

# Intubation, Venous Access

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ARK FNUSA

# Maintaining airway

- Noninvasive
  - airway
  - laryngeal mask
  - combitube
- invasive
  - OTI, NTI
  - coniotomy
  - tracheotomy

vocal  
cords

LM



## LM

placed against glottis (radix of tongue, recessus piriformis, esophageal superior sphincter)

I: instead face mask, OTI, difficult airway

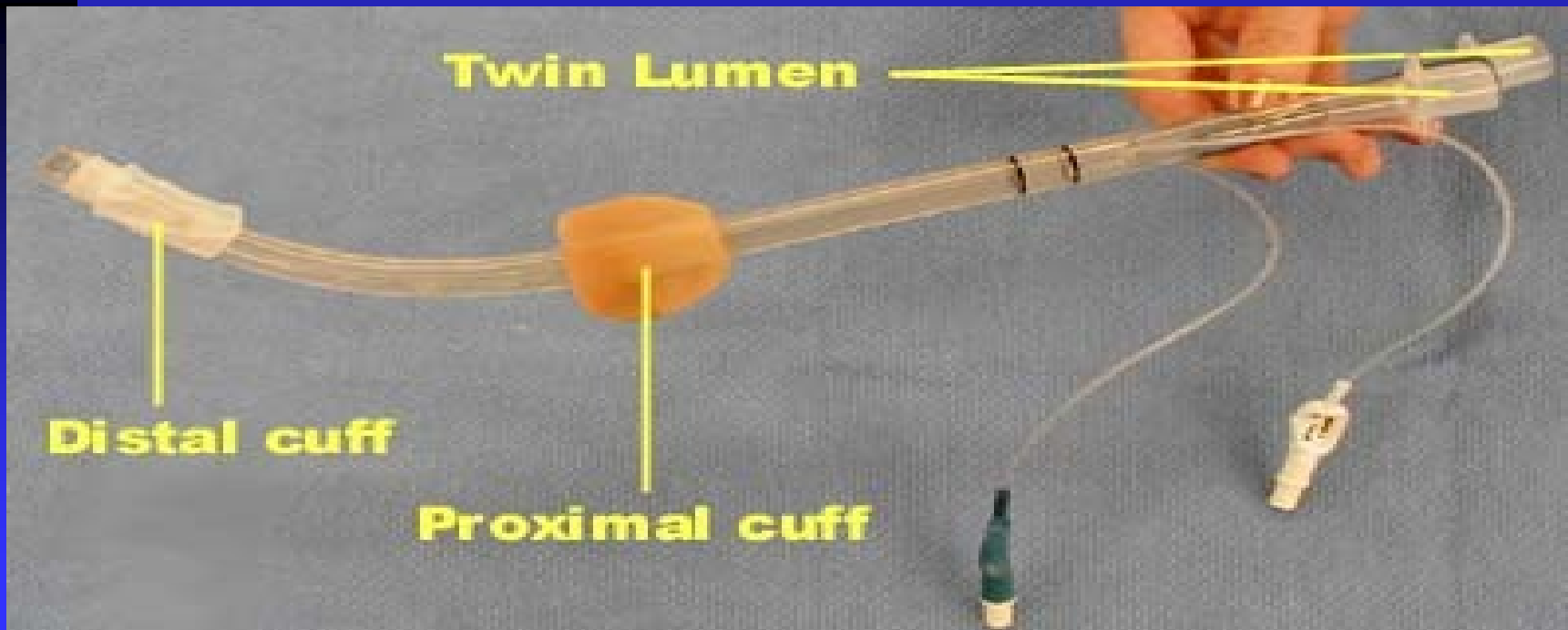
KI:

- full stomach
- gastro-esophageal reflux,
- high inspiratory pressure
- longer operation



# Kombitube

- emergency situations instead OTI
- I: difficult airway
- KI: stenosing process in pharynx / trachea



# Tracheal intubation

Def: Placing tube to trachea through mouth/nose and larynx.

