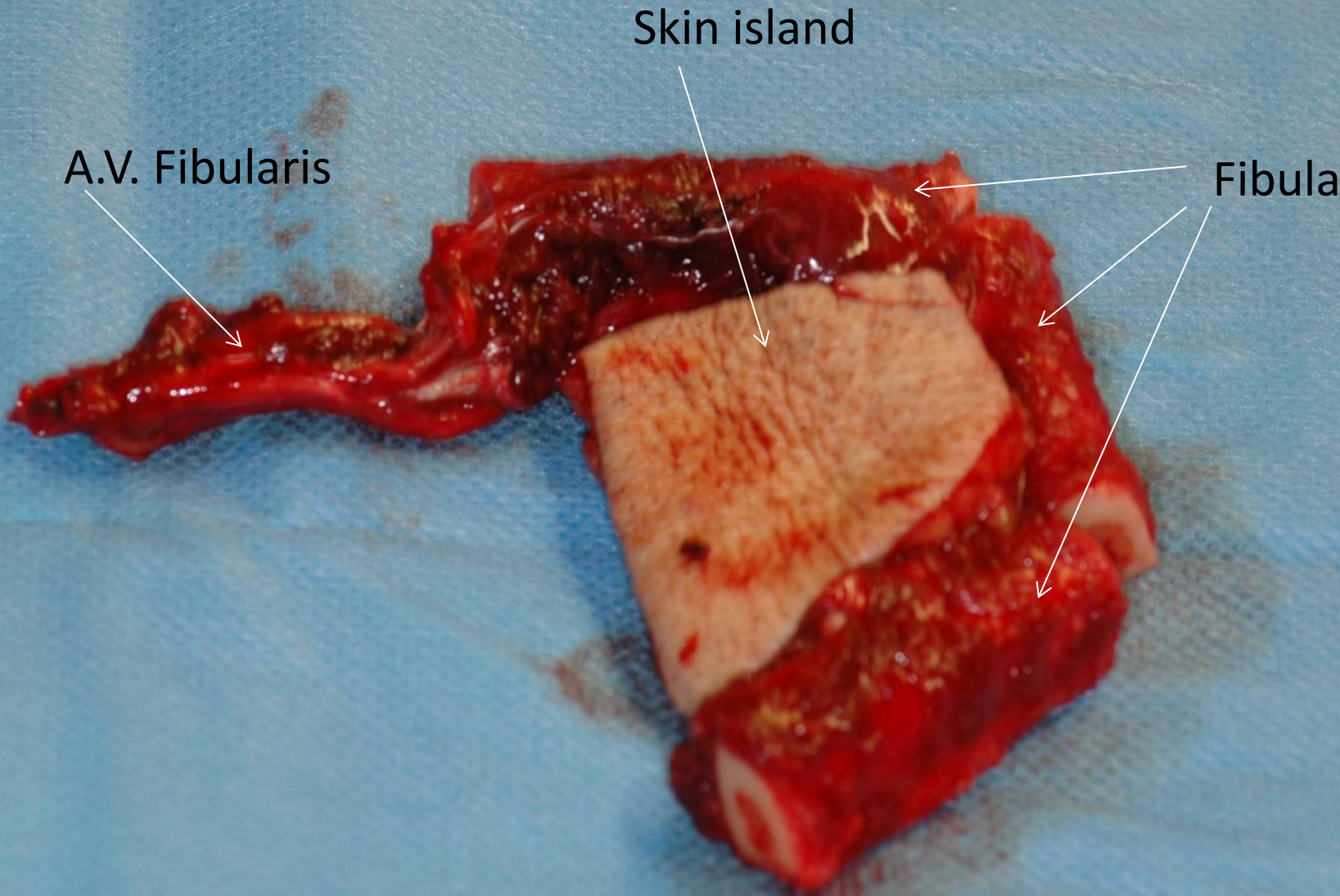




# Total Maxillektomie







Skin island

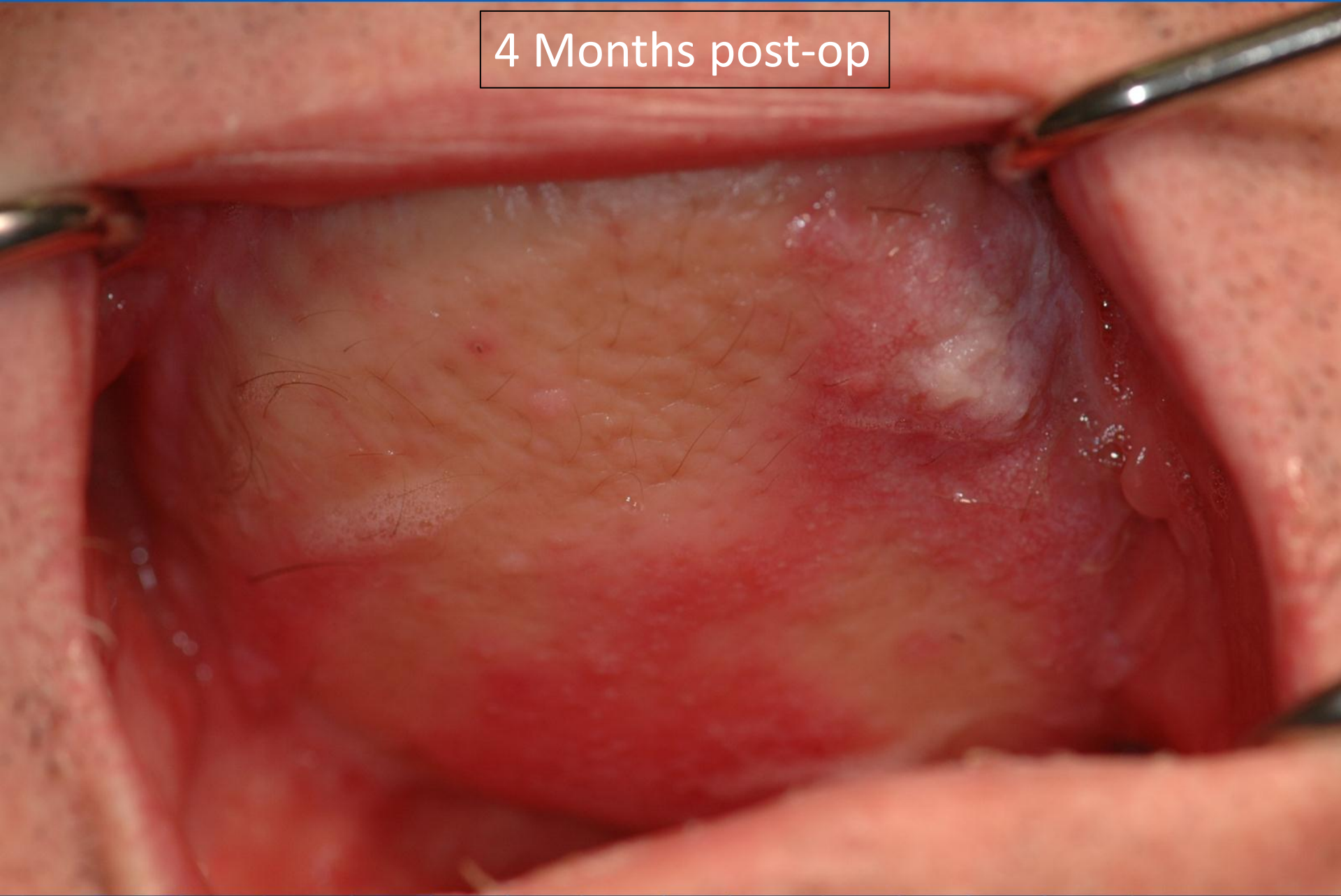
A.V. Fibularis

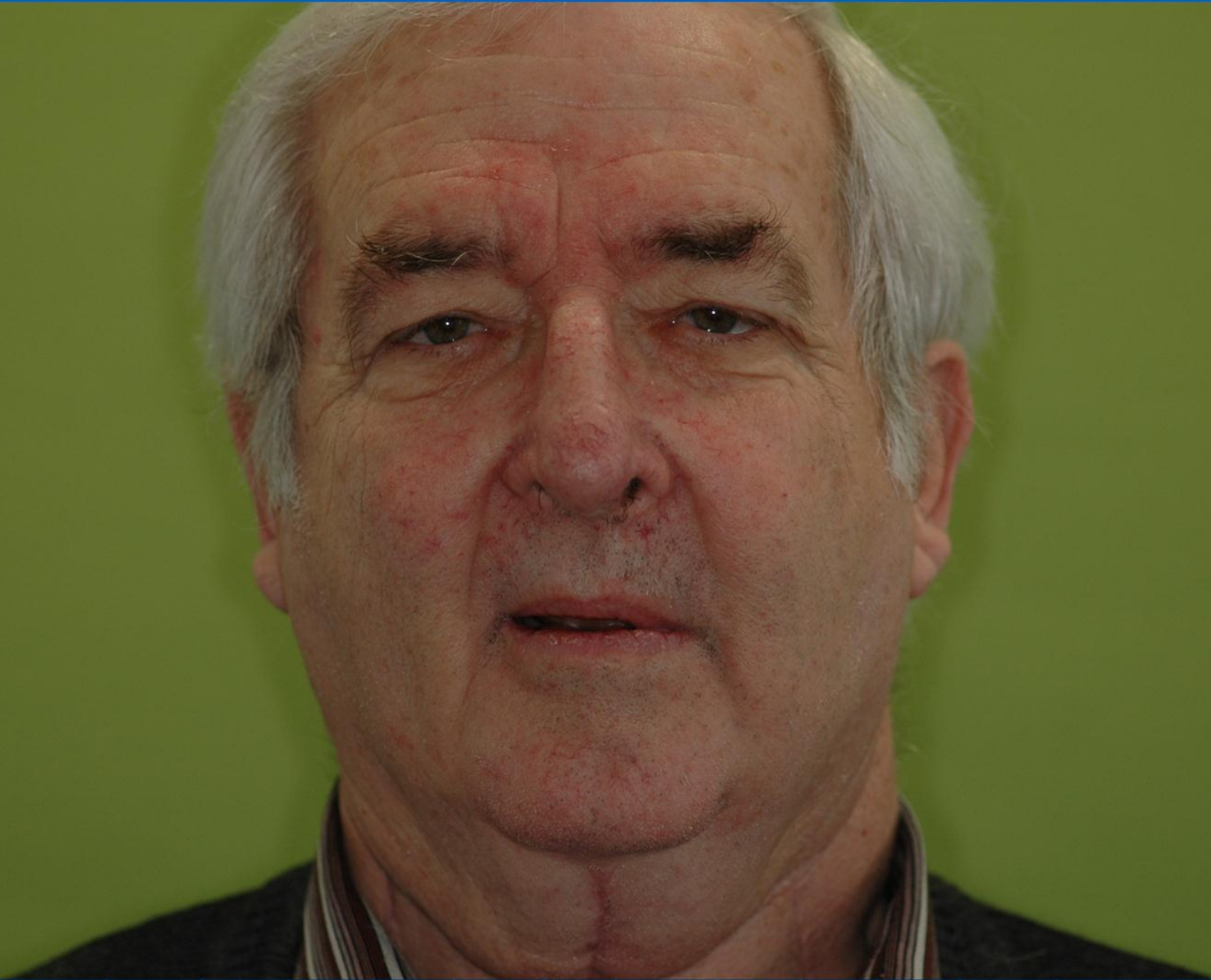
Fibula

Anastomose



4 Months post-op





# Reconstruction after Trauma



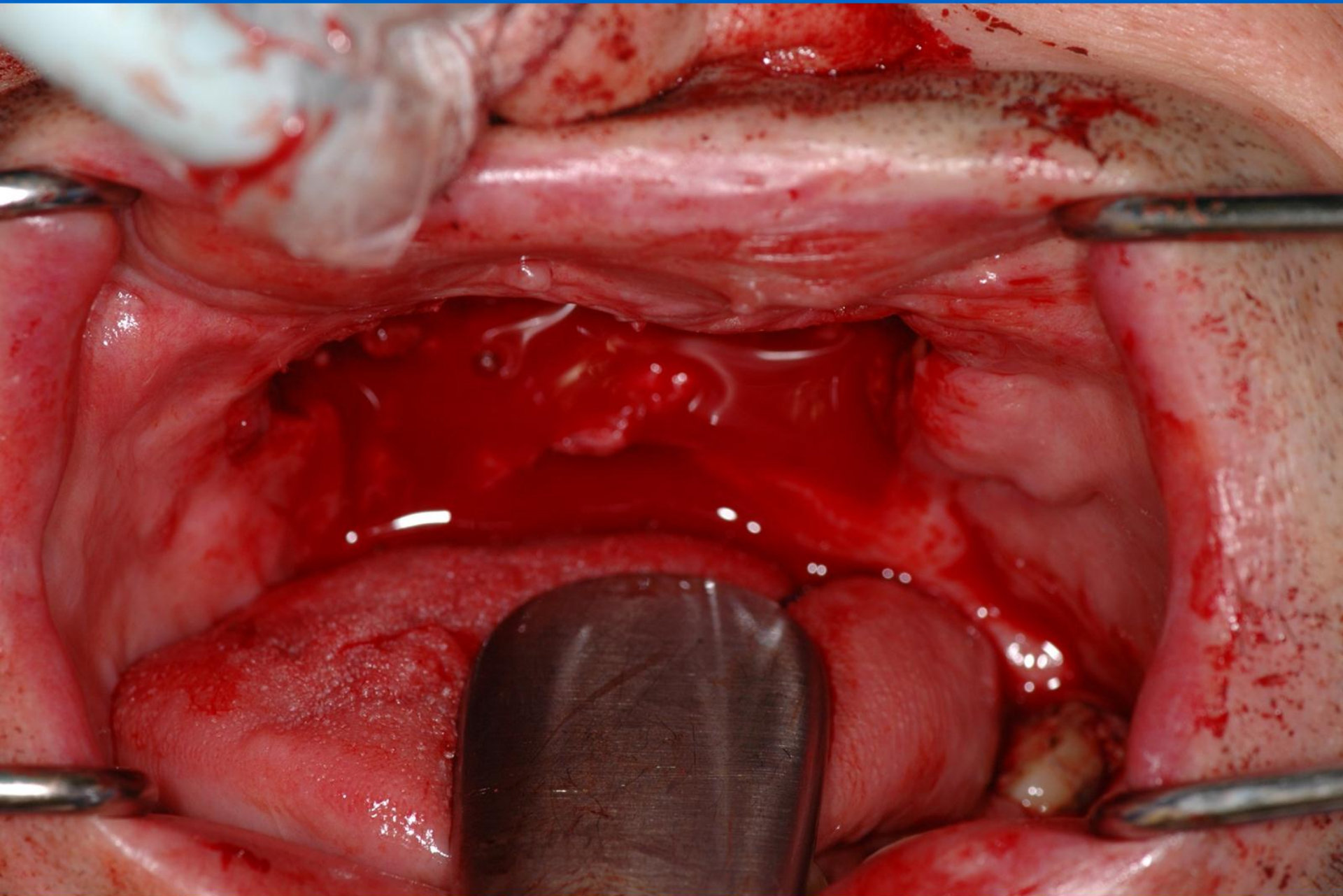




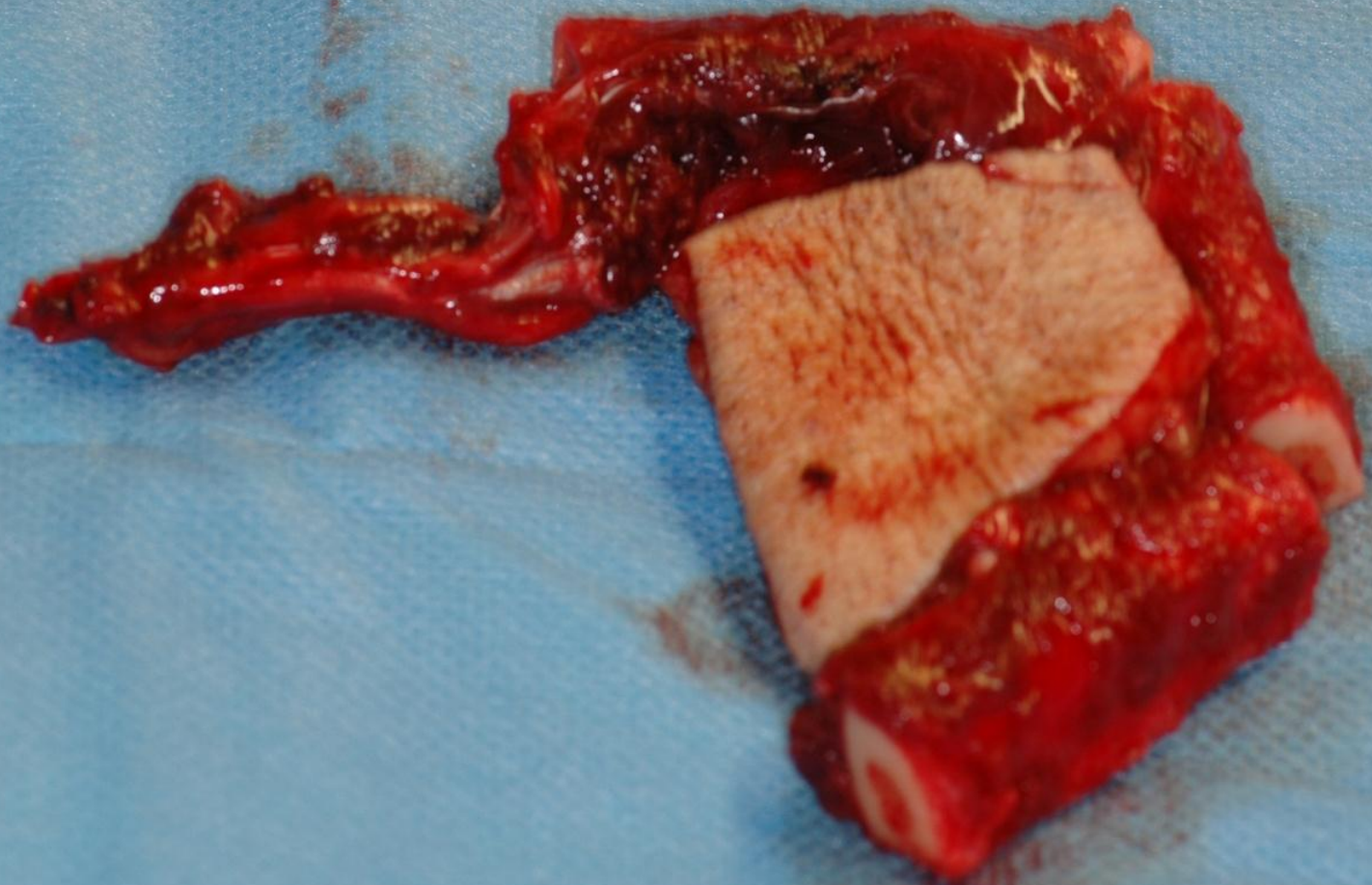


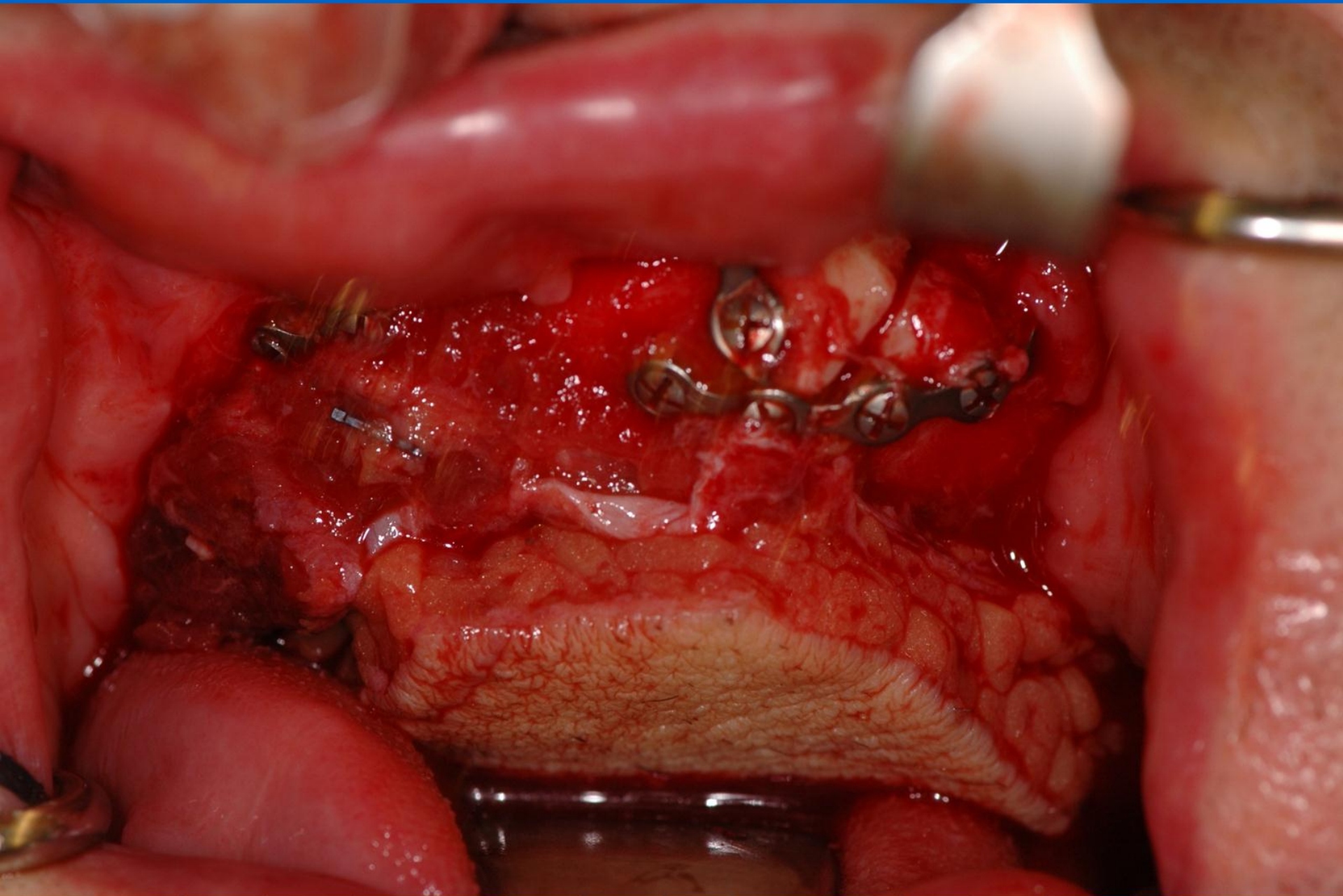












