

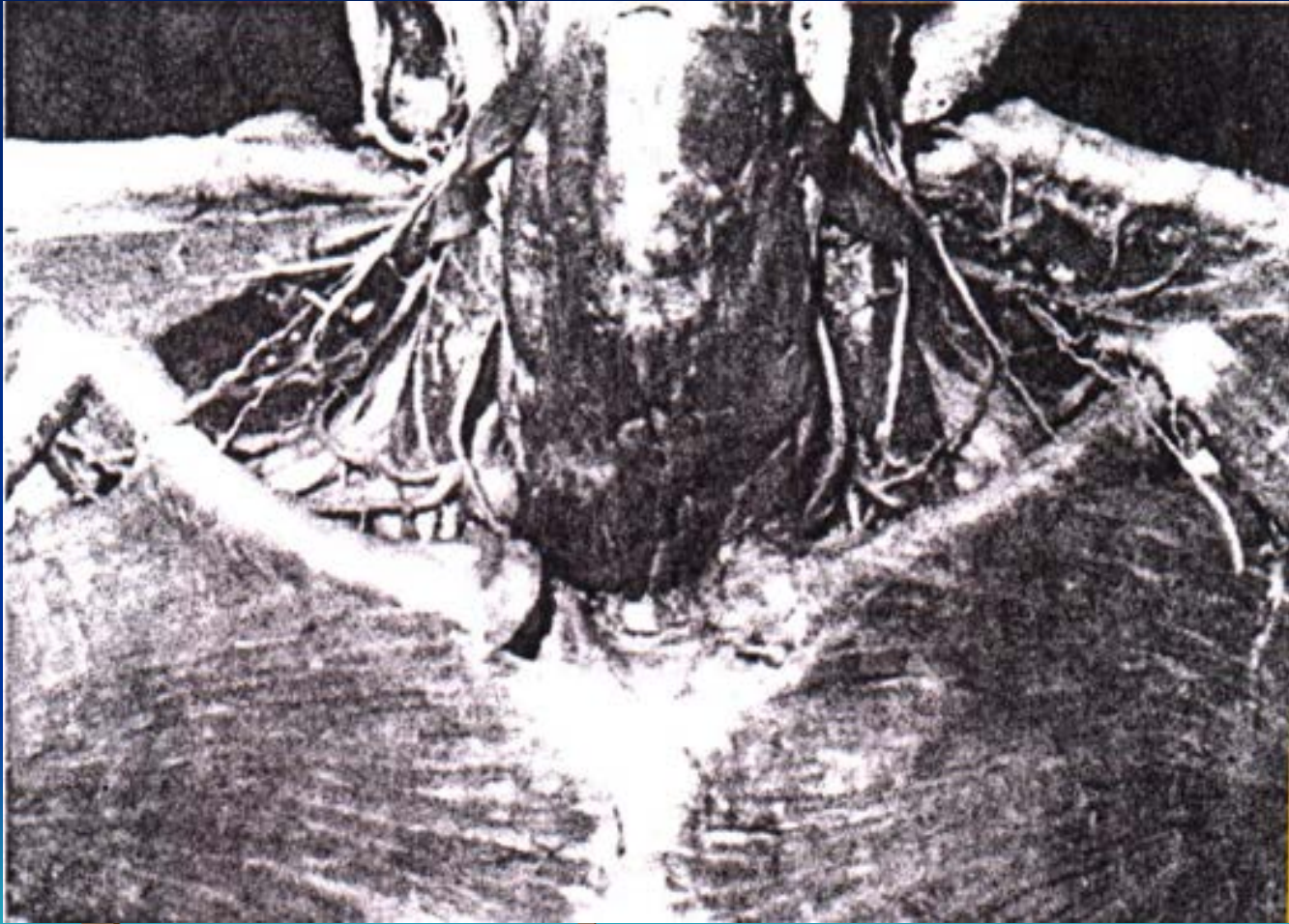
Obstetric Brachial Plexus Injuries (OBPP)