I:

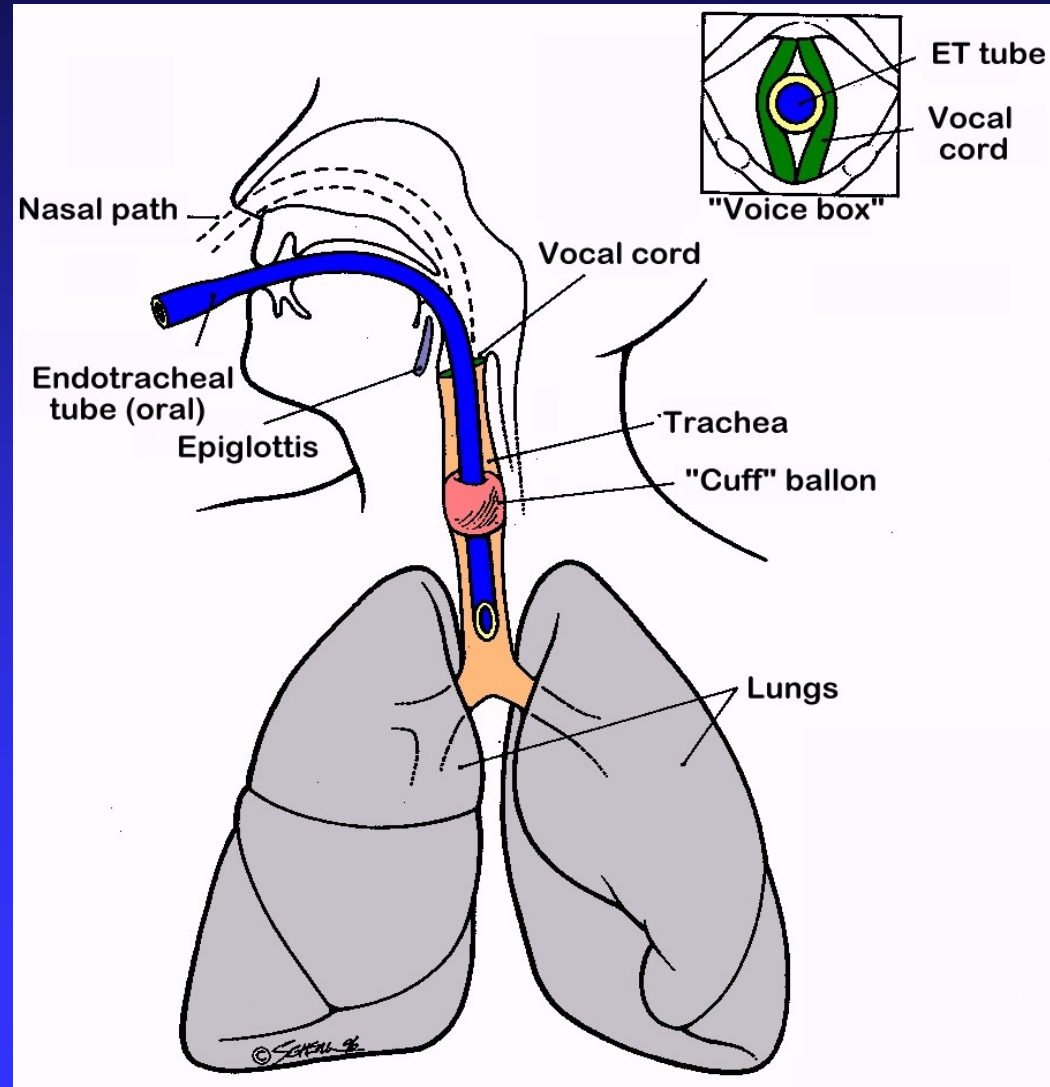
- maintain open airway (GCS < 8)
- toilet (no cough)
- maintain ventilation (shock, hypoventilation)

narrowest place in airway – vocal cords

– subglottic space (<8let)