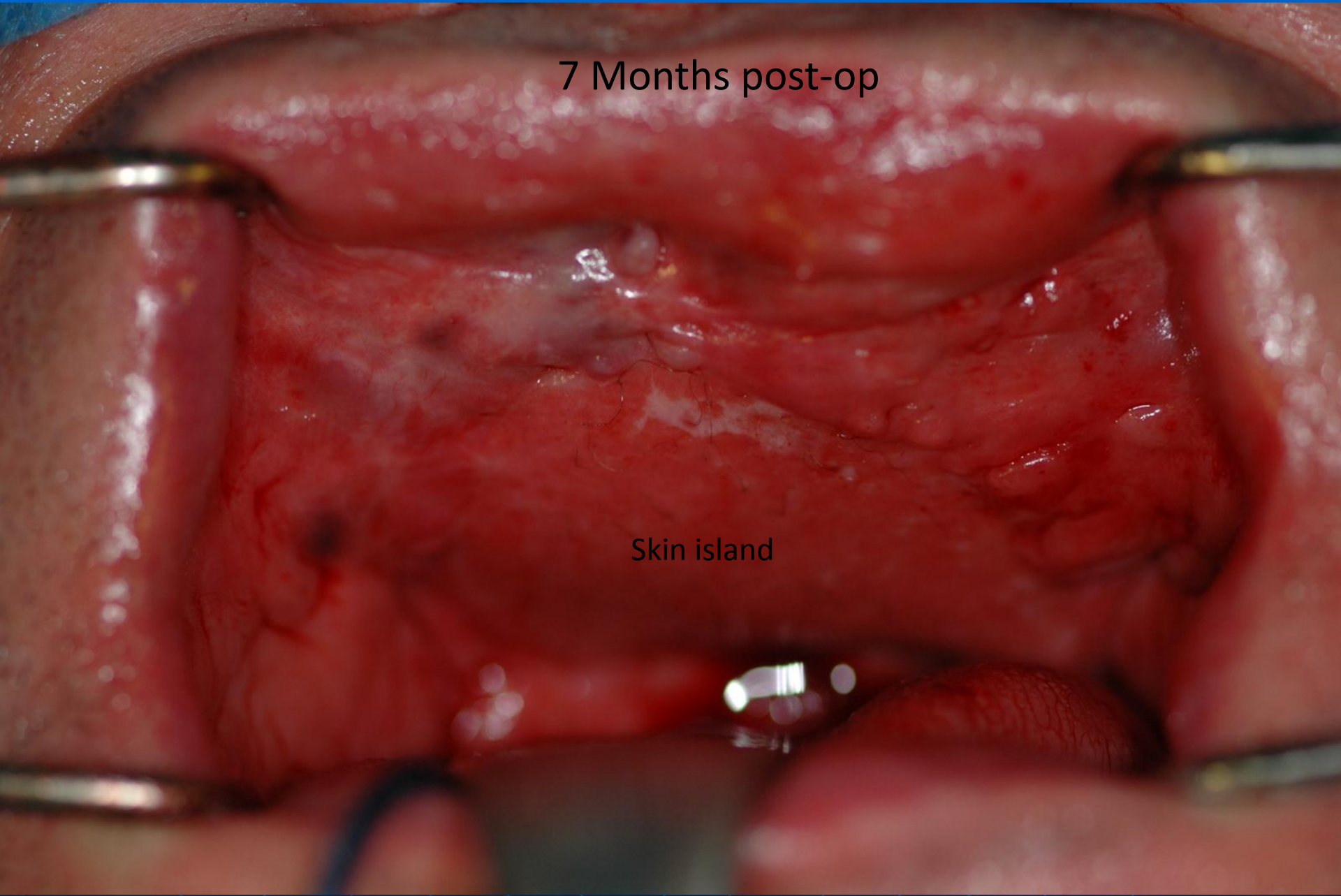


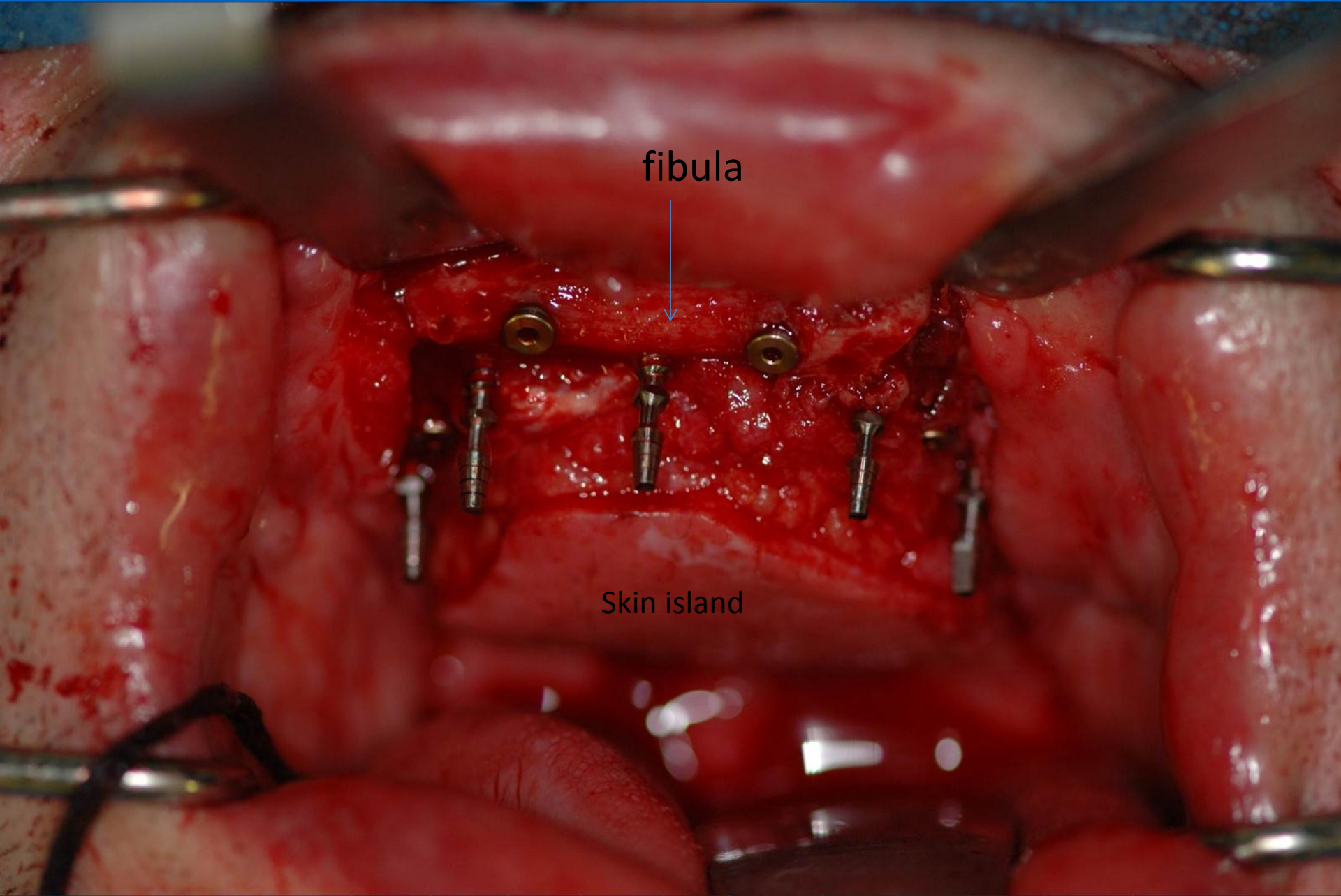




7 Months post-op

Skin island

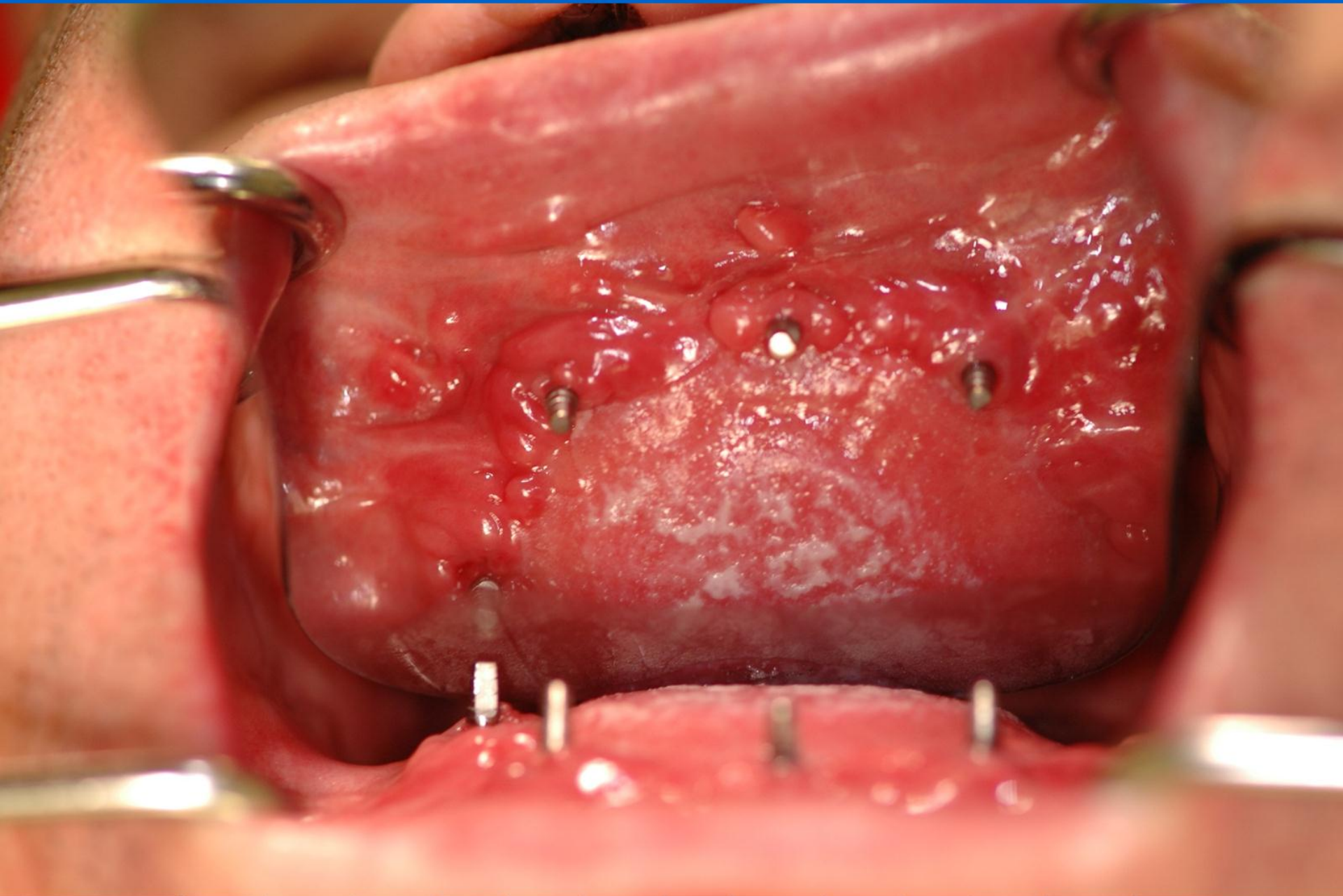


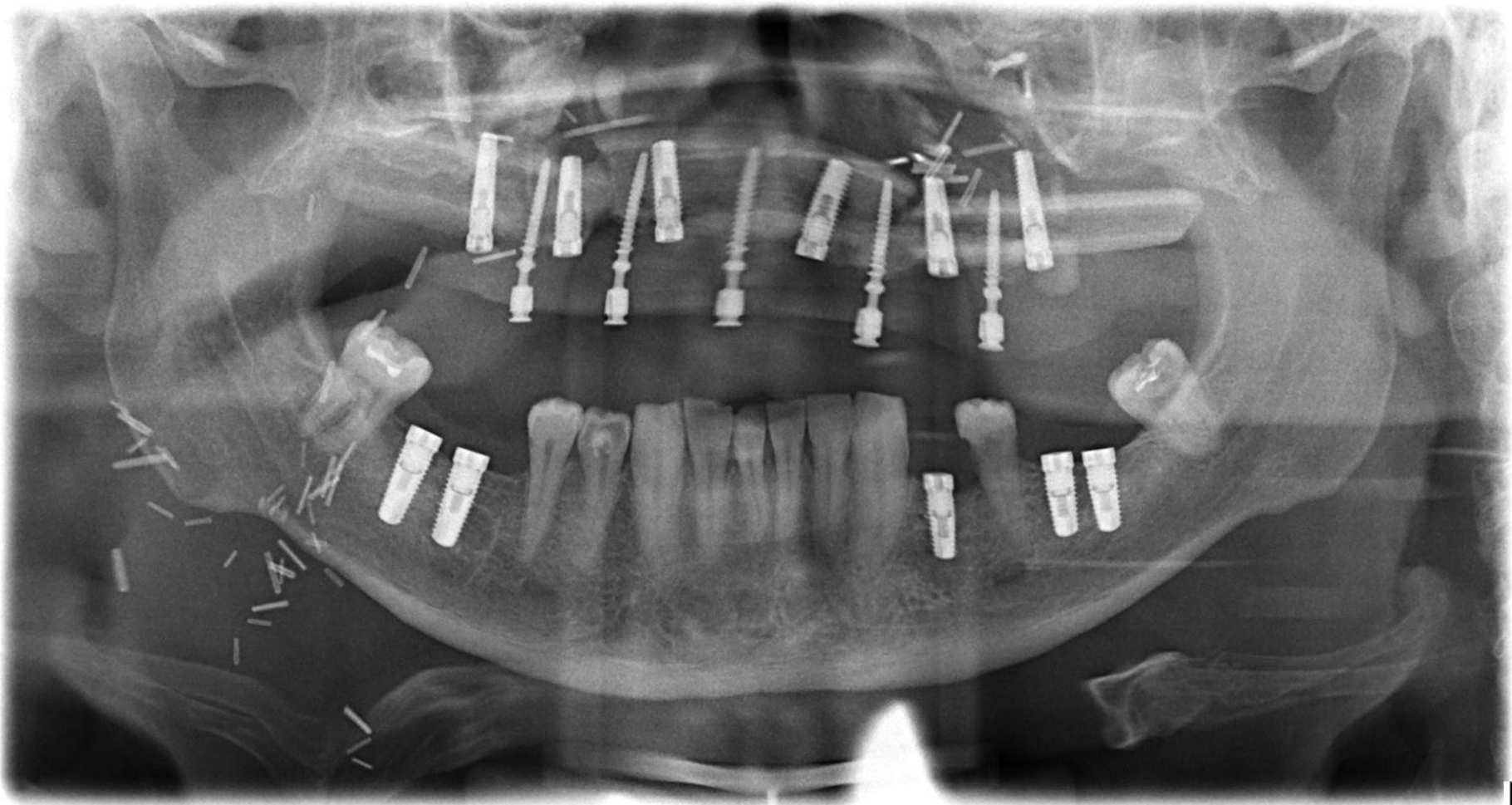


fibula



Skin island









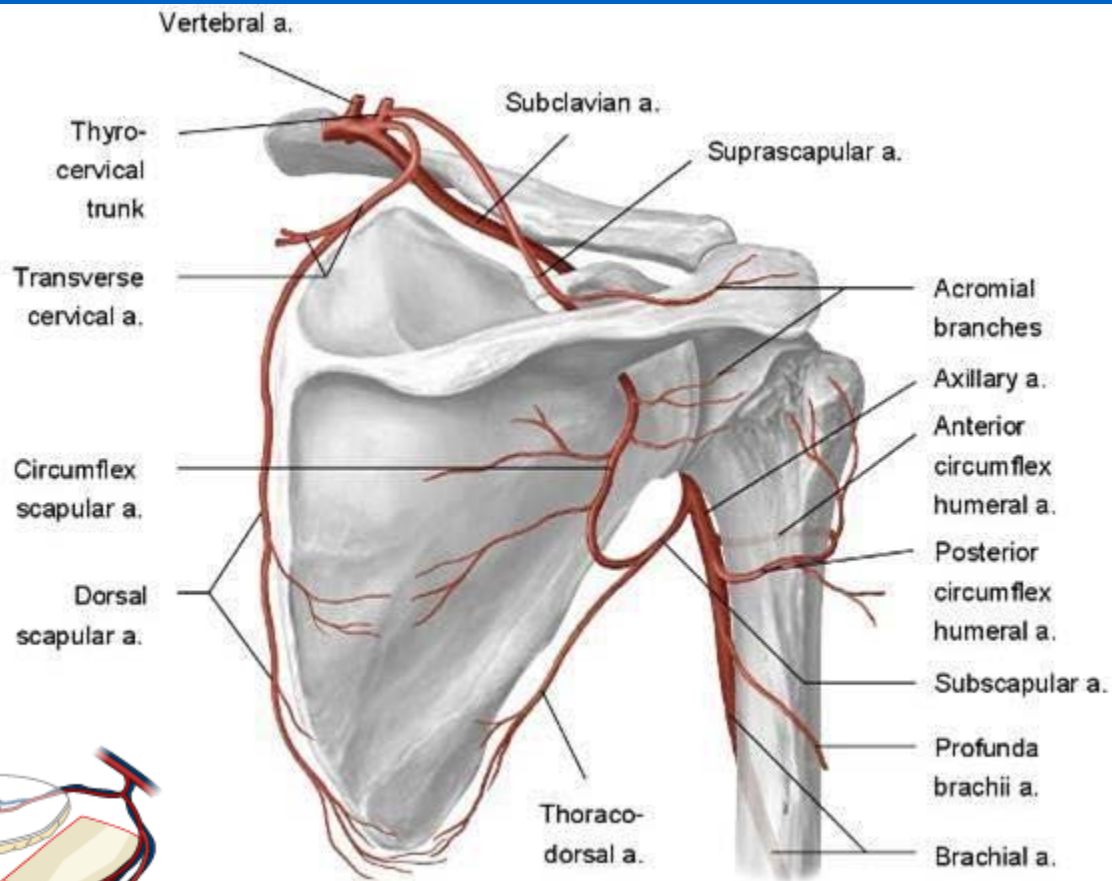




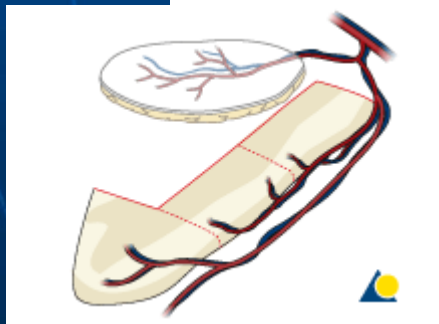
# Scapular Flap ( Osteomyocutaneous Flap )