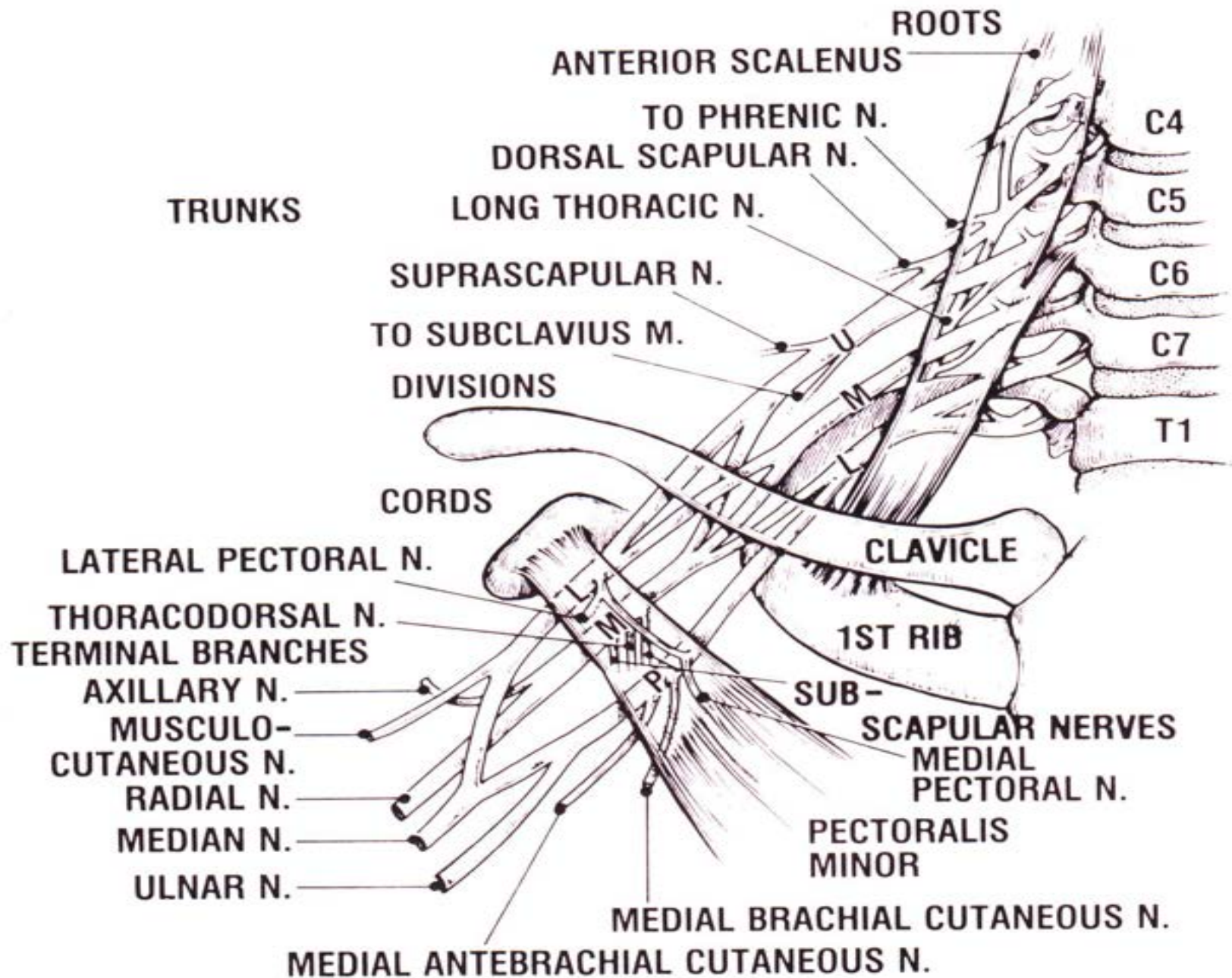
Hassan Alnoamany MD

Assistant Professor of Orthopedics and
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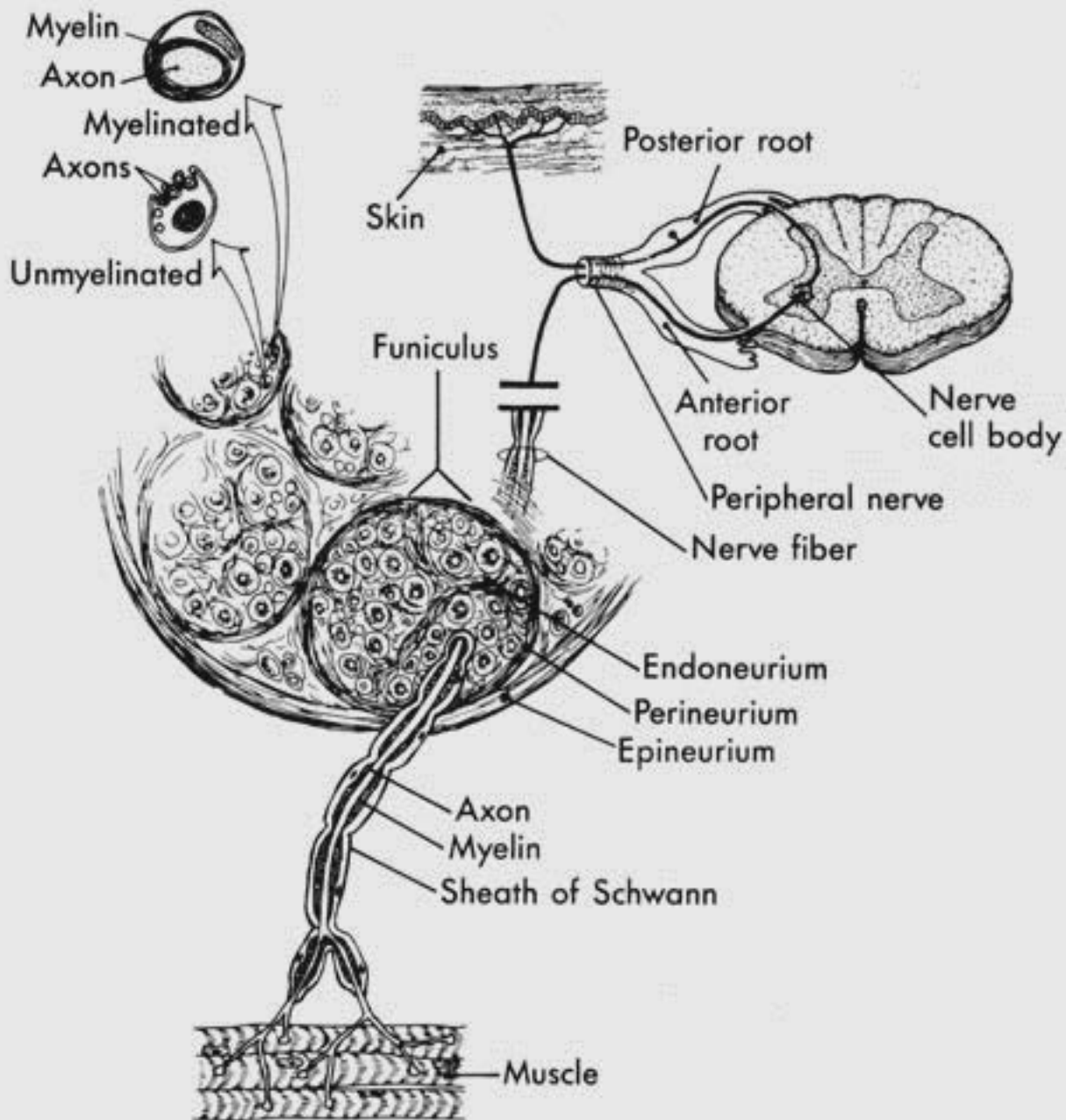


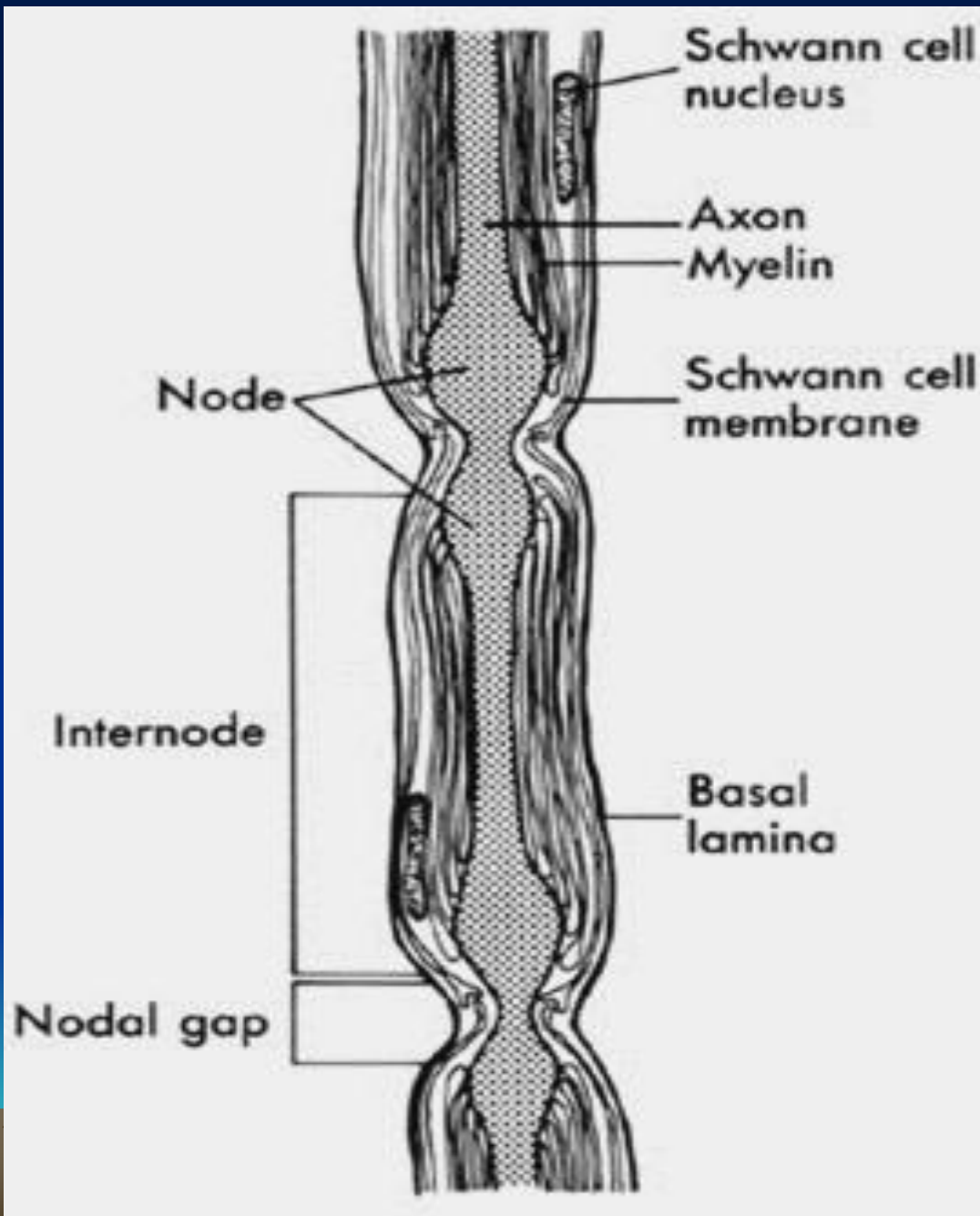
Anatomy of the brachial plexus

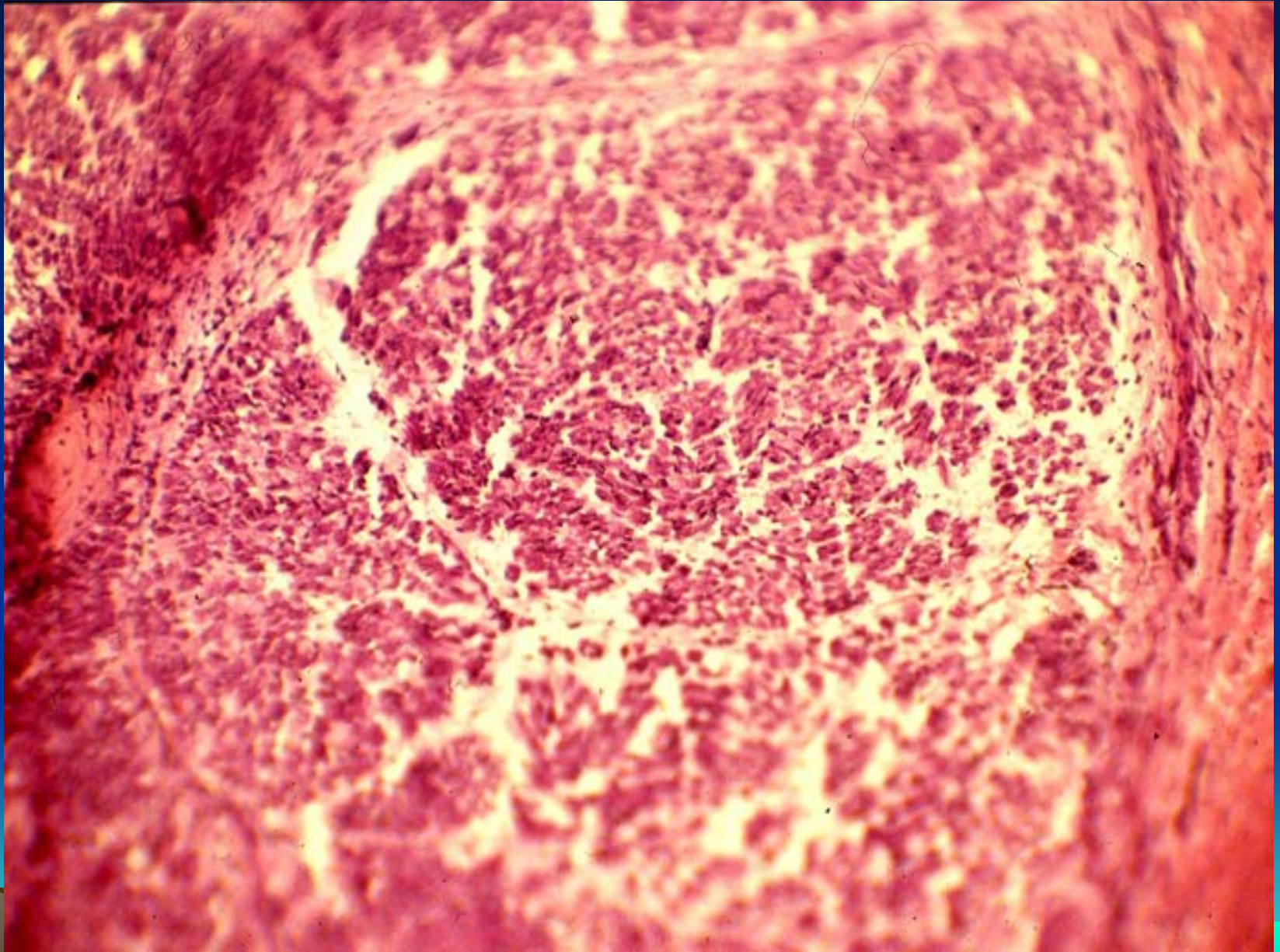












Definition of OBPP



History

- Duchenne, in 1861, described a palsy of the upper limb that had occurred in four neonates.
- Erb 1875.
- Augusta Klumpke 1875.

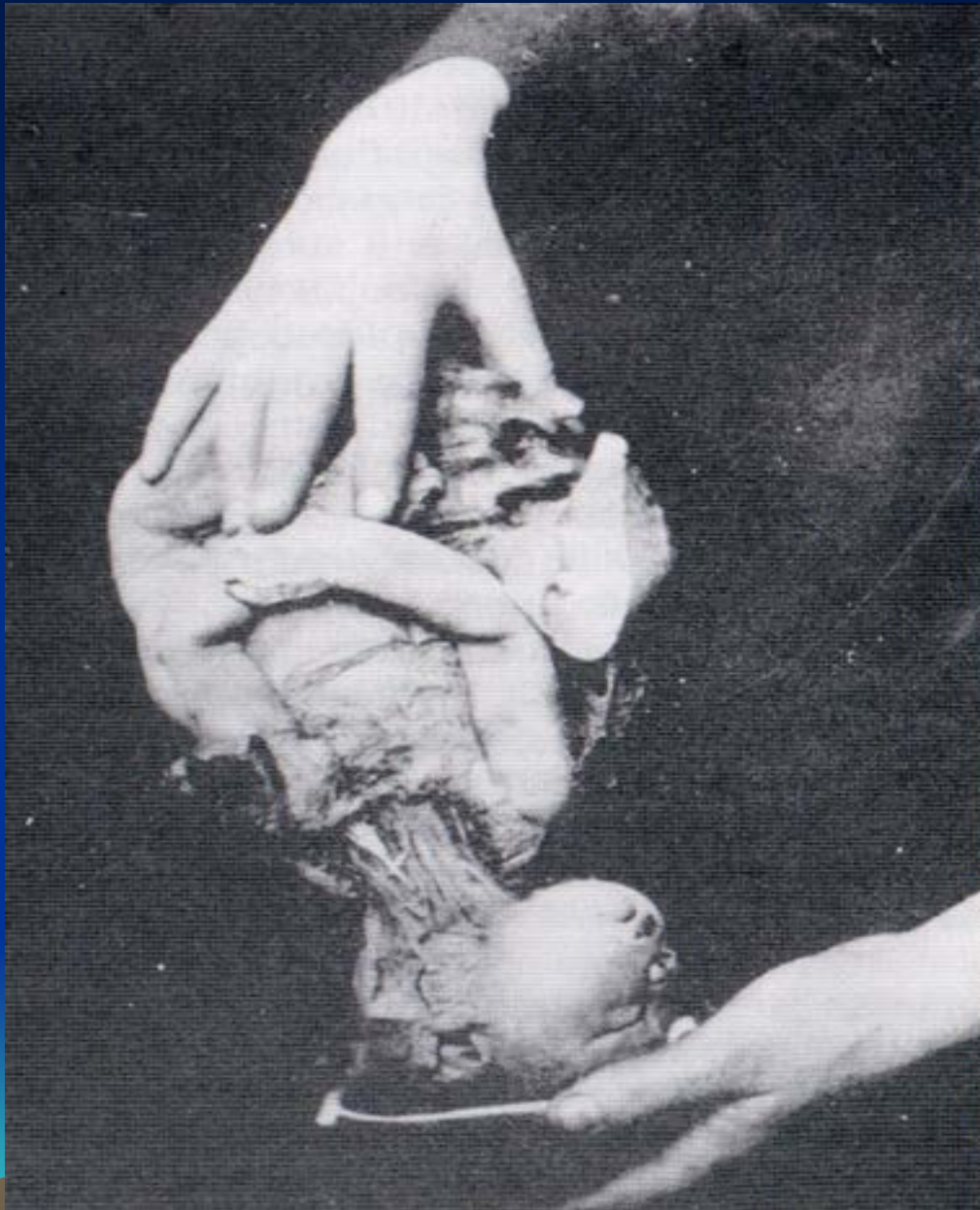


Etiology

- **1- Obstetrical Factors:**
- **2- Thornburn assumption:**

To test Thornburn assumption, Engelhard investigated the influence of different positions and assisted deliveries on a dead foetus, in which the brachial plexus was dissected. In his doctoral thesis he demonstrated in 1906, with for that period excellent photograph, that the pressure theory was highly improbable.





Pathogenesis





- *Obstetrical Brachial Plexus Injury in Newborn Babies Delivered by Caesarean Section:*



Clinical Examination



- It is important that the child with a suspected brachial plexus lesion should be examined as early as possible in order to make a definitive diagnosis, to begin recording the natural progression of recovery and to initiate education and support for the family.



- History
- *Physical Examination*























Classification

- 1- Upper plexus palsy (Erb's), involving C5, C6 \pm C7 (Erb 1874).
- 2- Intermediate plexus palsy, involving C7 \pm C8, T1 (Al-Qattan and Clarke 1994).
- 3- Lower plexus palsy (Klumpke's) involving C8, T1 (klumpke 1885).
- 4- Total plexus palsy, involving C5, C6, C7, C8 \pm T1 (Terzis et al 1996).



Unusual presentation

1- Newborn delivered by Caesarean section.