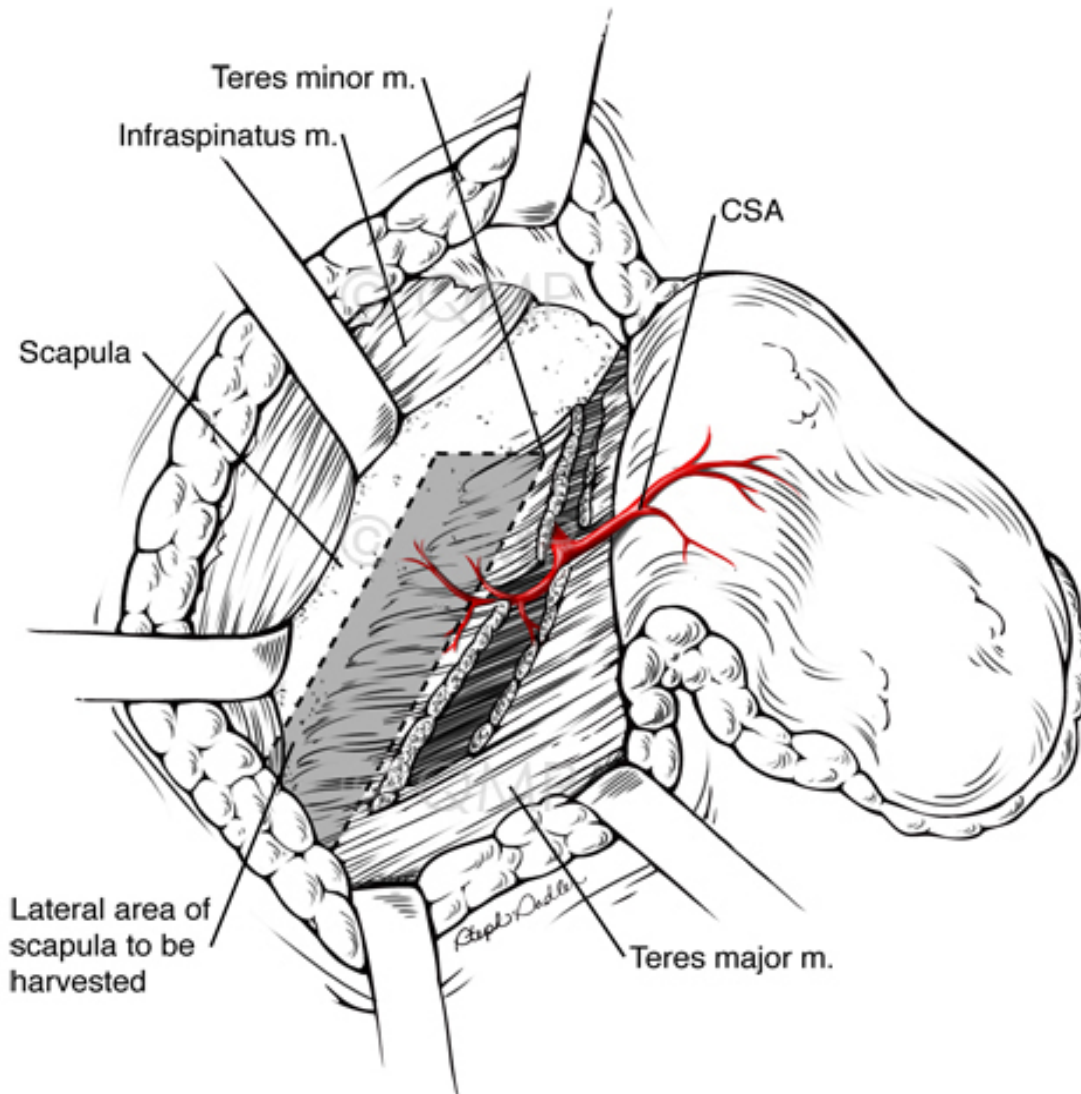
# Advantages of Scapular Flap

- low morbidity rate of donor site
- ability to design multiple cutaneous panels on a separate vascular pedicle from the bone flap
- the thin blade of the scapula provides optimum tissues for palate and orbital floor reconstruction