2- Breech delivery



3- Late presentation



4- Bilateral OBPP

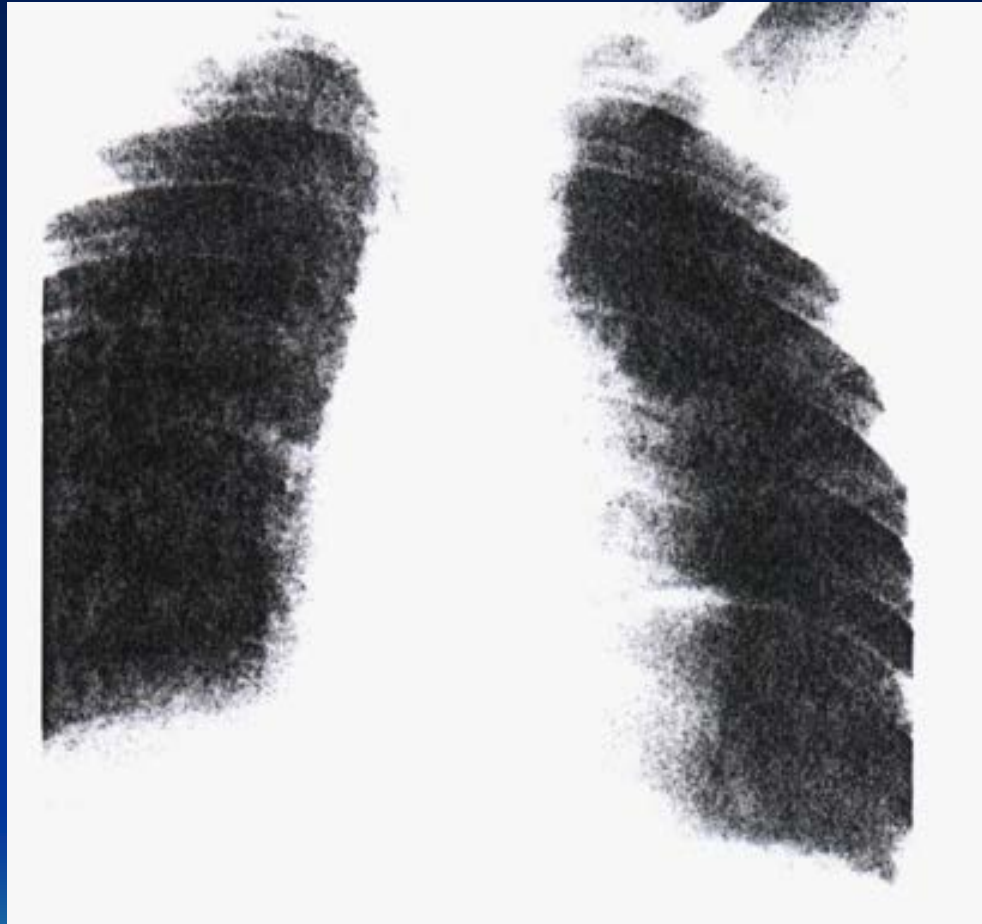


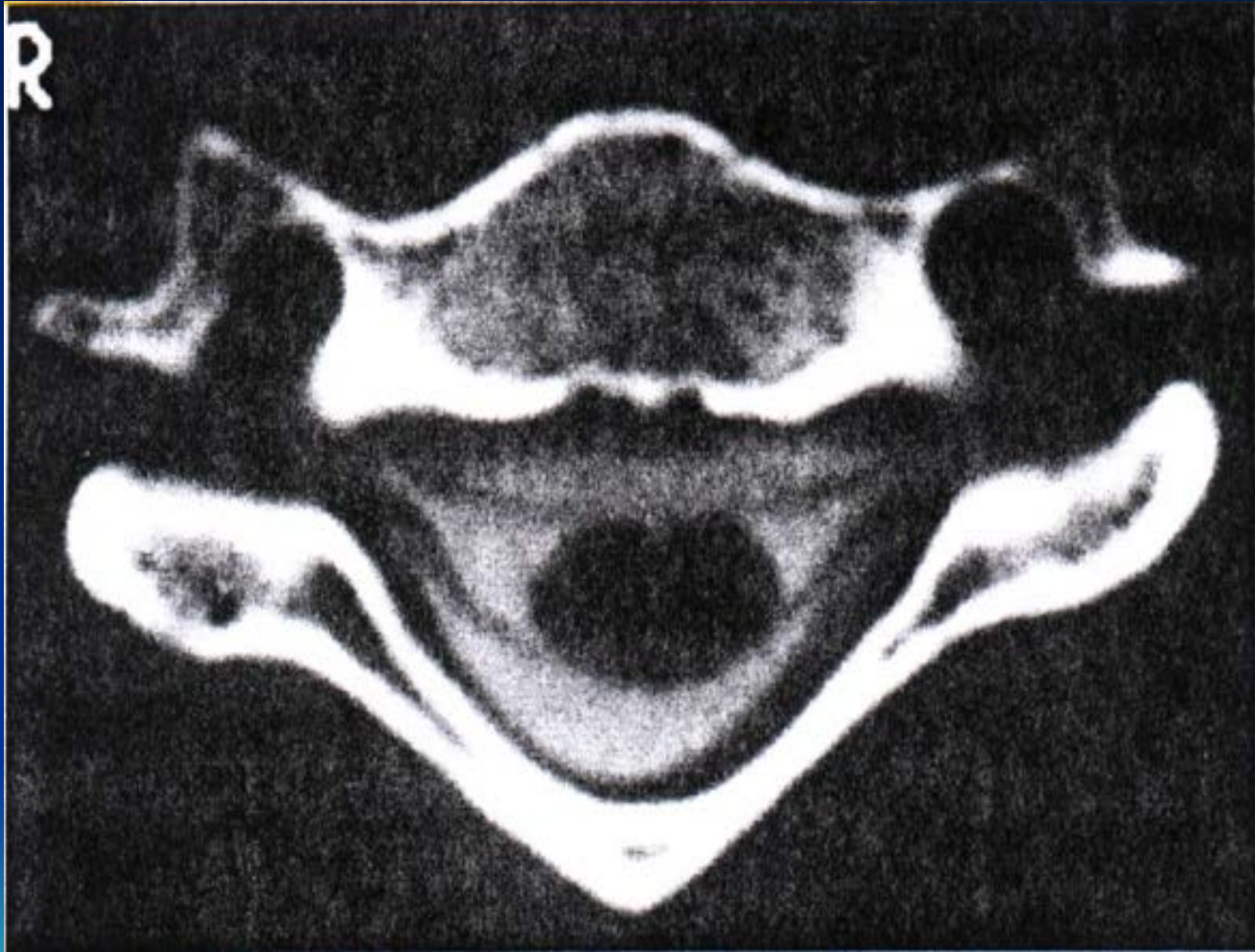
5- Concomitant with CP

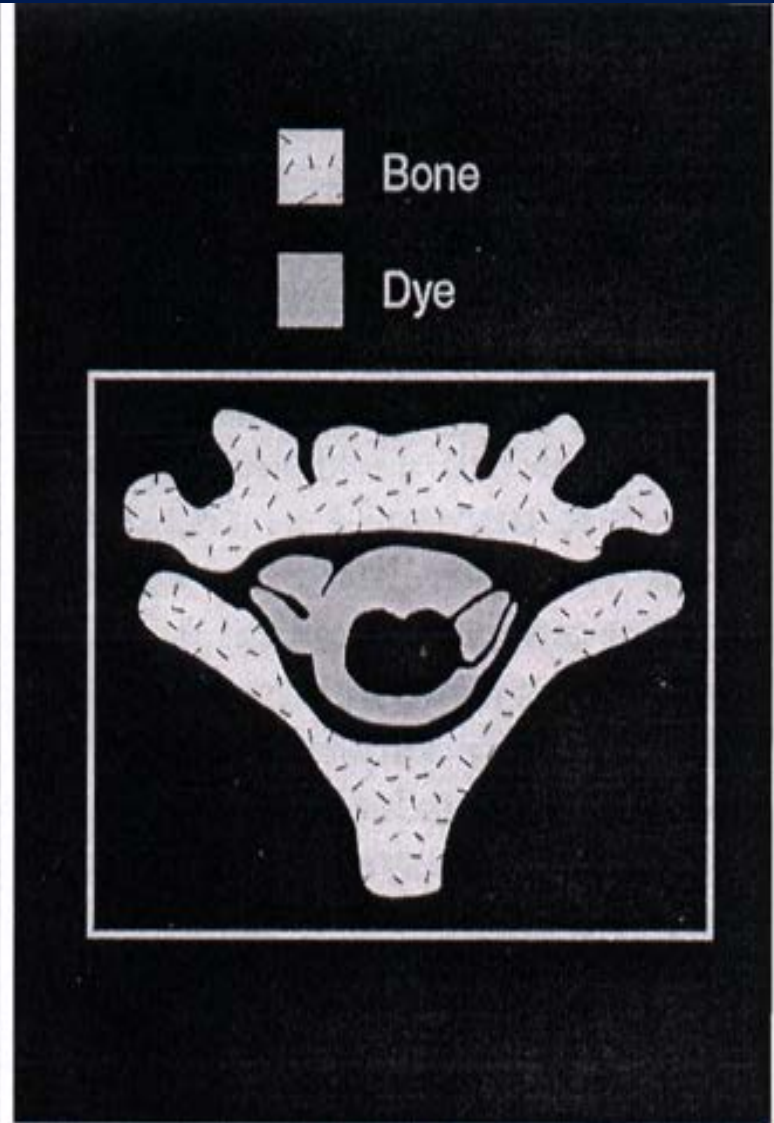
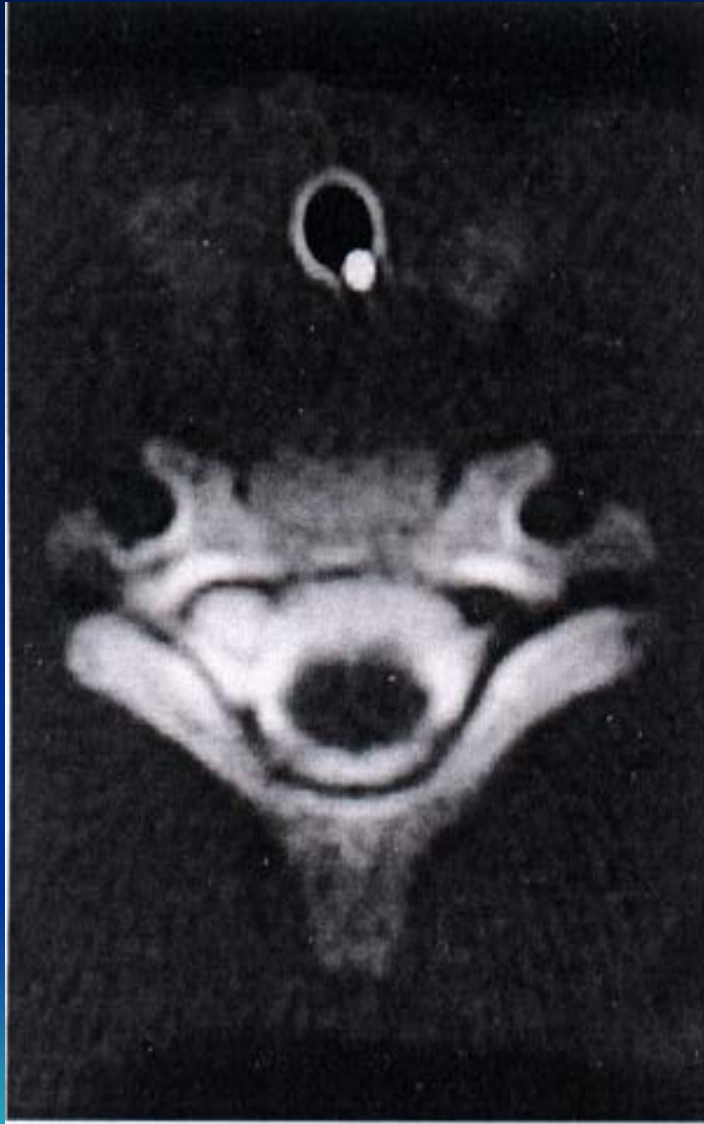


Radiological diagnosis

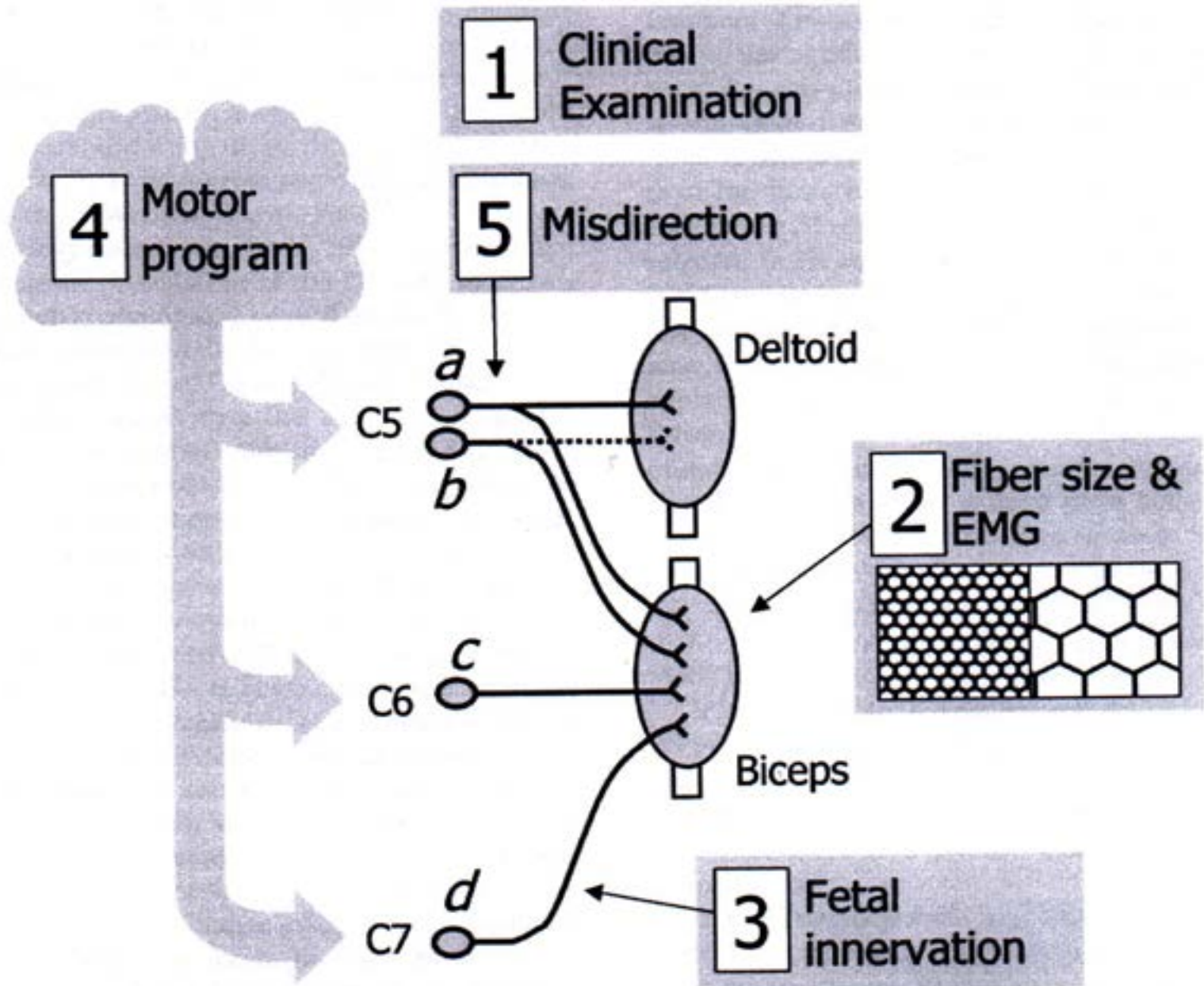












Treatment

Between March 2000 and March 2012, 300 cases had been reviewed in hand and microsurgical unit, Orthopedic Dept, Sohag University. Right side was affected in 180 (60%) cases, male was affected more than female (65%-35%). The average body weight was 4 Kg (3-4.9 kg). First baby was involved in 60%, 2nd baby in 32, 3rd, 4th, 5th and 6th in 8%. Upper type constituted 85%, while total type performed 18% (54 cases).



Unusual presentation:

- 1- Newborn delivered by caesarean section 4/300 (1/75).
- 2- Breech presentation 2/300.
- 3- Late presentation 20/300.
- 4- Bilateral 2/300.
- 5- OBPP associated with CP 1/300.

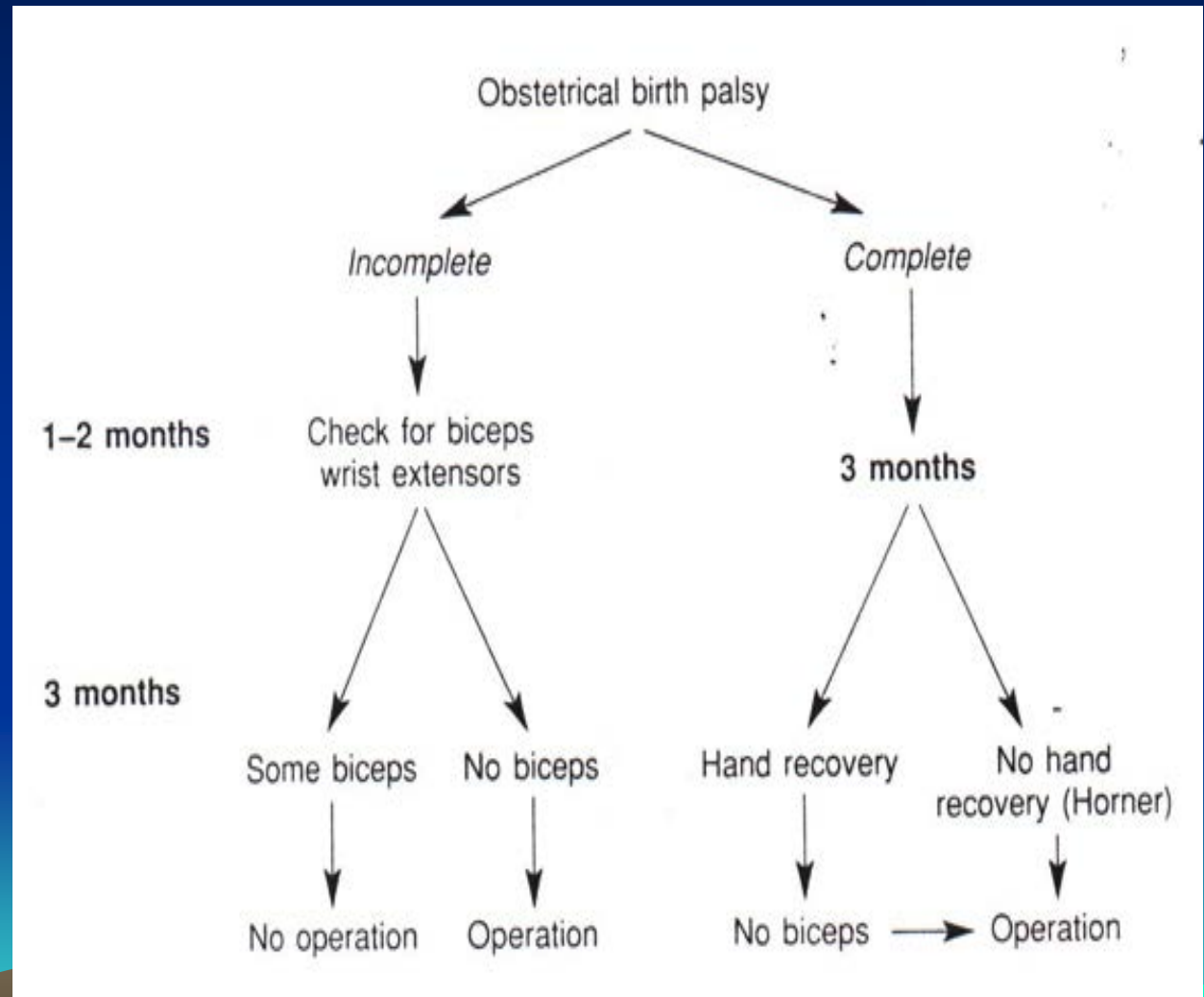


- Sixty patients (20%) underwent brachial plexus reconstruction.
- Forty five (15%) had total OBPP.
- Fifteen patients (5%) had upper type.
- The average time of surgery for upper type was 5 month (ranged 3-7 month).
- The average time of surgery for the total type was 4 month (ranged 3-6 month).