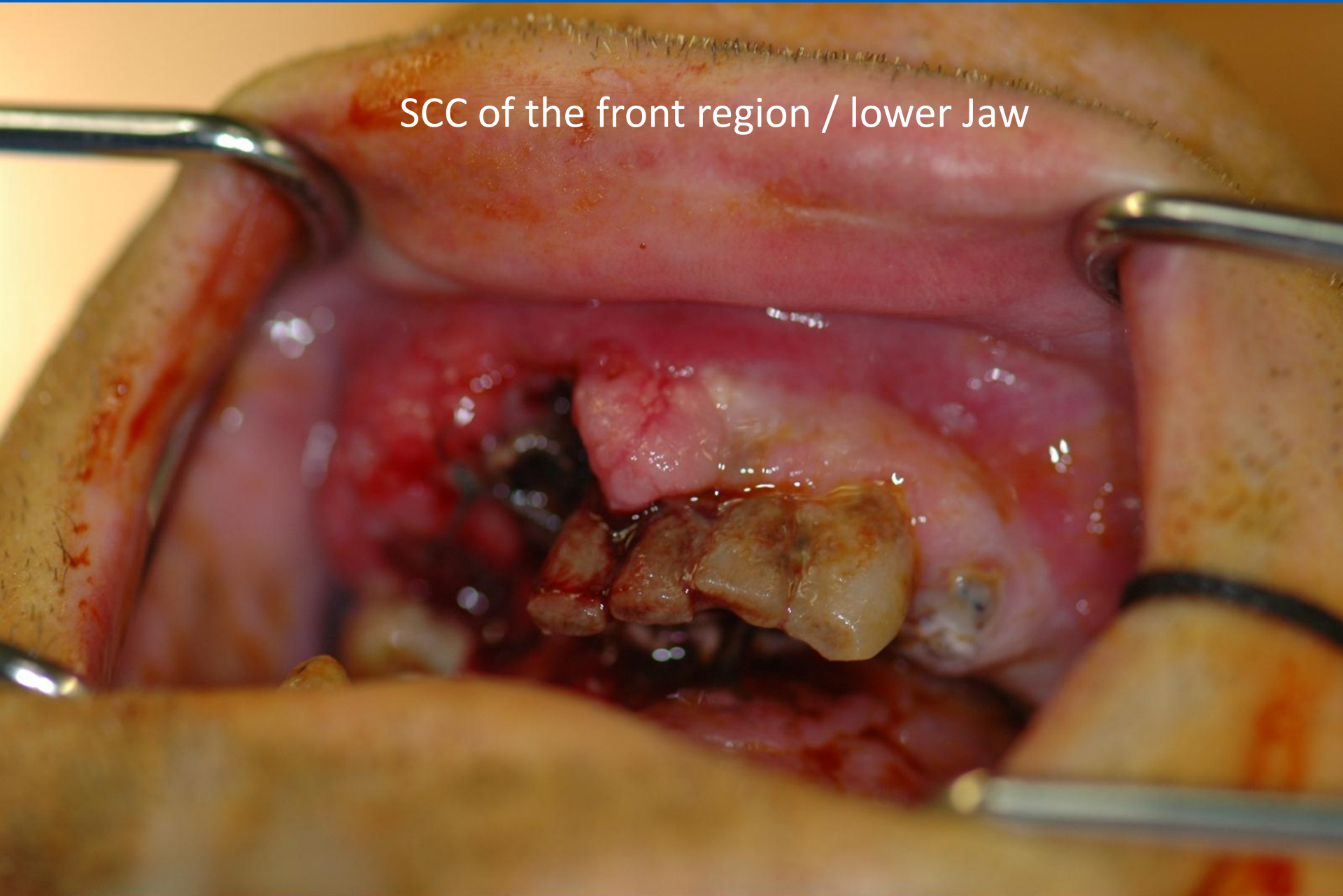


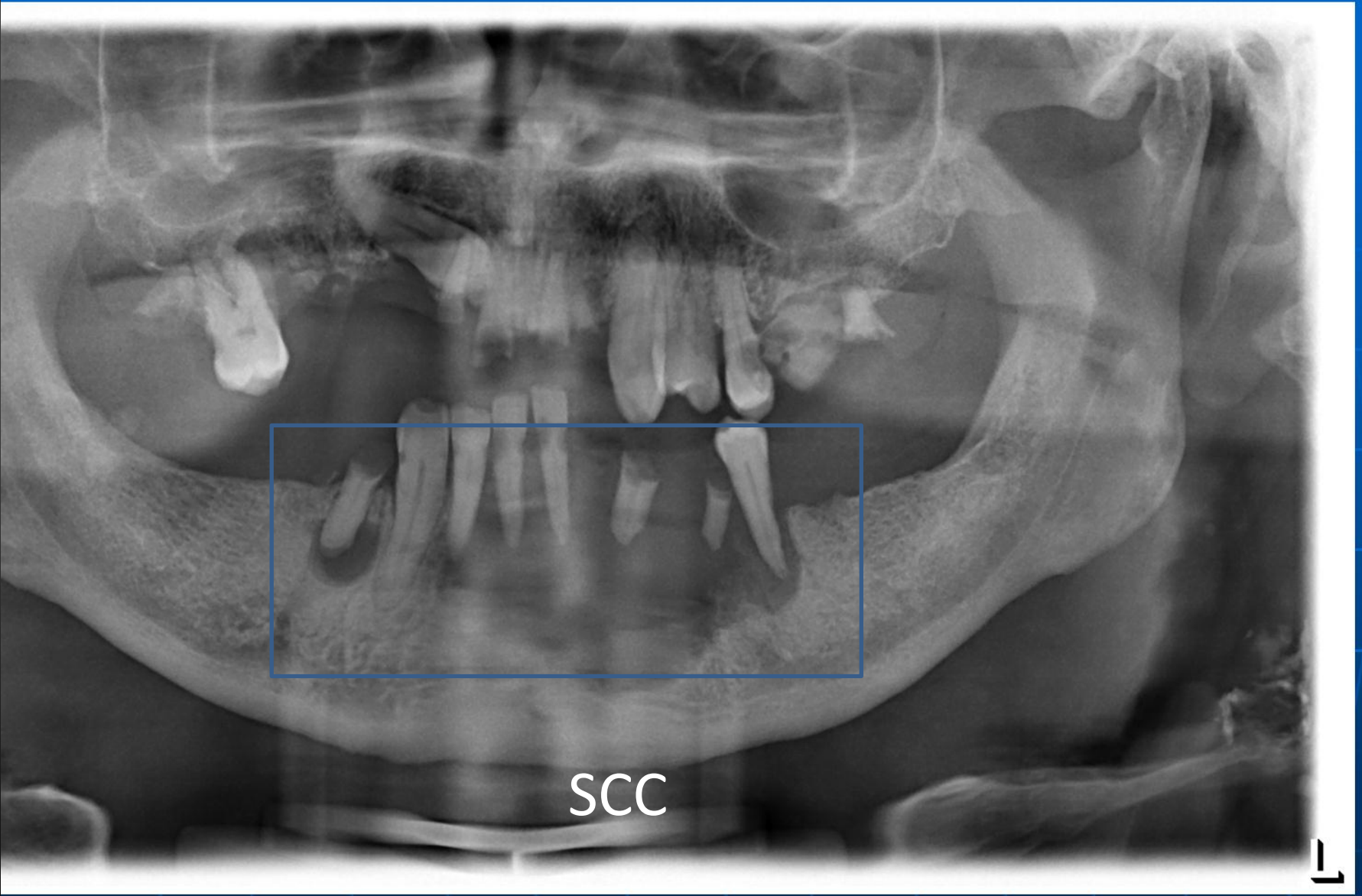
Illustrator: Karl Wesker



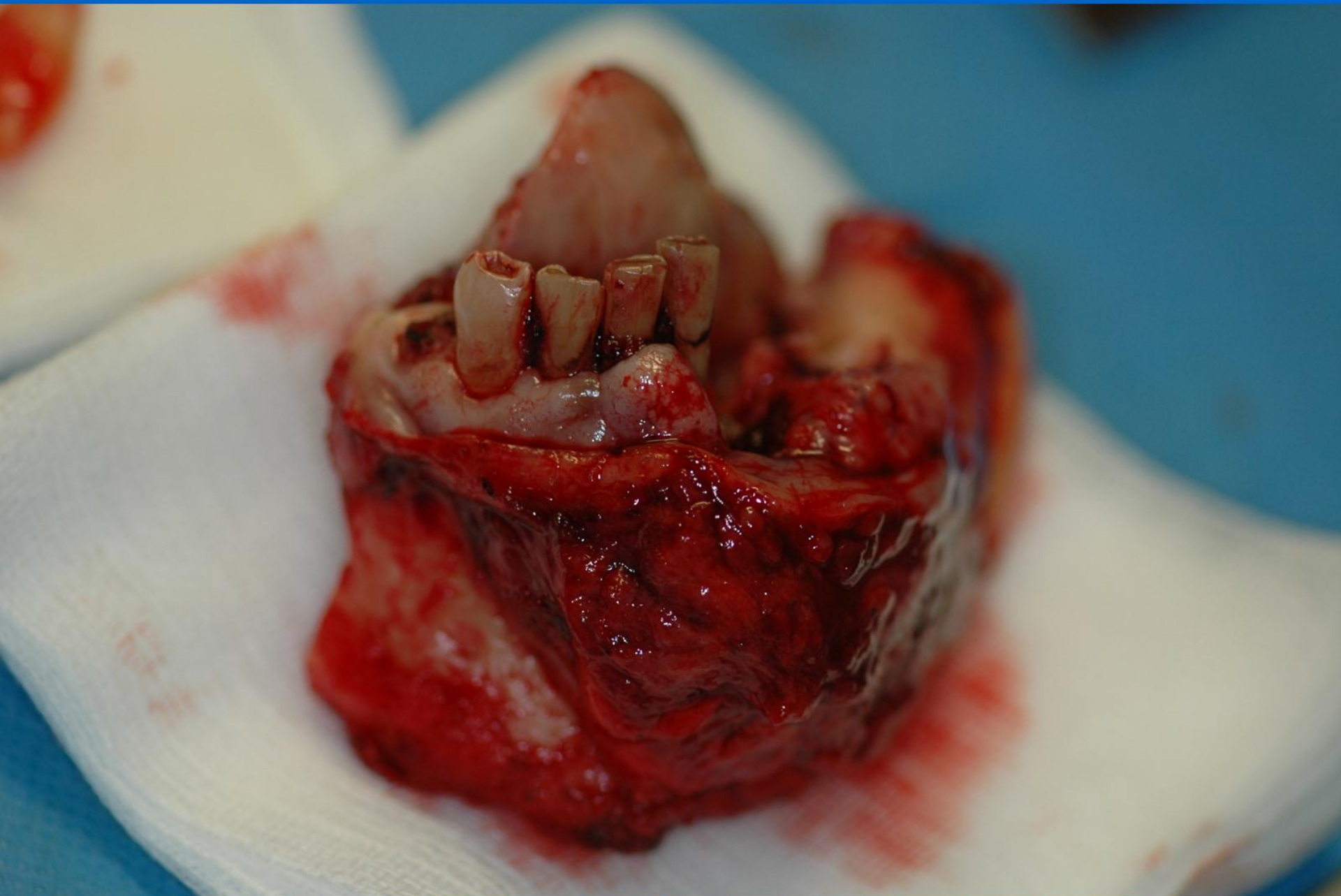


SCC of the front region / lower Jaw

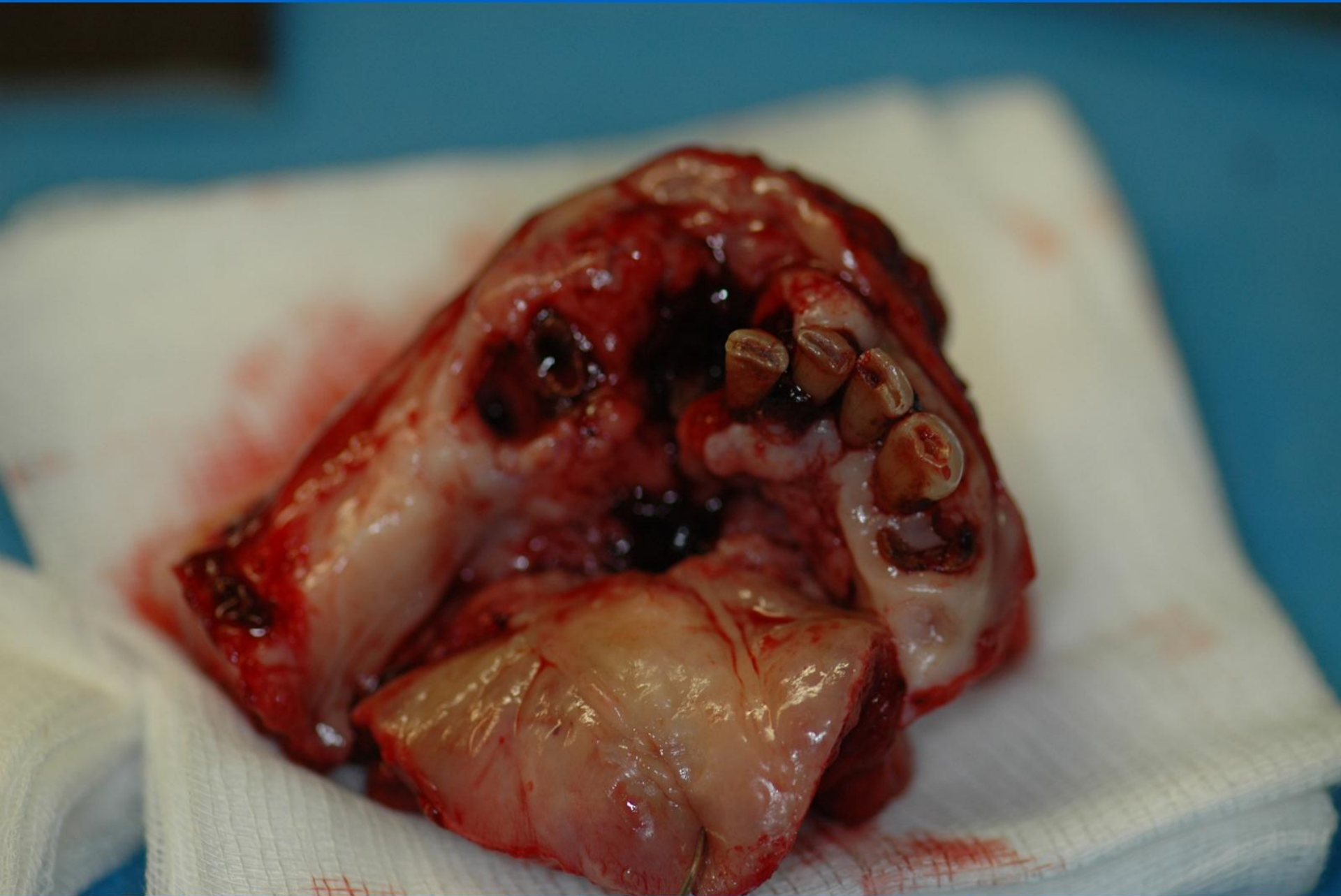




SCC

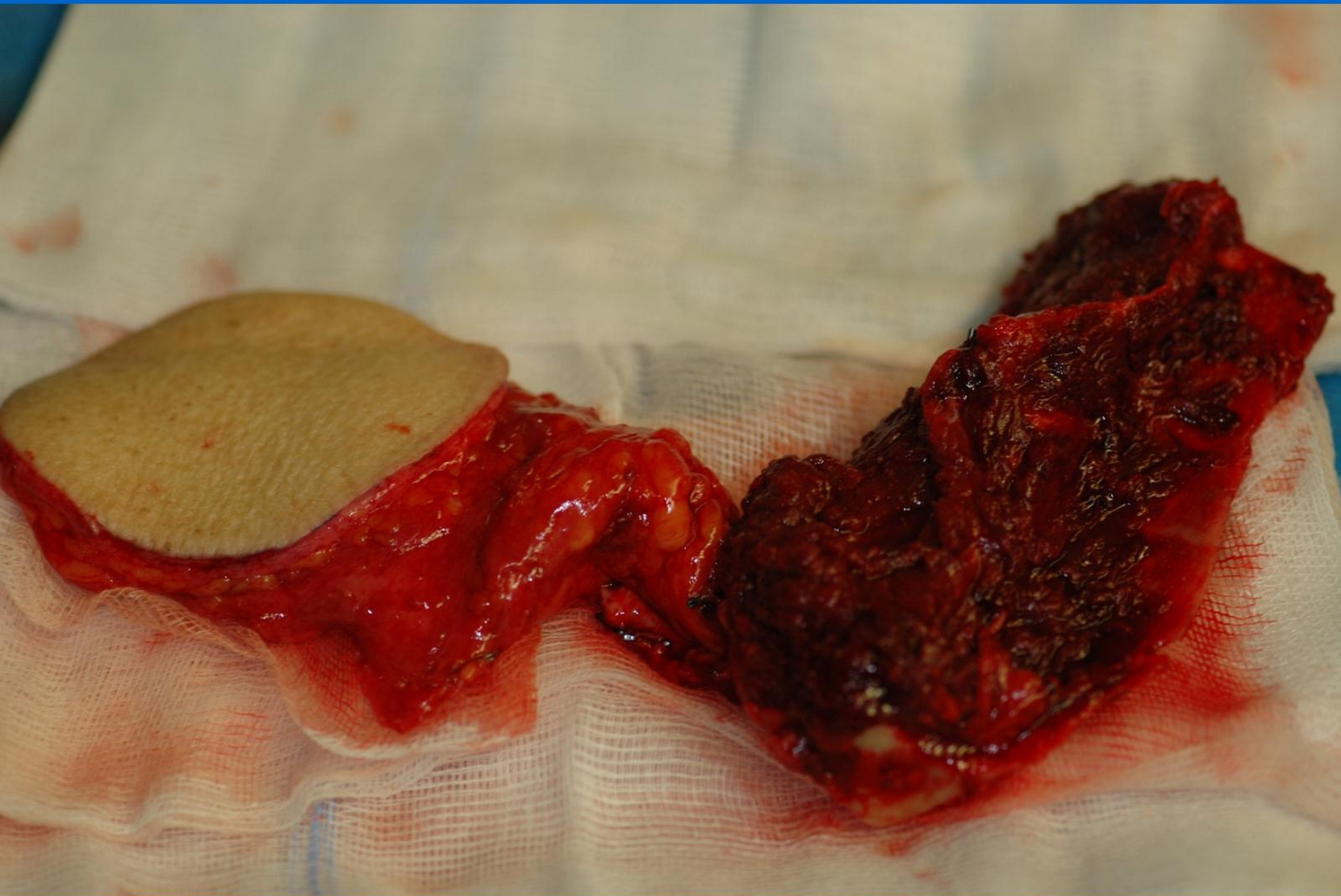


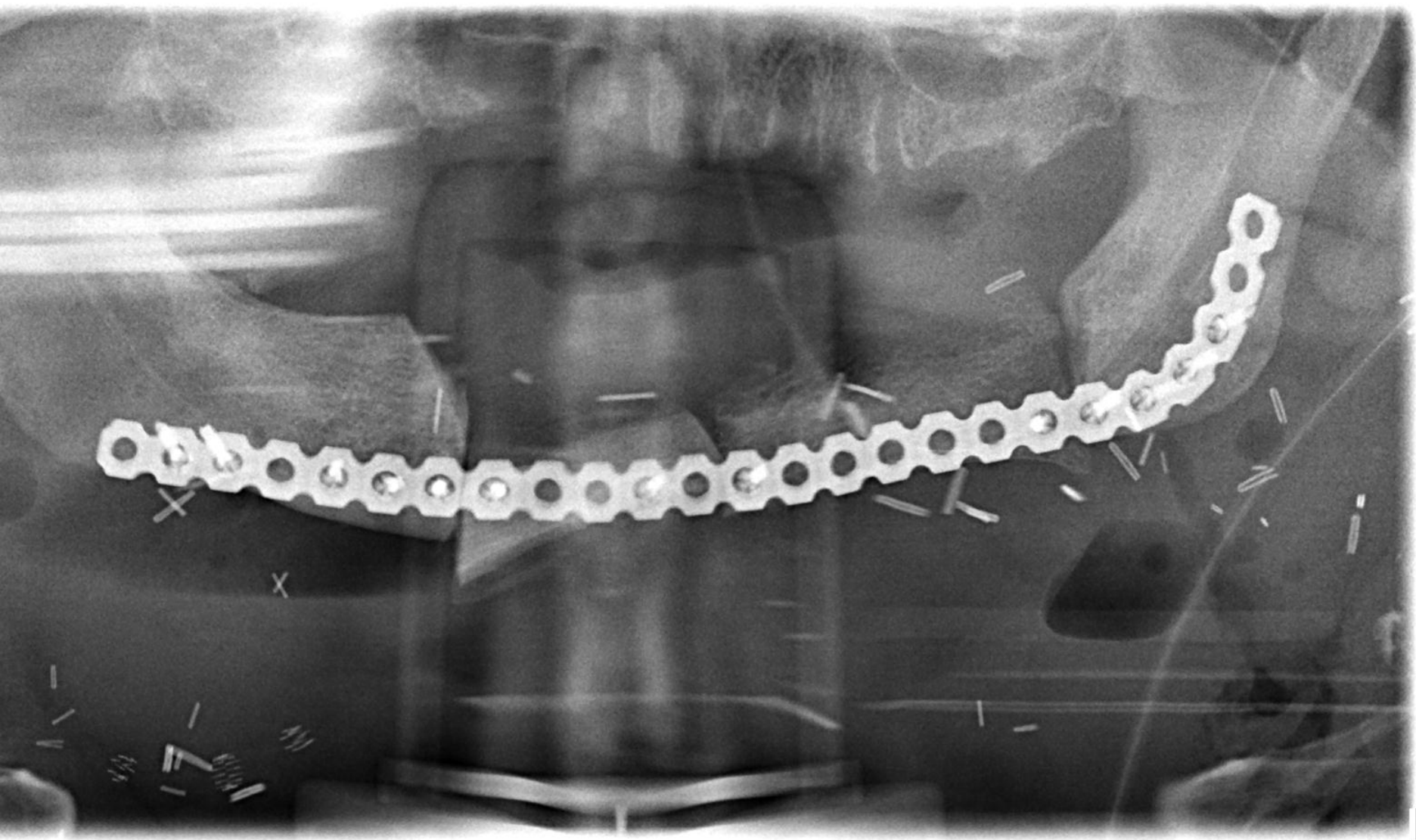


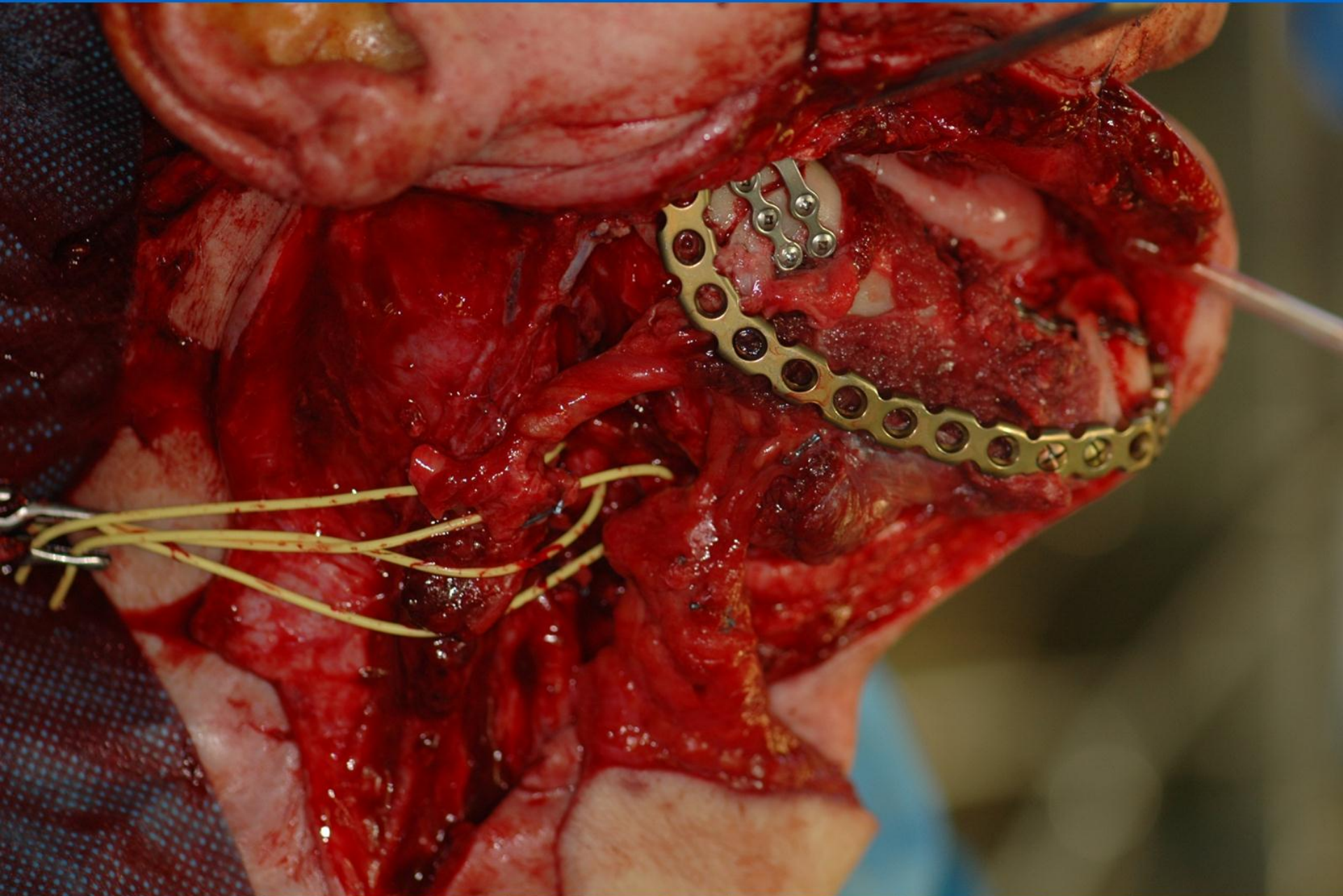


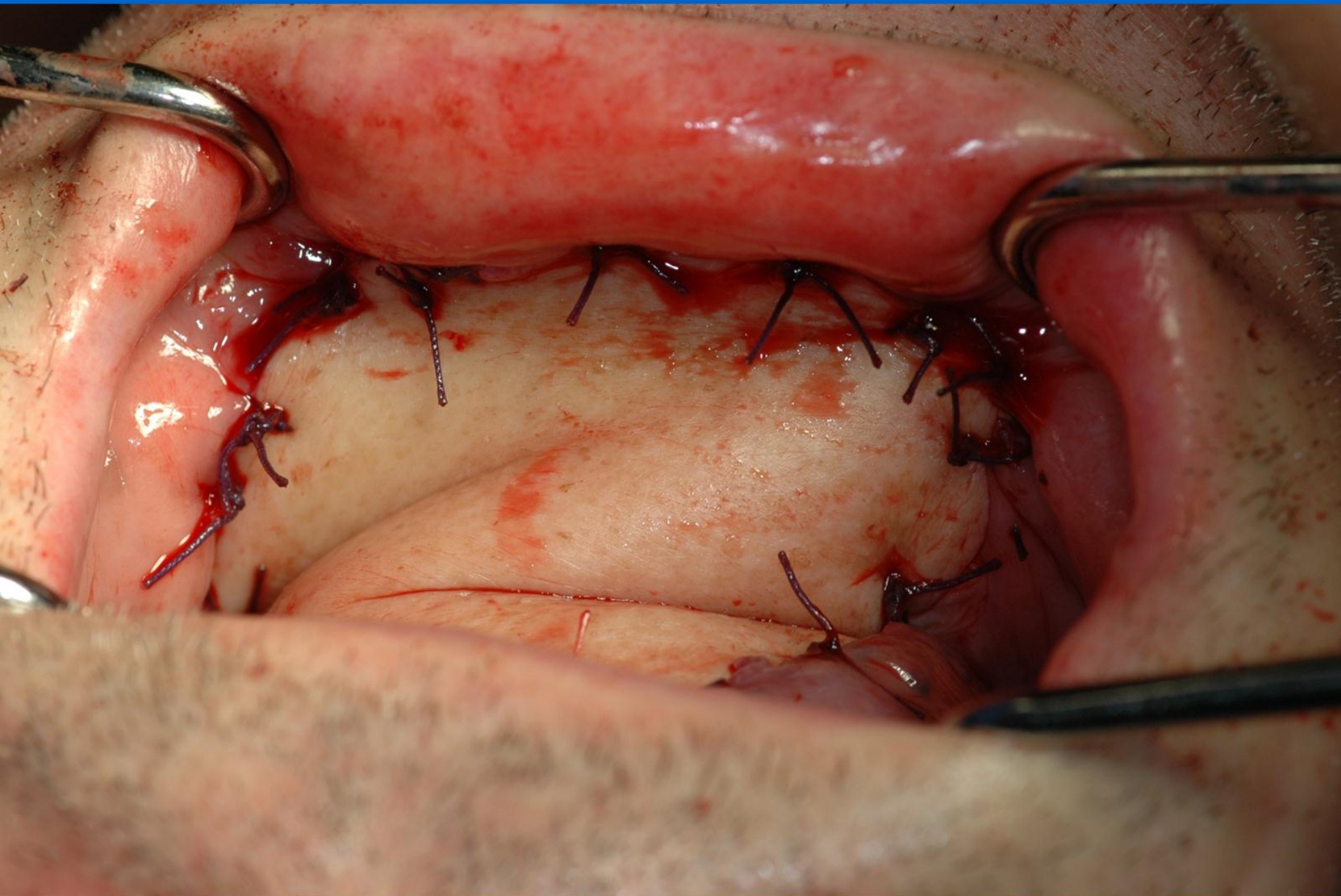












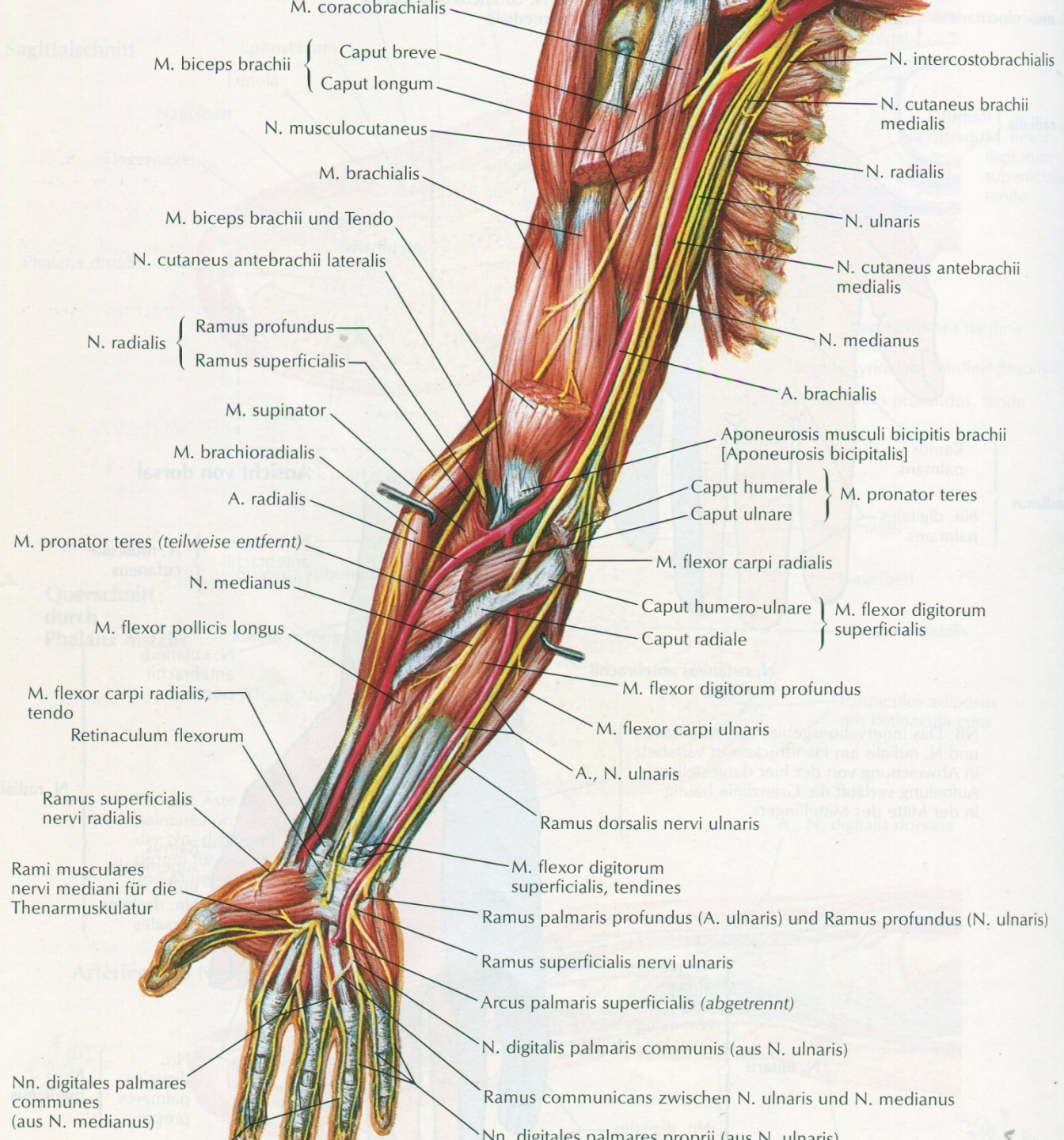
# Radialis Forearm Free Flap (RFFF) ( Fasciocutaneous Flap )



# Advantages of Radialis Forearm Free Flap (RFFF)

- most popular free-flaps in oral reconstruction
- low morbidity rate of donor site
- availability of different tissues with large amounts of skin
- offering thin, pliable predominantly hairless skin to replace oral mucosa
- offering the possibility of including bone as an osteocutaneous flap
- possibility of harvesting a long pedicle with a suitable vessel diameter

Sagittalschnitt



M. biceps brachii {  
Caput breve  
Caput longum

N. musculocutaneus

M. brachialis

M. biceps brachii und Tendo

N. cutaneus antebrachii lateralis

N. radialis {  
Ramus profundus  
Ramus superficialis

M. supinator

M. brachioradialis

A. radialis

M. pronator teres (teilweise entfernt)

N. medianus

M. flexor pollicis longus

M. flexor carpi radialis, tendo

Retinaculum flexorum

Ramus superficialis nervi radialis

Rami musculares nervi mediani für die Thenarmuskulatur

Nn. digitales palmares communes (aus N. medianus)

M. coracobrachialis

N. intercostobrachialis

N. cutaneus brachii medialis

N. radialis

N. ulnaris

N. cutaneus antebrachii medialis

N. medianus

A. brachialis

Aponeurosis musclic bicipitis brachii [Aponeurosis bicipitalis]

Caput humerale } M. pronator teres  
Caput ulnare }

M. flexor carpi radialis

Caput humero-ulnare } M. flexor digitorum superficialis  
Caput radiale }

M. flexor digitorum profundus

M. flexor carpi ulnaris

A., N. ulnaris

Ramus dorsalis nervi ulnaris

M. flexor digitorum superficialis, tendines

Ramus palmaris profundus (A. ulnaris) und Ramus profundus (N. ulnaris)

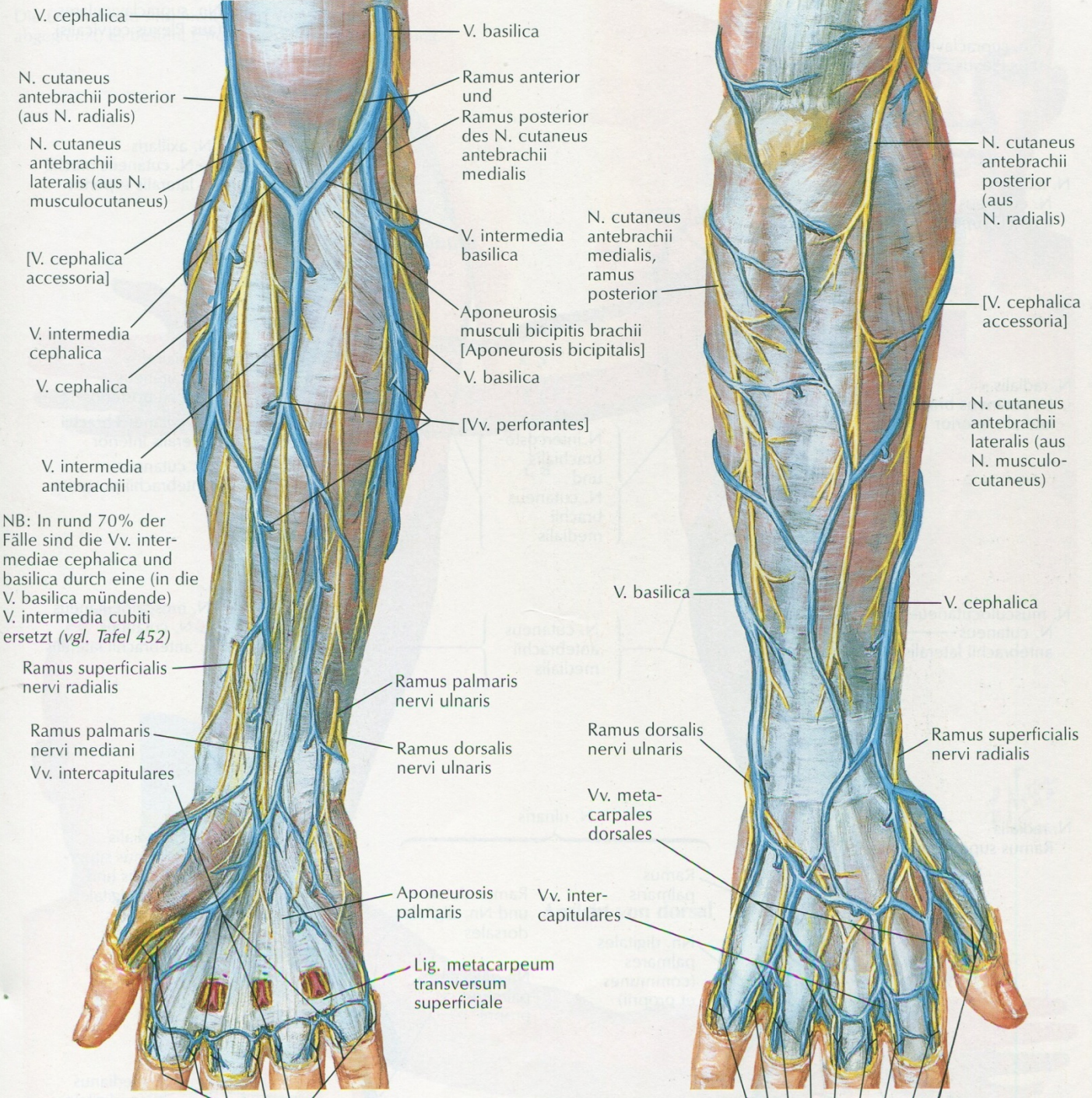
Ramus superficialis nervi ulnaris

Arcus palmaris superficialis (abgetrennt)

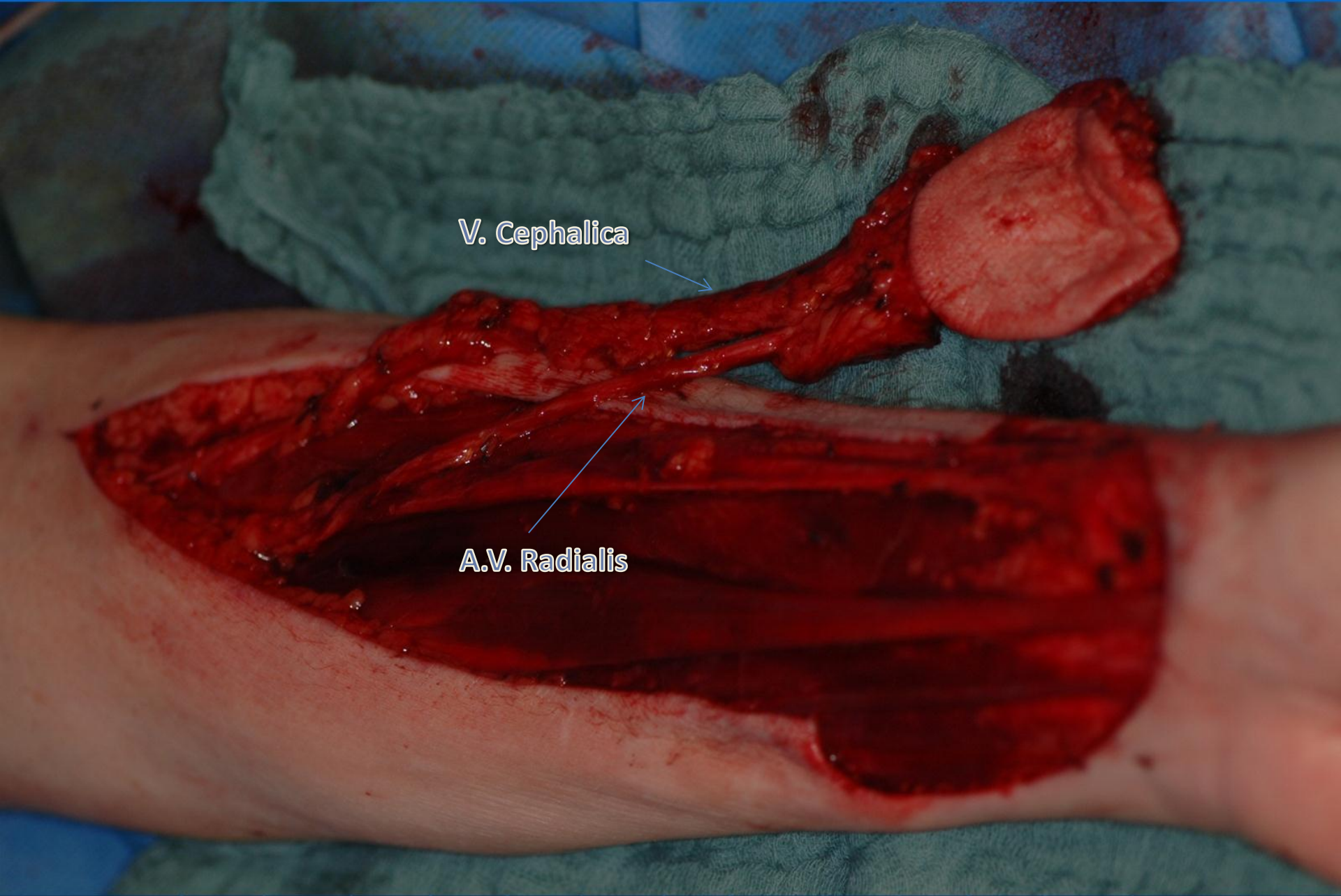
N. digitalis palmaris communis (aus N. ulnaris)

Ramus communicans zwischen N. ulnaris und N. medianus

Nn. digitales palmares proprii (aus N. ulnaris)







V. Cephalica

A.V. Radialis







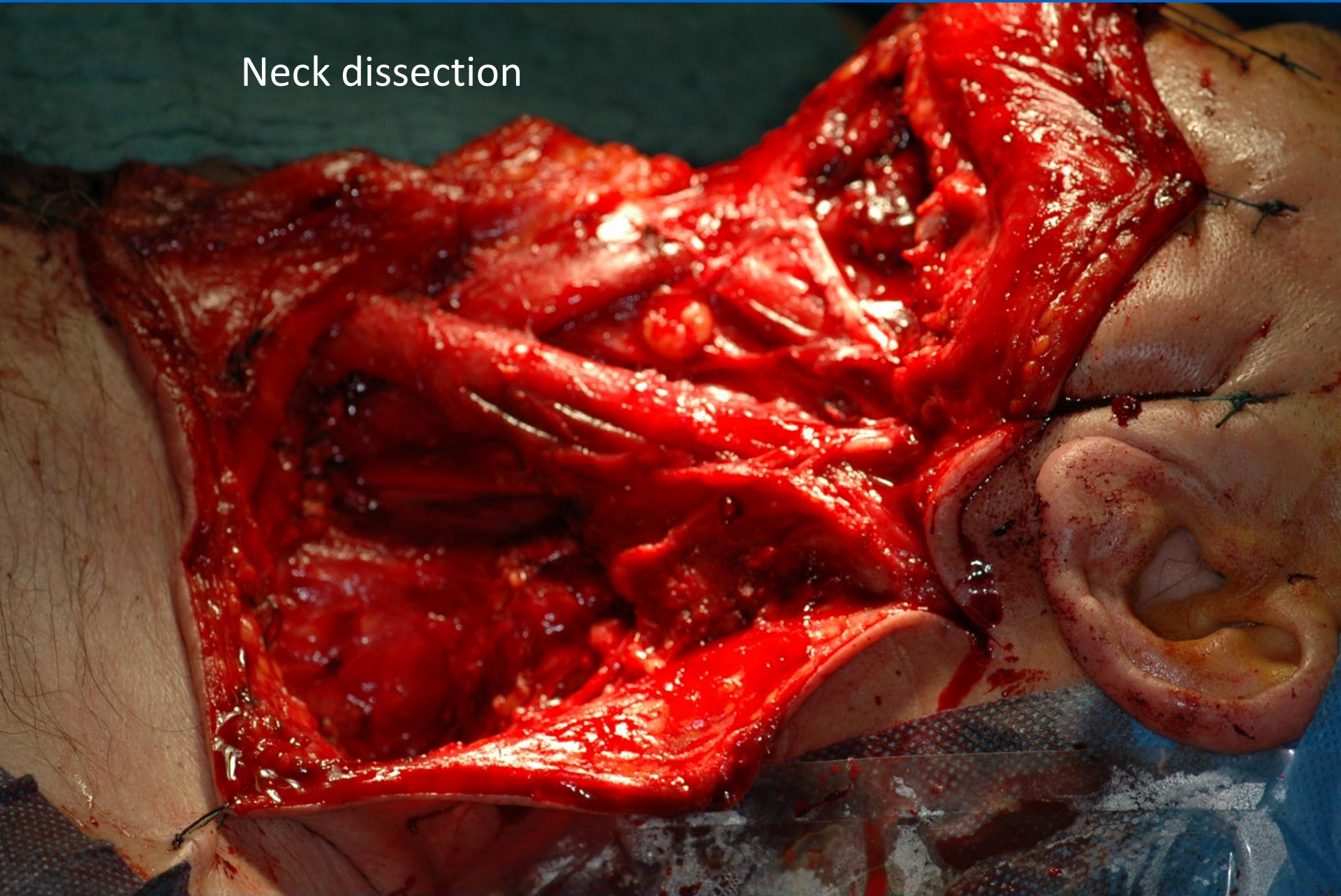


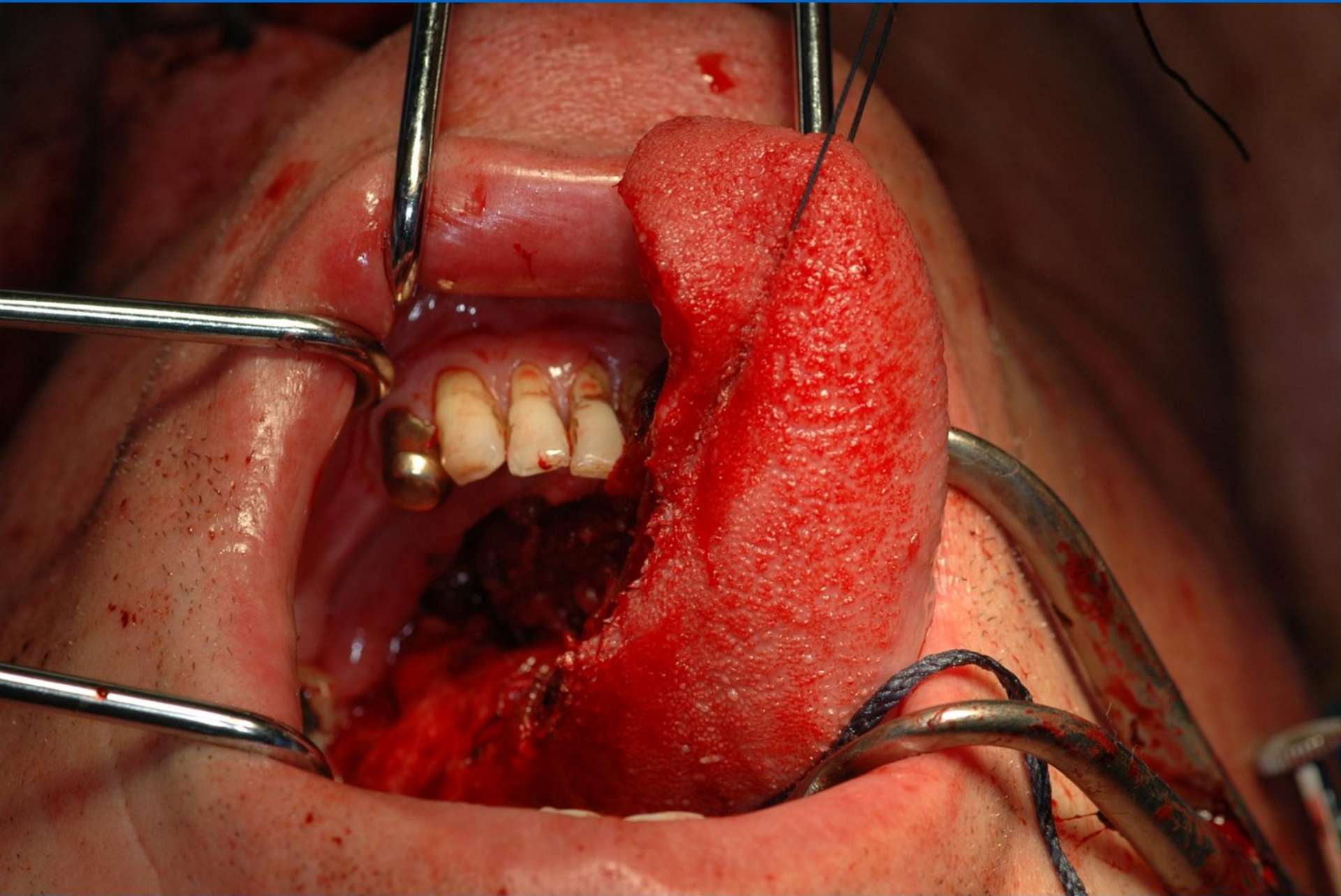
Reconstruction of soft tissue in one  
step