Surgical treatment

Indications



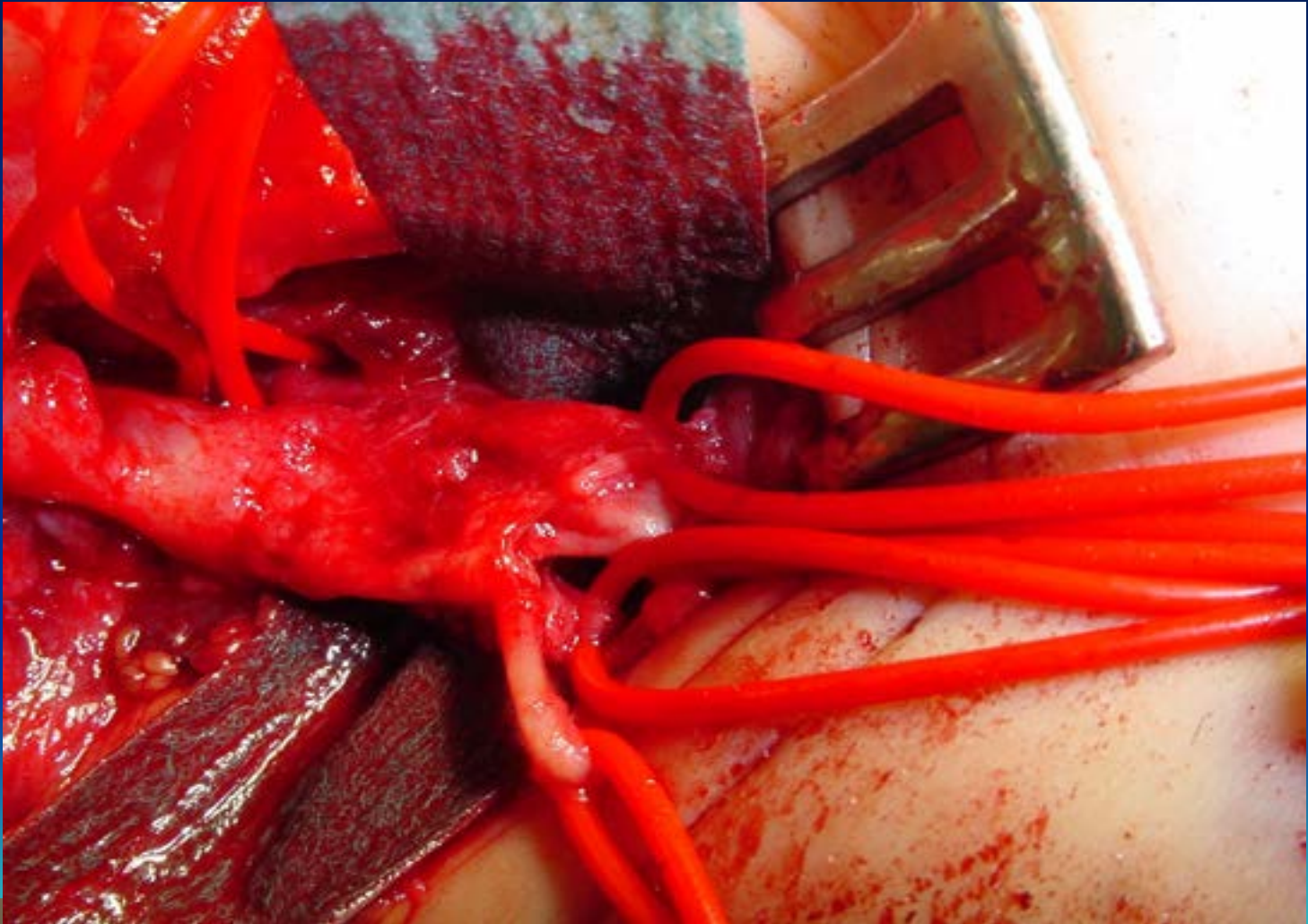
Surgical technique

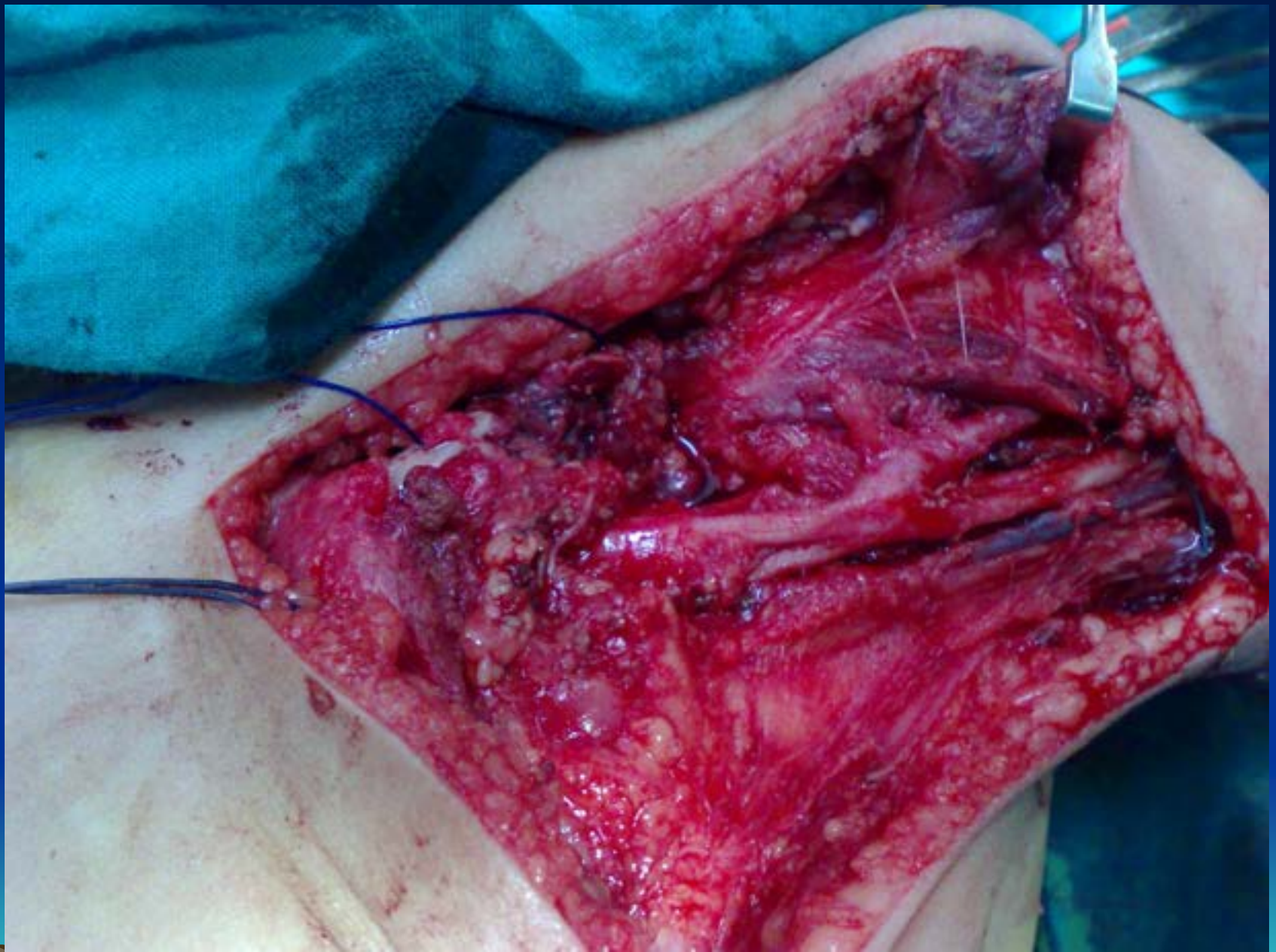
- Anesthesia

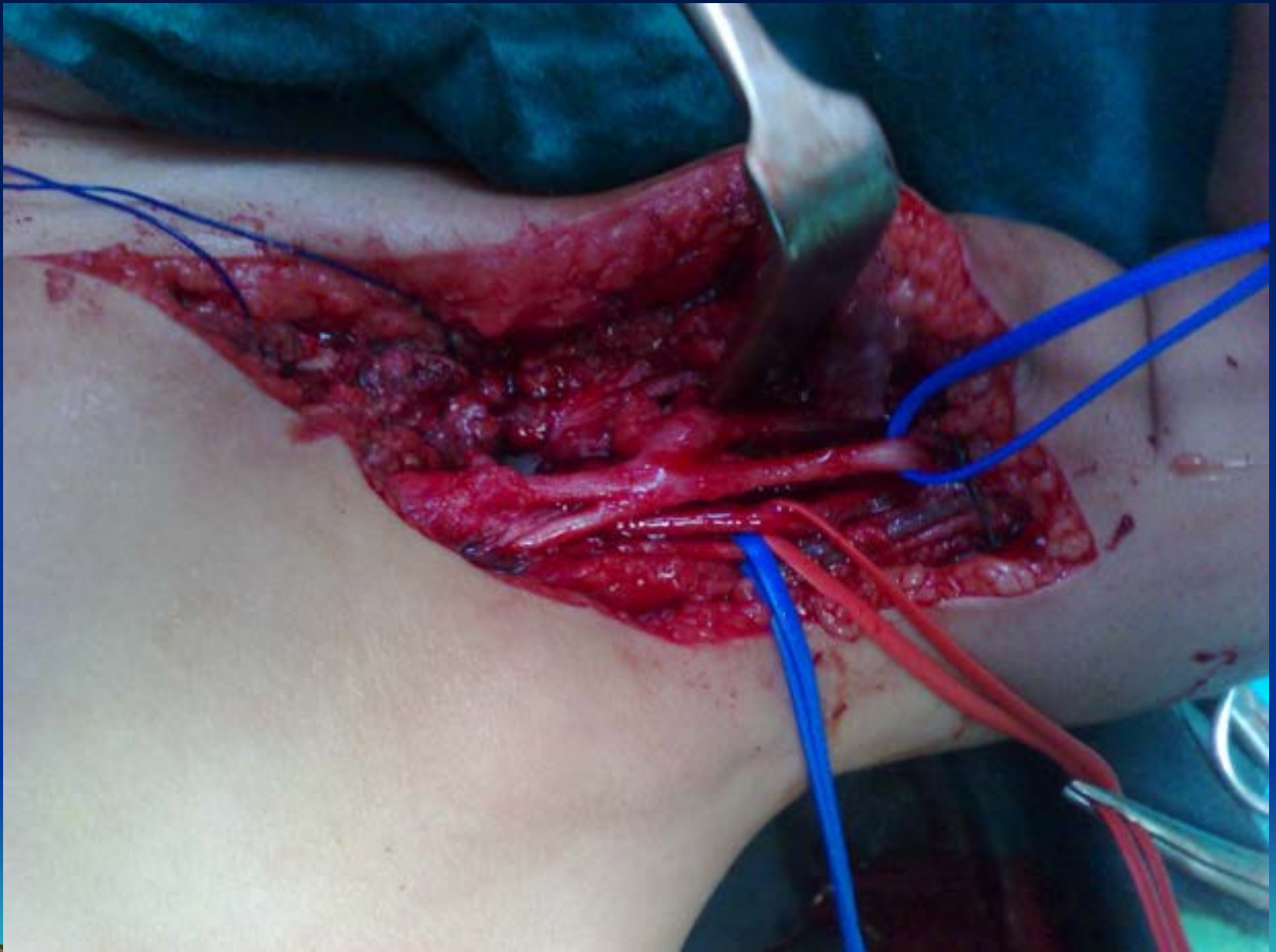


- Position and incision









Reconstruction







- Extraplexal neurotization

Oberlin's procedure

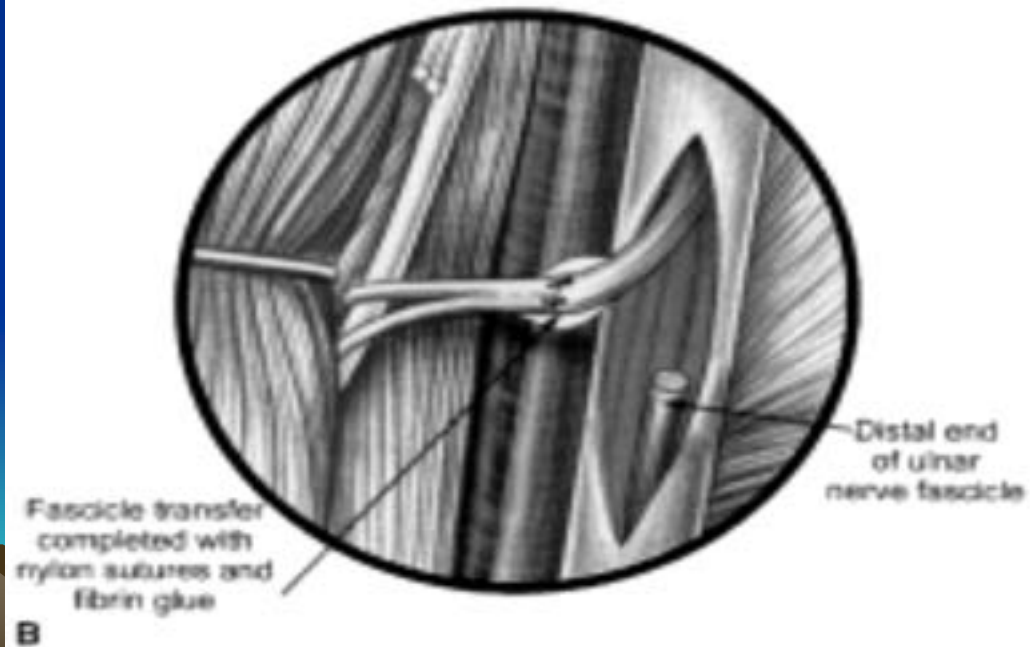
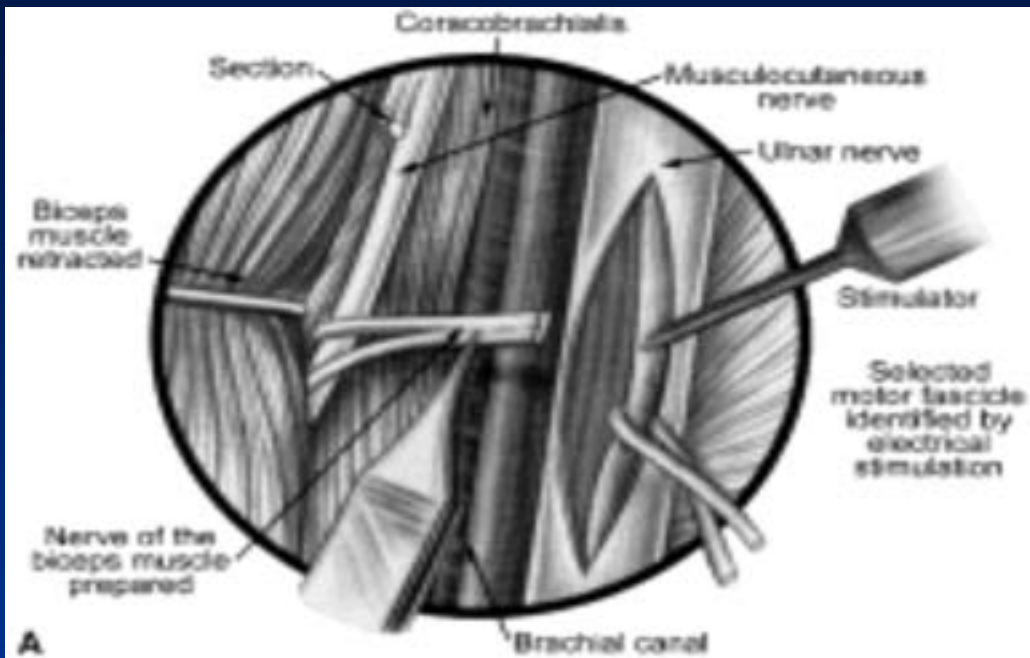
- 2: Microsurgery. 2004;24(3):182-7. [Related Articles](#), [Links](#)

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Oberlin's ulnar nerve transfer to the biceps motor nerve in obstetric brachial plexus palsy: indications, and good and bad results.

[Noaman HH](#), [Shiha AE](#), [Bahm J](#).