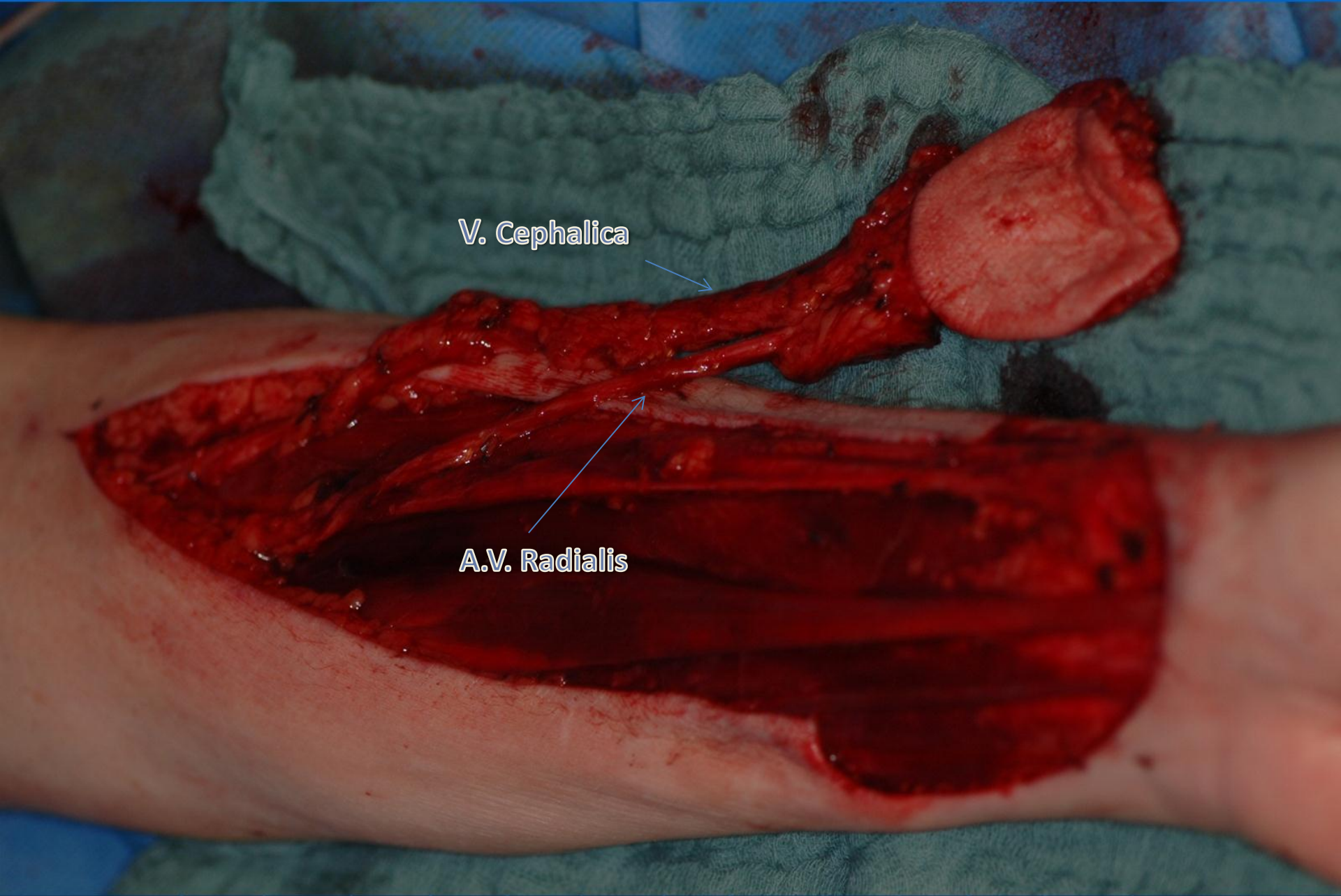


SCC

# Neck dissection

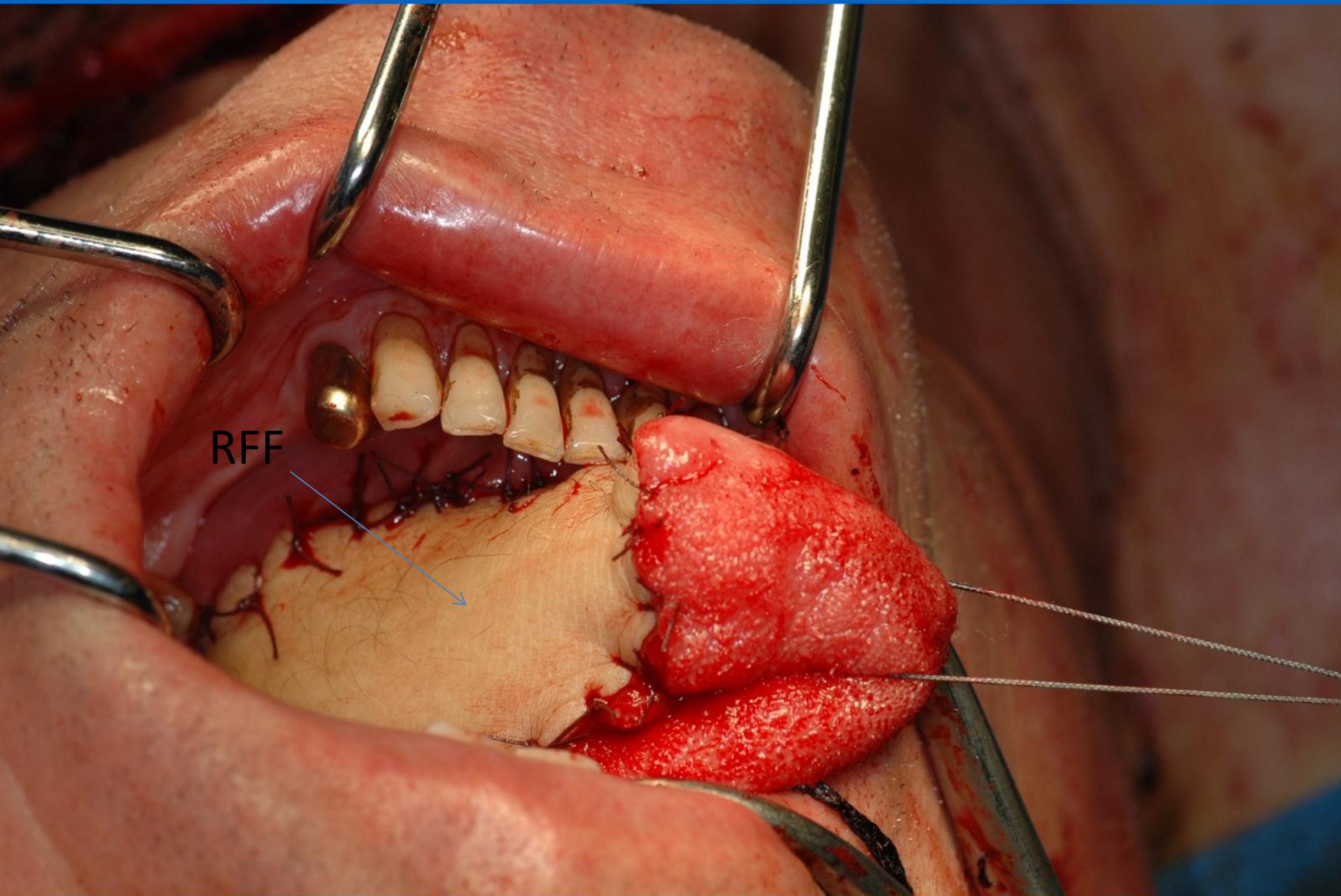






V. Cephalica

A.V. Radialis

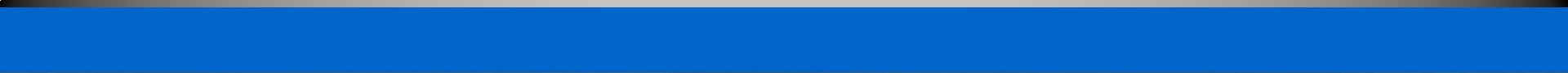


RFF

5 months post-op

RFF







48 Years old Patient 12 years after Maxillectomy



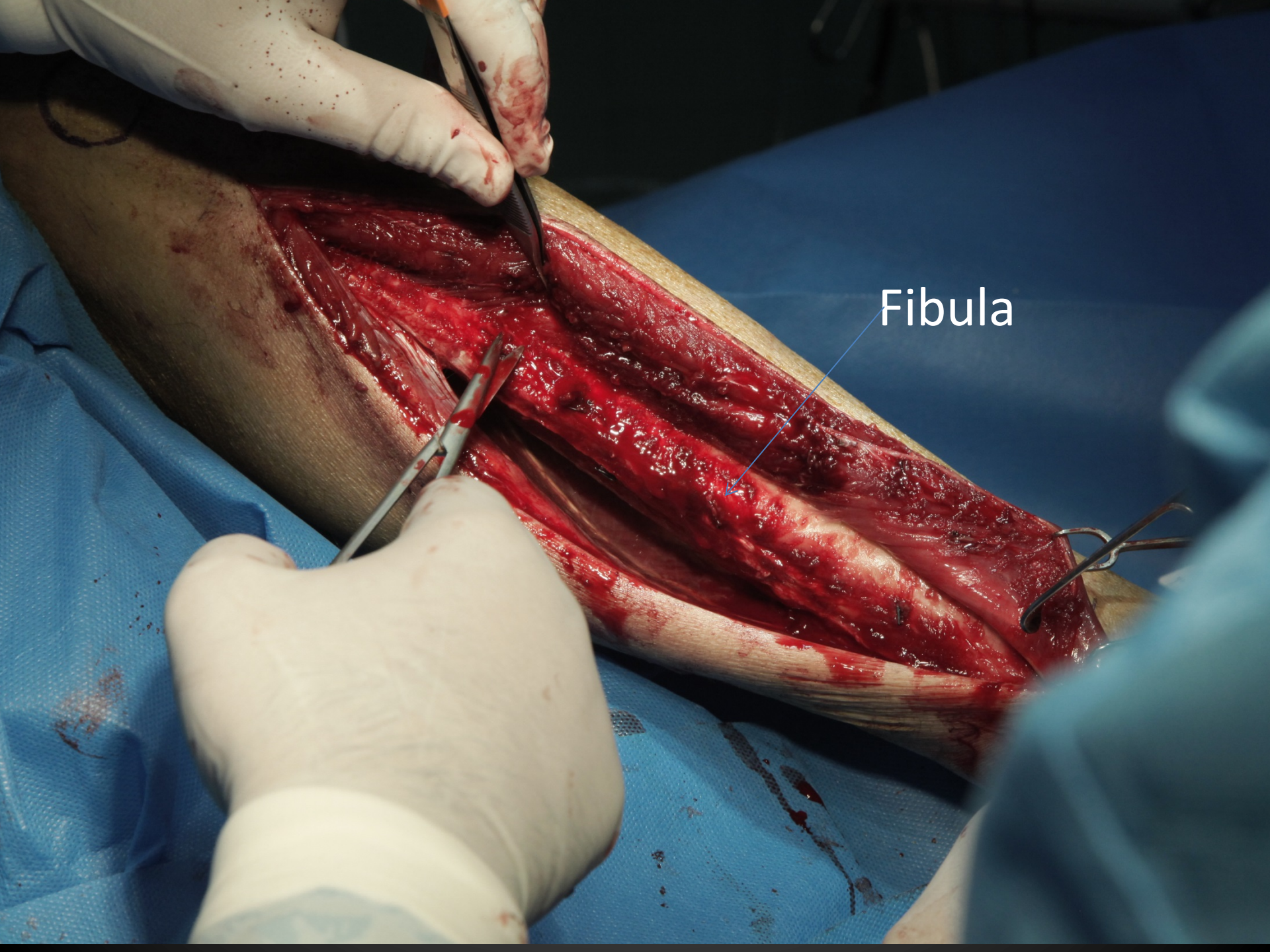


Obturator to cover the intraorally defect



# Free Fibula Flap





Fibula

V.A. Fibularis



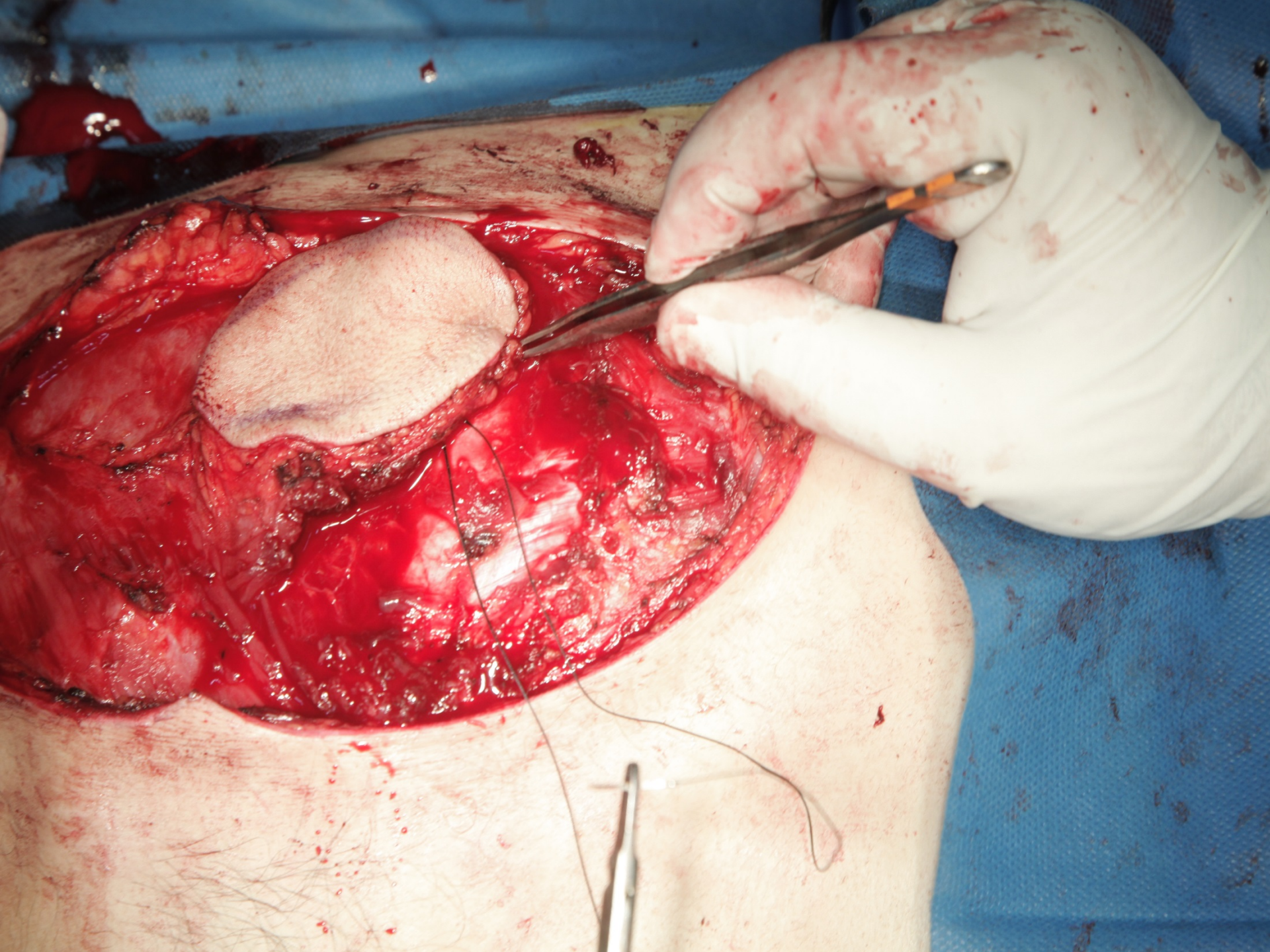






# Pectoralis pedicle Flap

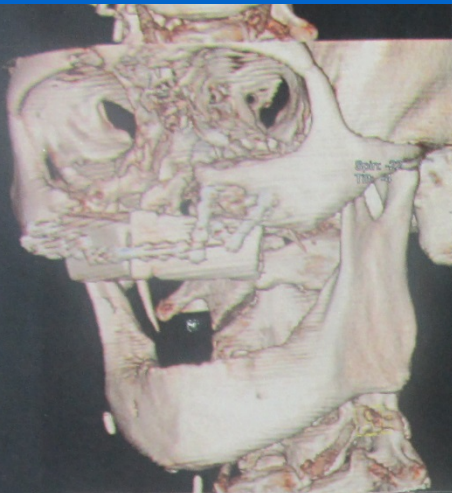




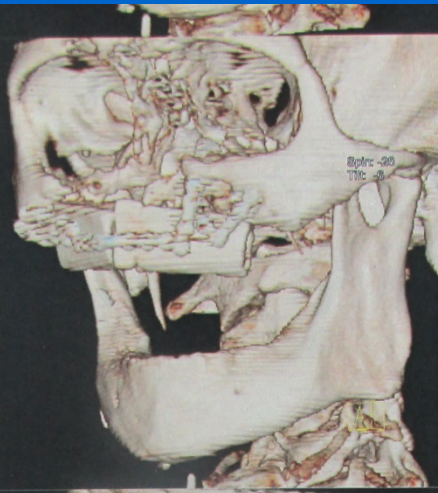








Spine -66  
Tilt -9



Spine -66  
Tilt -9



Spine -66  
Tilt -9



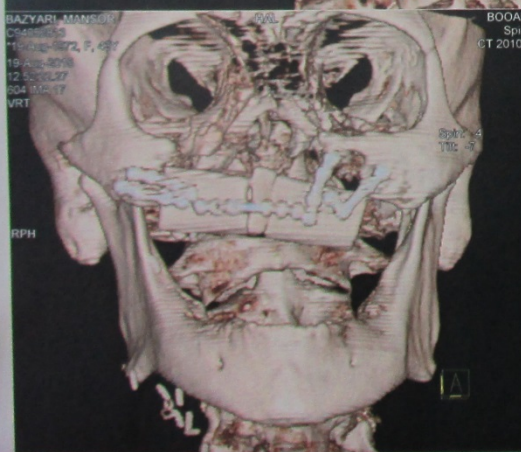
Spine -66  
Tilt -9



Spine -60  
Tilt -0



Spine -76  
Tilt -9

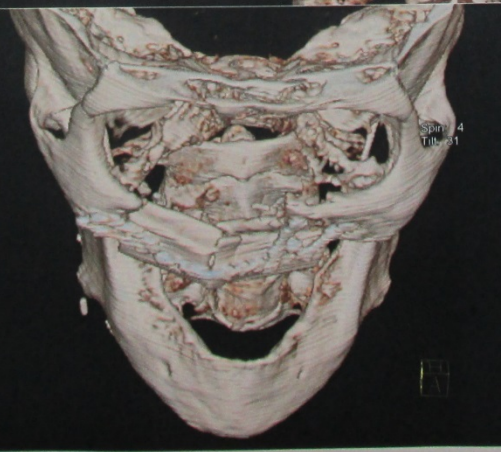


BAZYARI, MANSOR  
C94052813  
\*19-Aug-1972, F, 43Y  
19-Aug-2015  
12:52:22.27  
604 IMA 19  
VRT

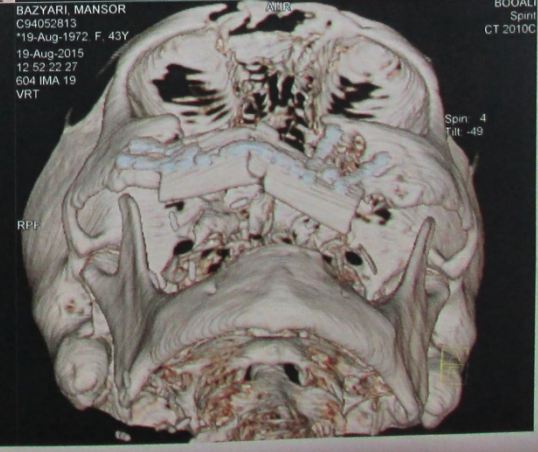
BOOALI  
Spine  
CT 2010C

Spine -4  
Tilt -9

RPH



Spine -4  
Tilt -91



BAZYARI, MANSOR  
C94052813  
\*19-Aug-1972, F, 43Y  
19-Aug-2015  
12:52:22.27  
604 IMA 19  
VRT

BOOALI  
Spine  
CT 2010C

Spine -4  
Tilt -49

RPH







## Advantages of Free Flaps

- better aesthetic and functional result
- possibility of reconstruction of multilayered defects
- the large number of arteries and veins in the neck make free-flap revascularization easier than in other recipient site of the body

**the Gold standard in the oral and facial reconstruction**

## Special Thanks to:

Dr. Haraji

Dr. Sarkarat

Dr. Sezavar

Dr. Rezai

Dr. Yazdani

Dr. Pahlewan

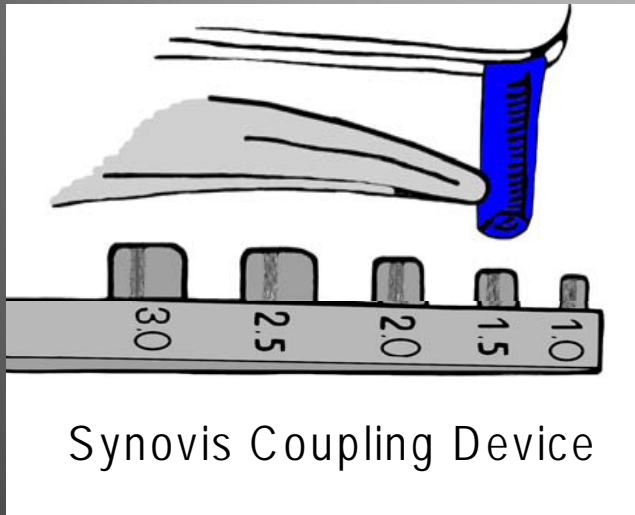
Dr. Nouruzi

# Coupling-System

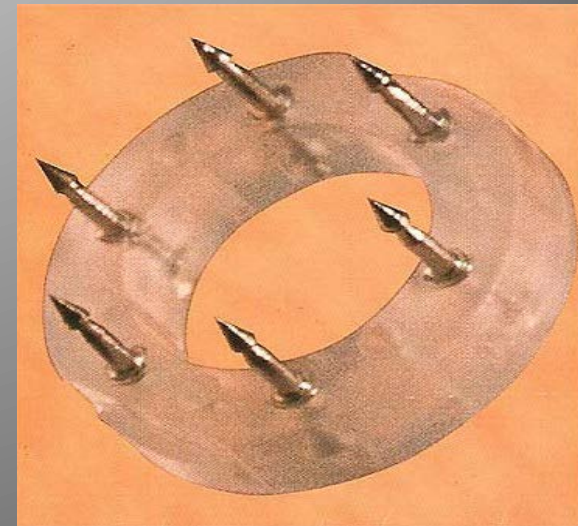
a new way of the anastomose in the  
microsurgery



# Methode: Anastomosierung mit Gefäßkoppler



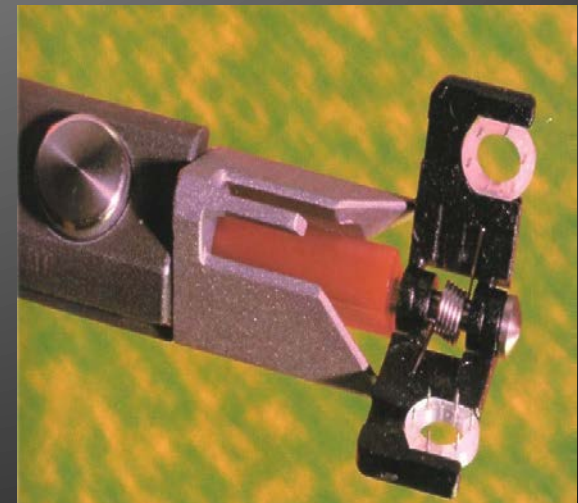
Probierereisen



Silikonring mit Widerhaken



Drehapplikator

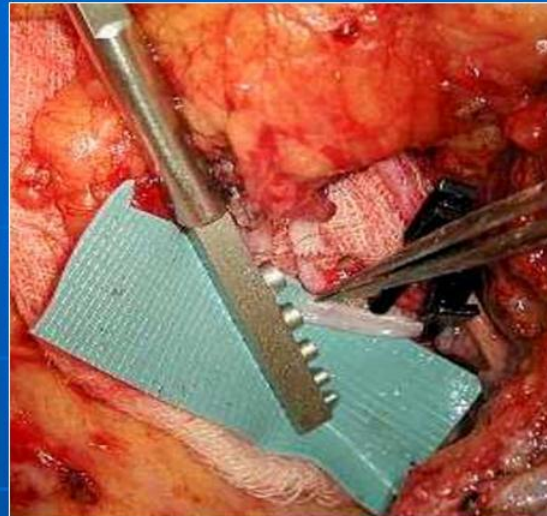


Beide Silikonringe eingespannt

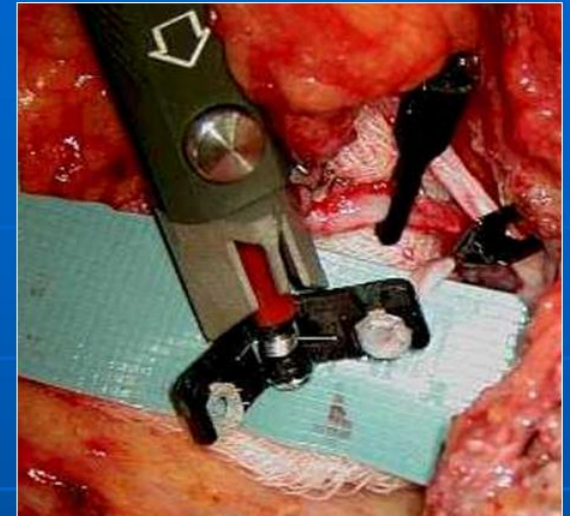
# Methode: Anastomosierung mit Gefäßkoppler