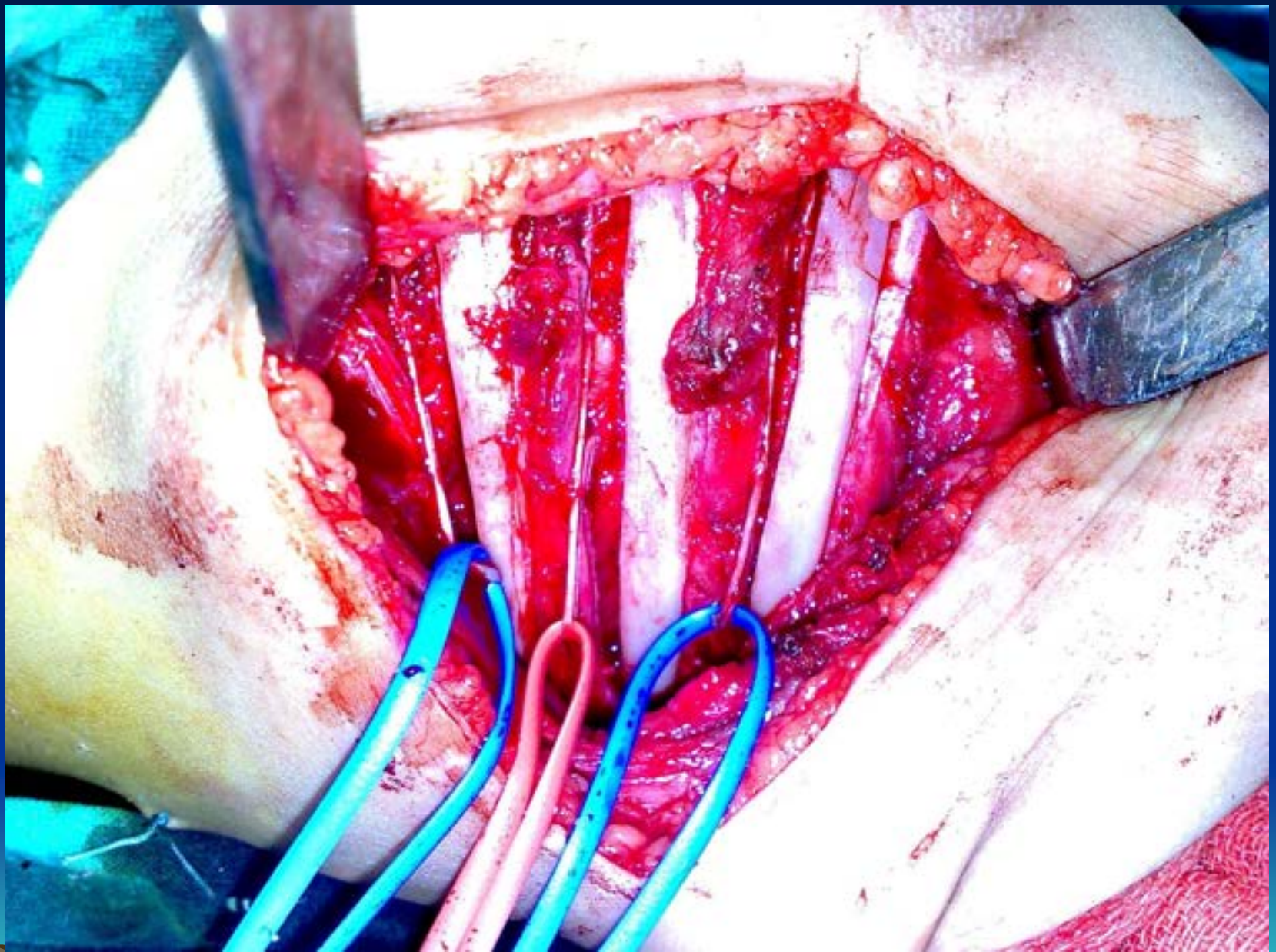




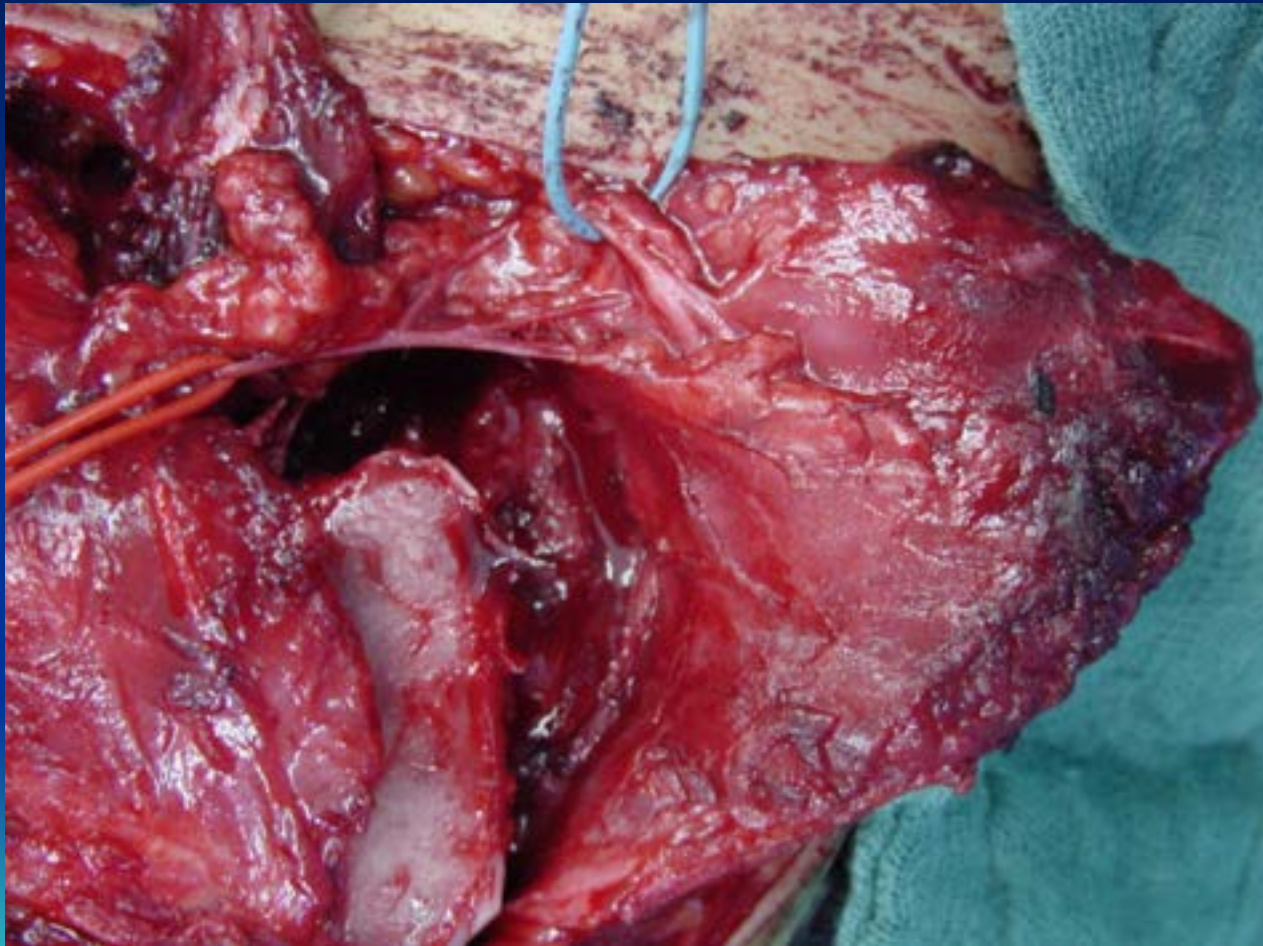


Neurotization of musclocutaneous nerve with intercostal nerves





Suprascapular nerve neurotized by spinal accessory nerve



- 1: Plast Reconstr Surg. 2005 Jan;115(1):240-4.[Related Articles](#), [Links](#)

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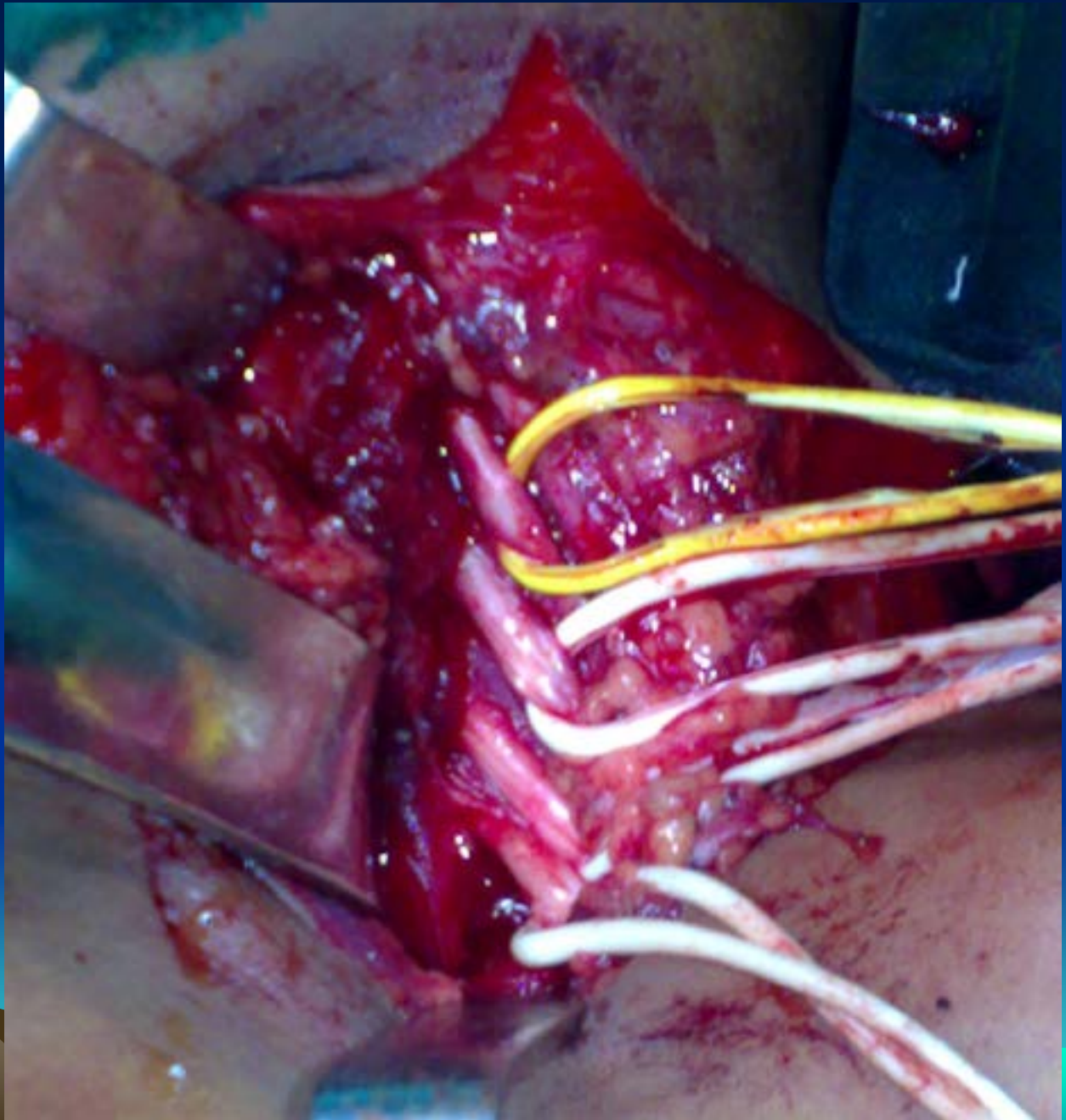
The dorsal approach to the suprascapular nerve in neuromuscular reanimation for obstetric brachial plexus lesions.

[Bahm J](#), [Noaman H](#), [Becker M](#).

Reconstructive Microsurgery Unit, St. Franziskus Hospital, Aachen, Germany.
jorg.bahm@belgacom.net

PMID: 15622257 [PubMed - indexed for MEDLINE]









- 1- OBPP is not unusual lesion.
- 2- 80% is upper type.
- 3- 85% of the upper type recover spontaneously.
- 4- Surgical exploration and reconstruction is major task.
- 5- Reconstruction have to be tailored according to the time of presentation, clinical types and the intraoperative finding.
- 6- The decision to operate or wait is difficult and raise debate in single peripheral nerve affection so to take it in the brachial plexus is more difficult.
- 7- Of course the results after surgical treatment of the total type is lower than that of the upper type because root avulsion is higher



Thank you for your attention