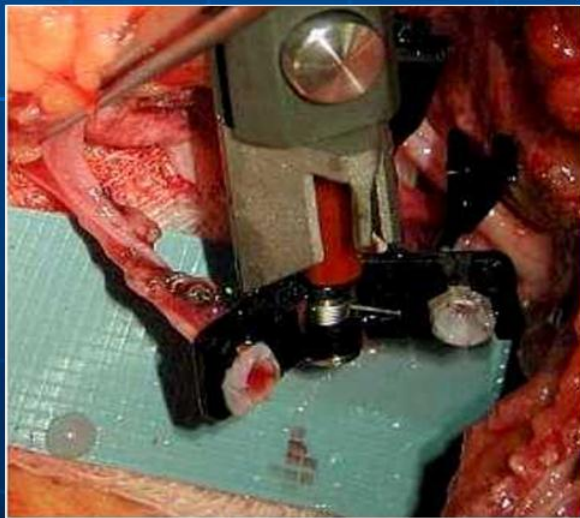
Gefäßpräparation



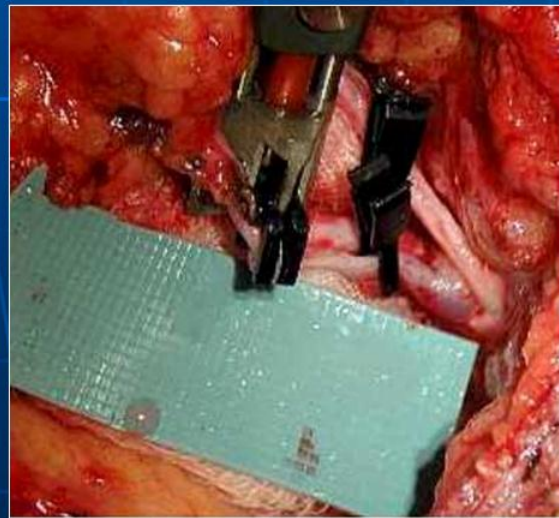
Probierereisen



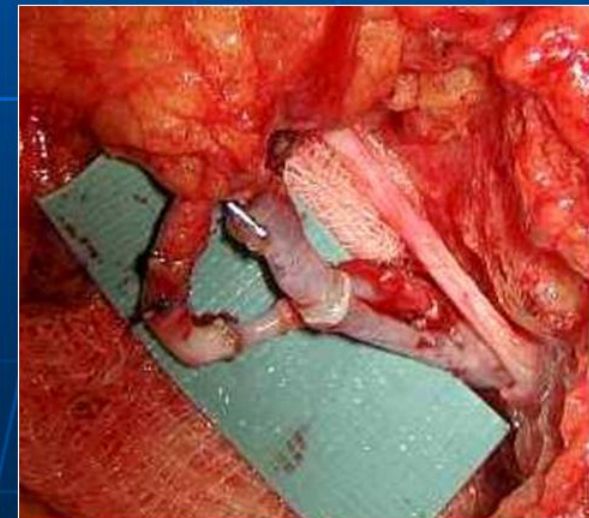
Durchzug 1. Seite



Durchzug 2. Seite



Zusammenschrauben



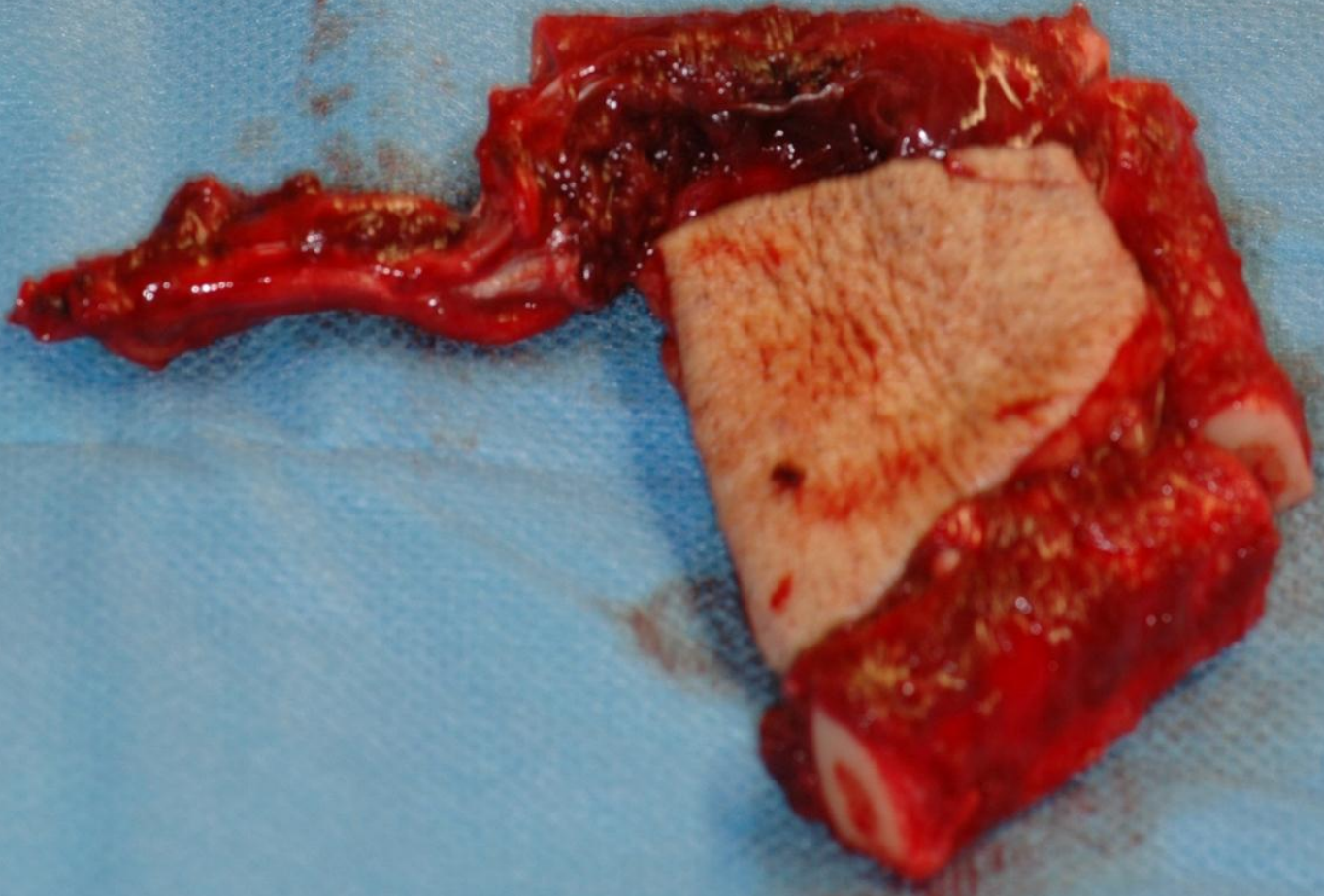
Durchflußkontrolle

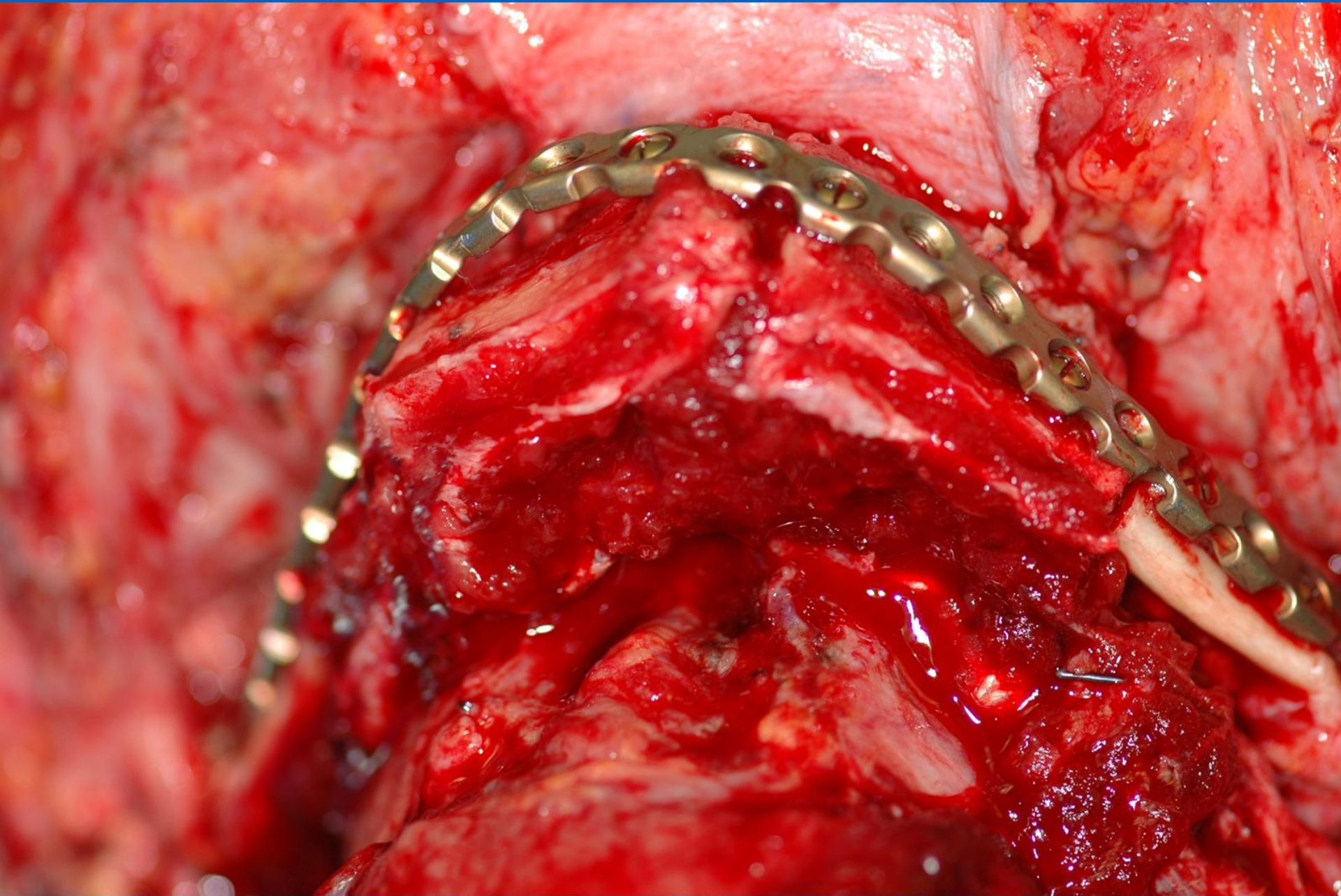


# Reconstruction after osteomyelitis of the jaws













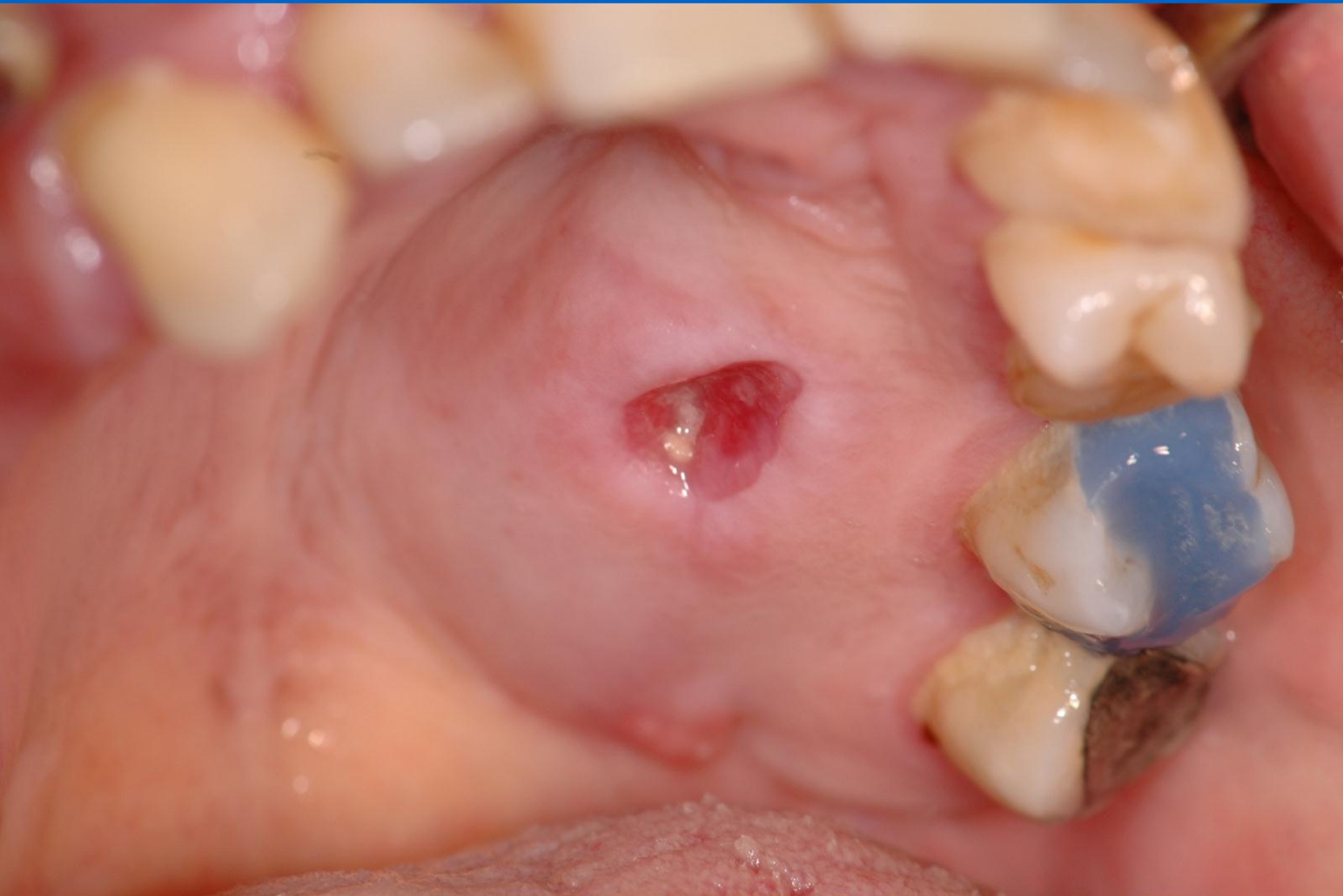




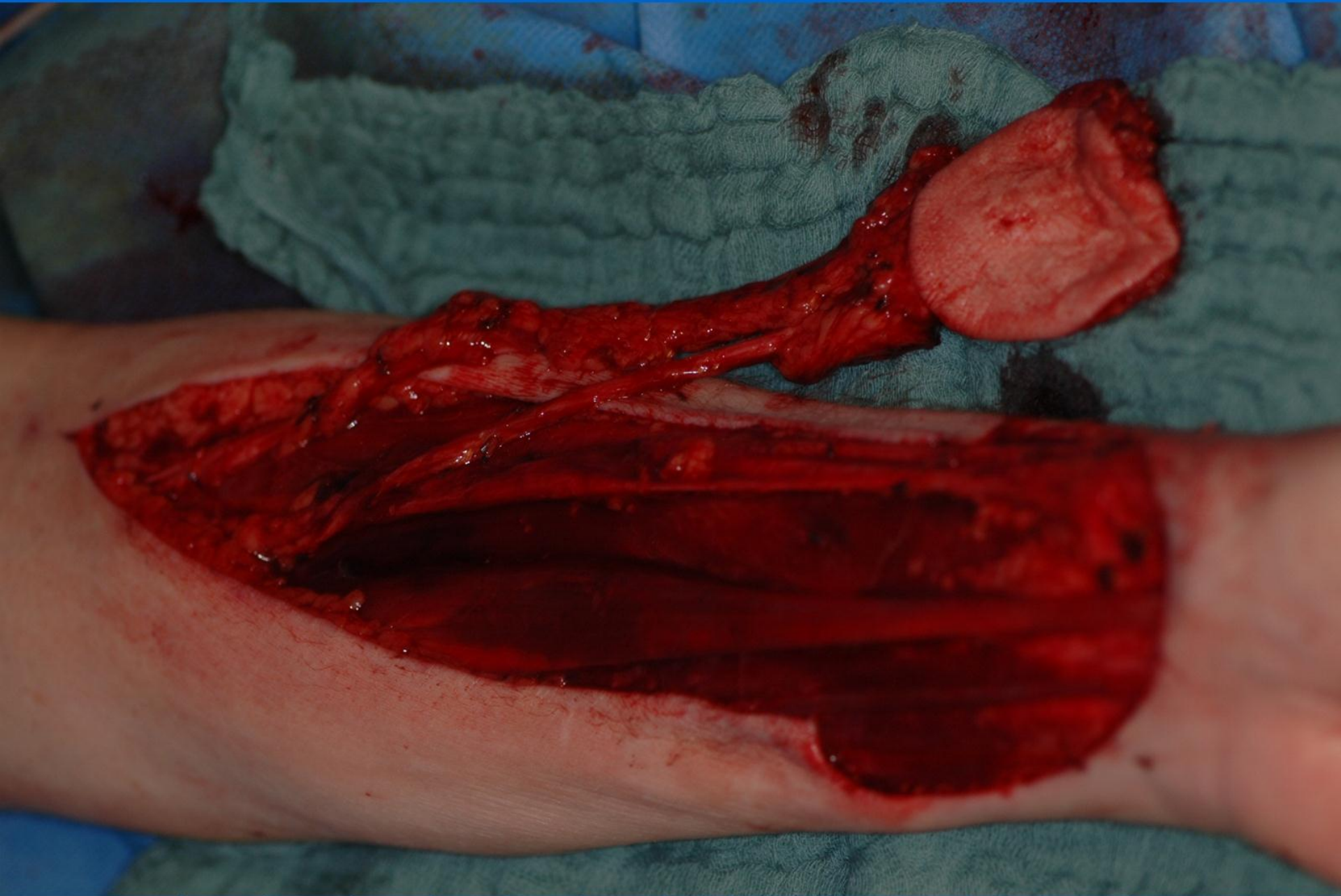




Reconstruction of soft tissue and  
bony defect in several steps

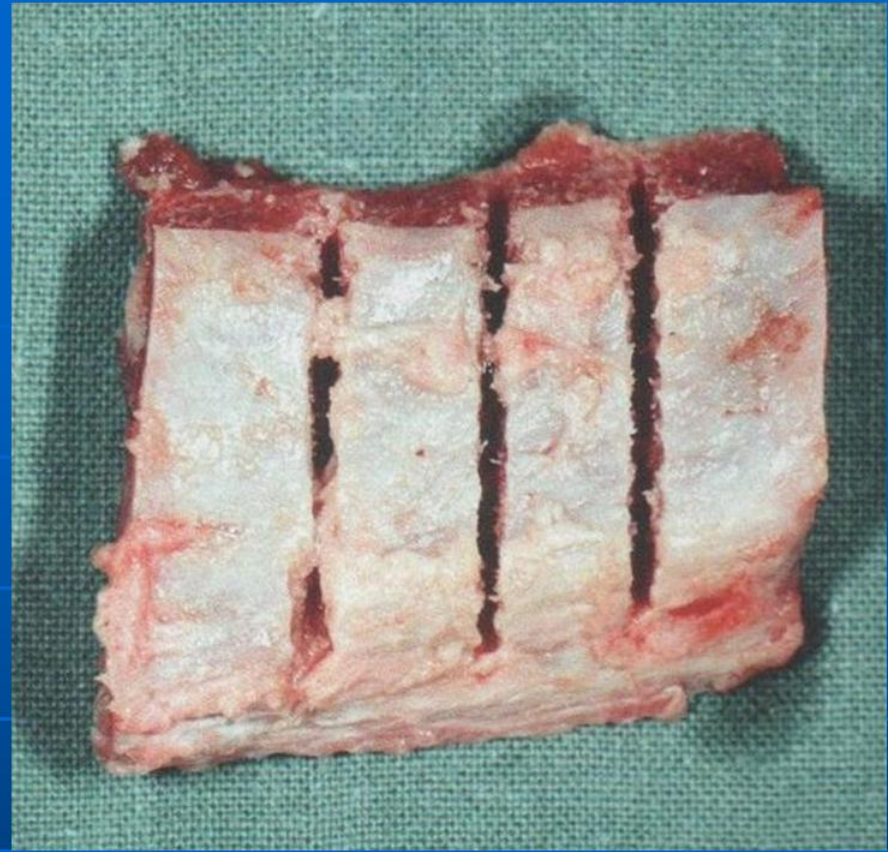
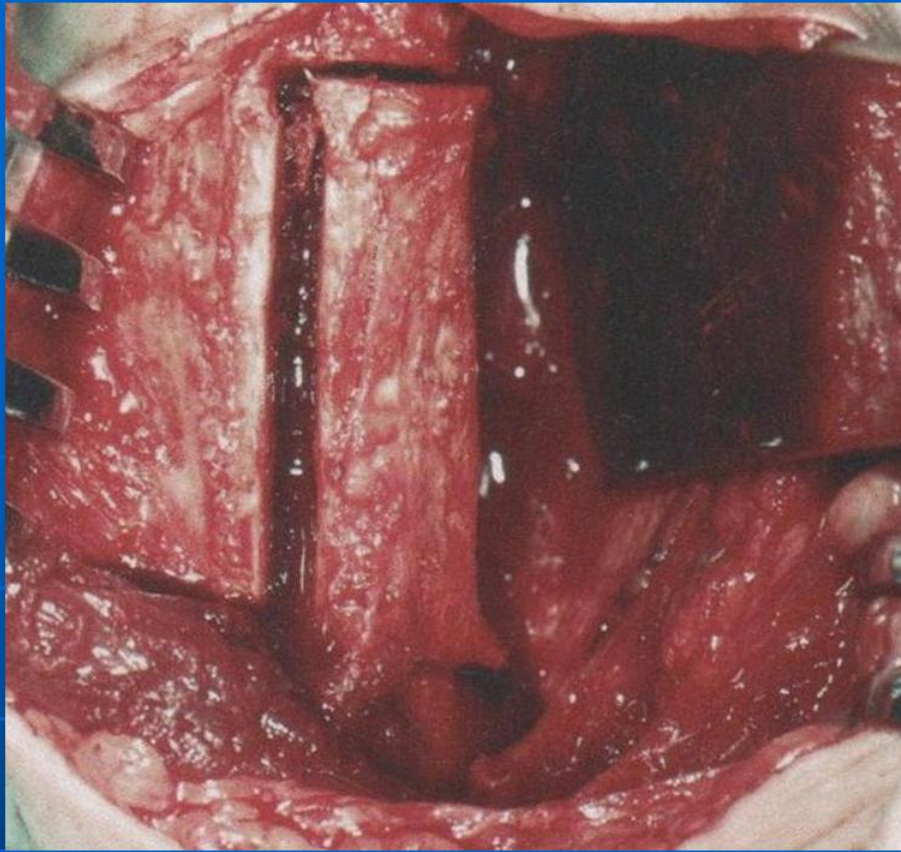


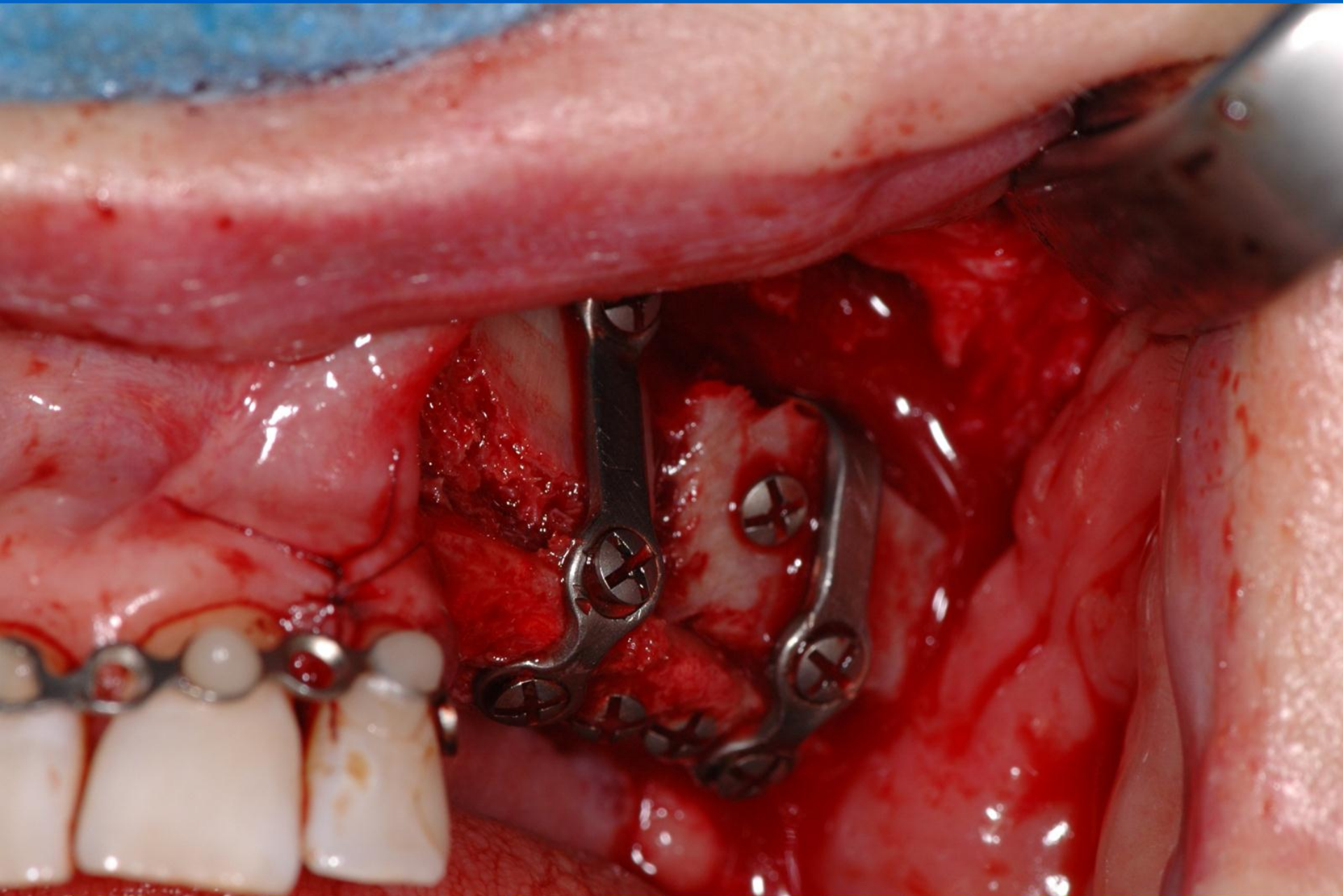






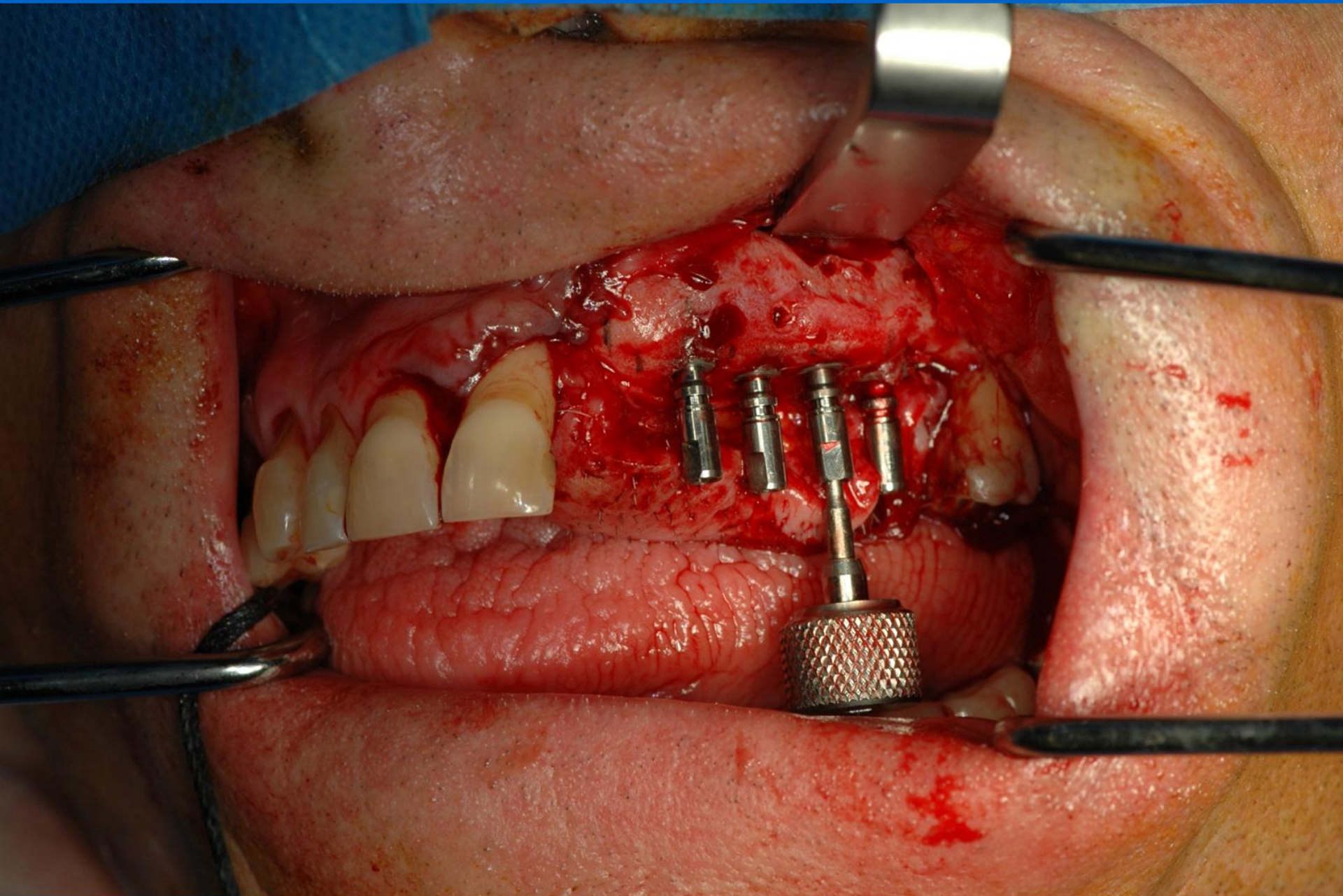


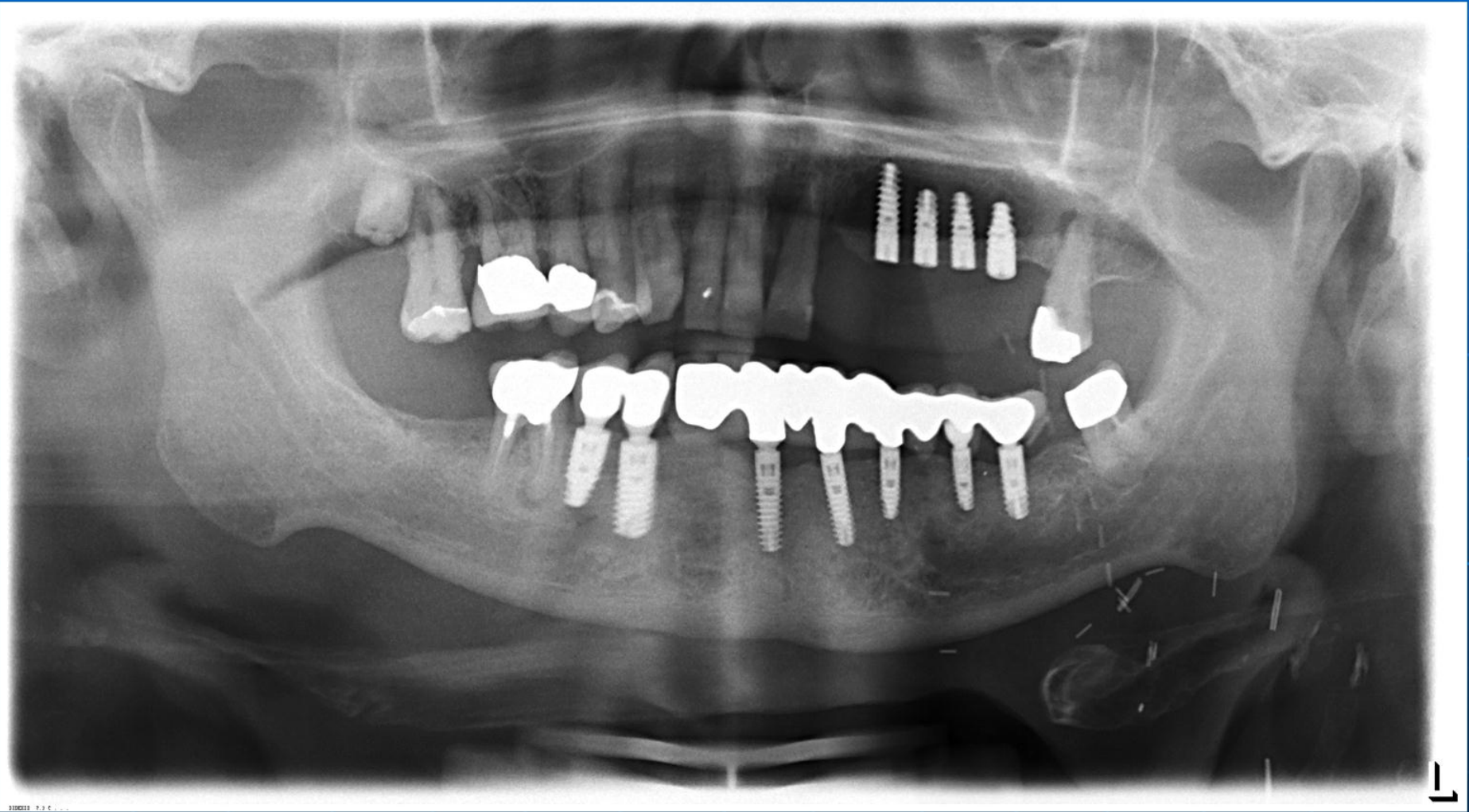












# Schlussfolgerung

- Reduzierung der Anastomosierungszeit
- Kalibersprünge gut versorgbar
- Sicherheit/Mehrfachanastomosen bei kleinen Gefäßen, kleine Venen im Empfängergebiet nutzbar
- Keine geänderte Lappenerfolgsrate, keine erniedrigte Revisionsrate
- Kostenfaktor

Ende