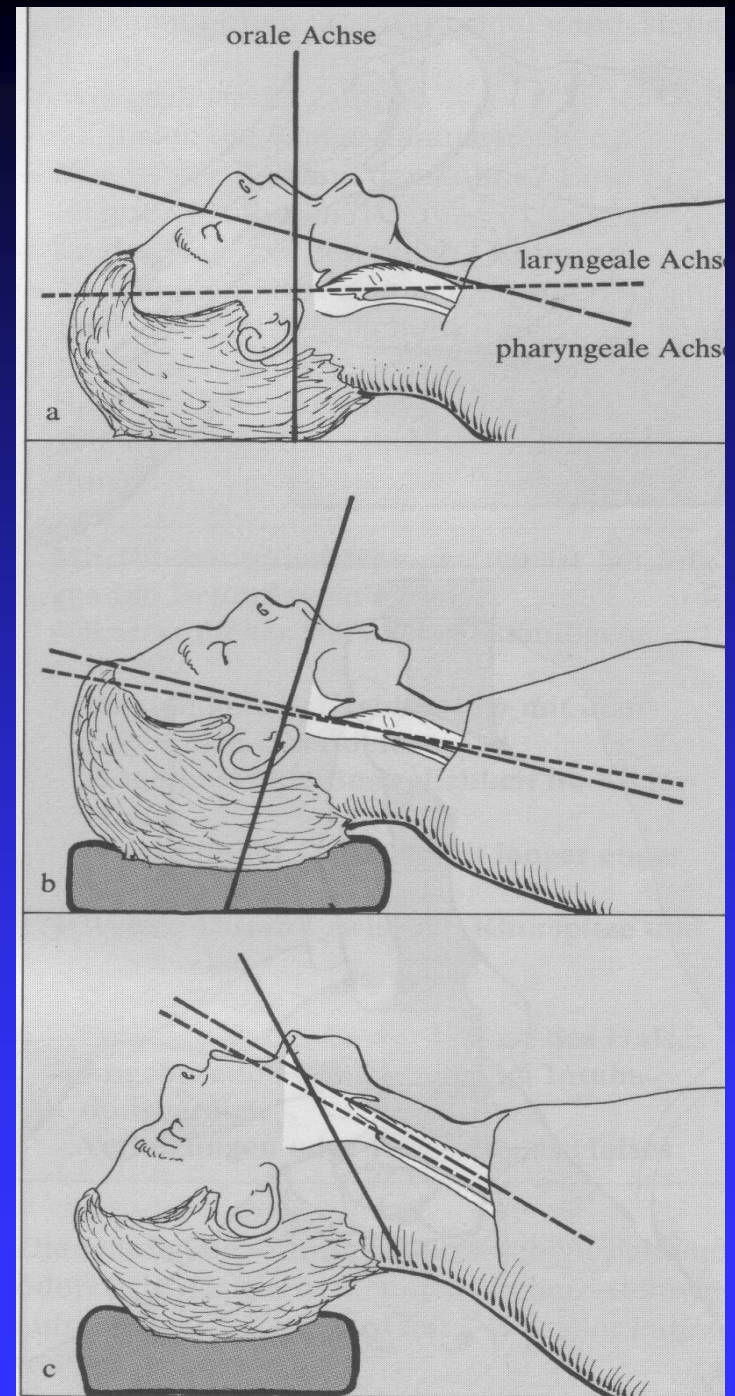
## OTI, NTI - aids:

- laryngoscope
- Magill tongs
- tracheal tubes
- syringe
- lead

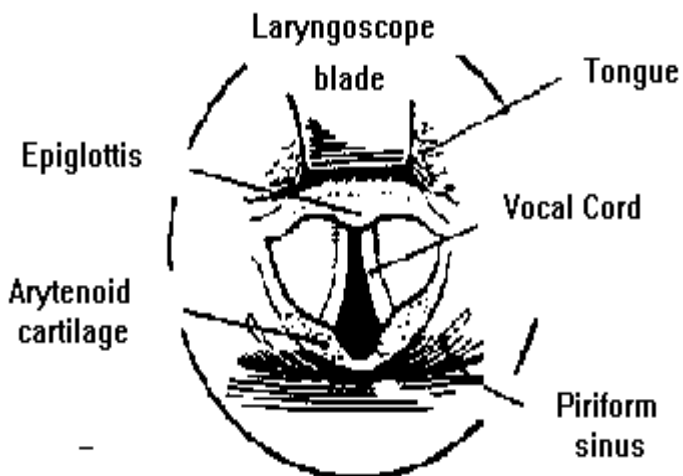
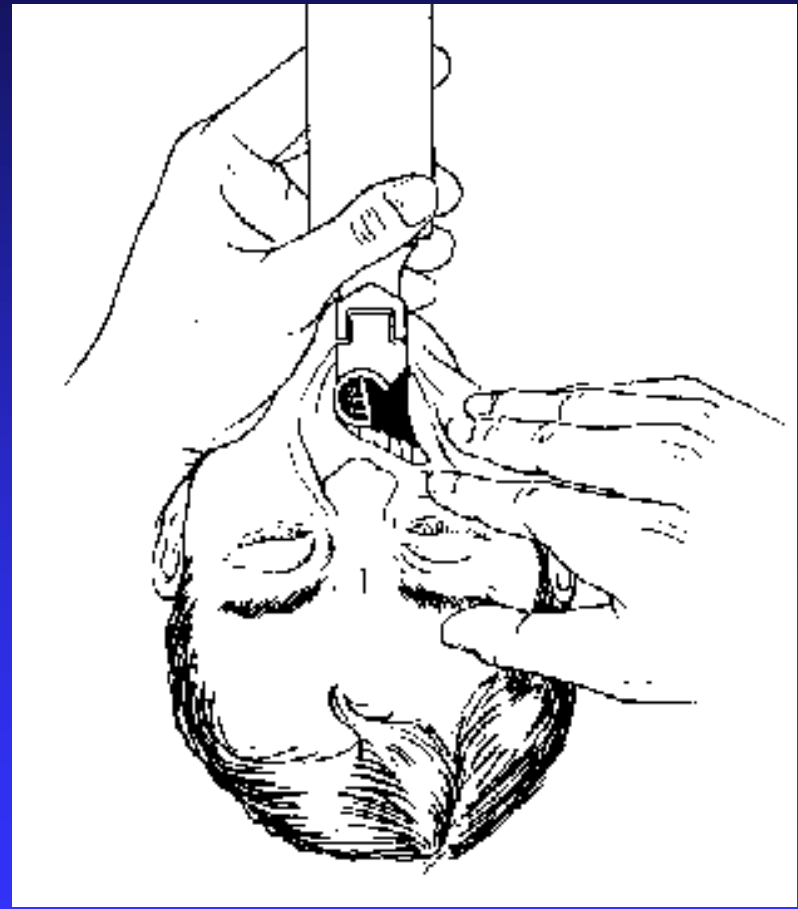
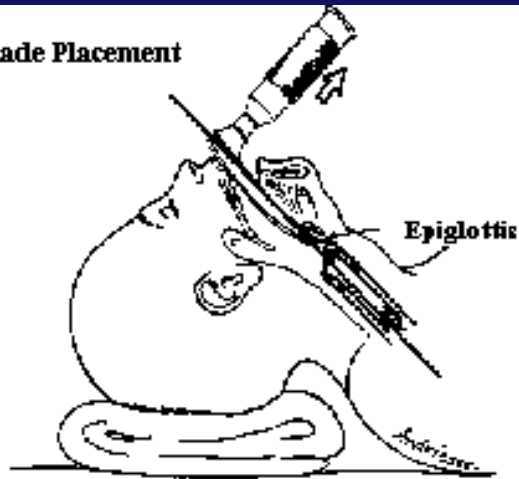


## How to:

- prepare all aids, (ventilate)
- position of pat.
- LA, GA, coma
- direct laryngoscopy
- placing tube
- inflate cuff
- ensure position



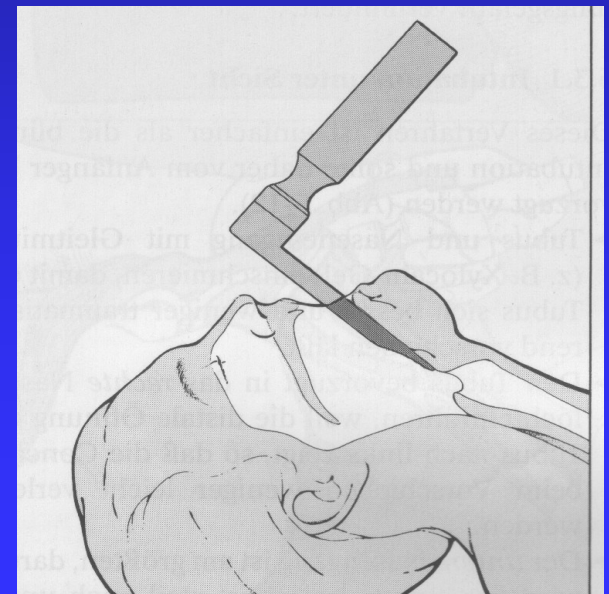
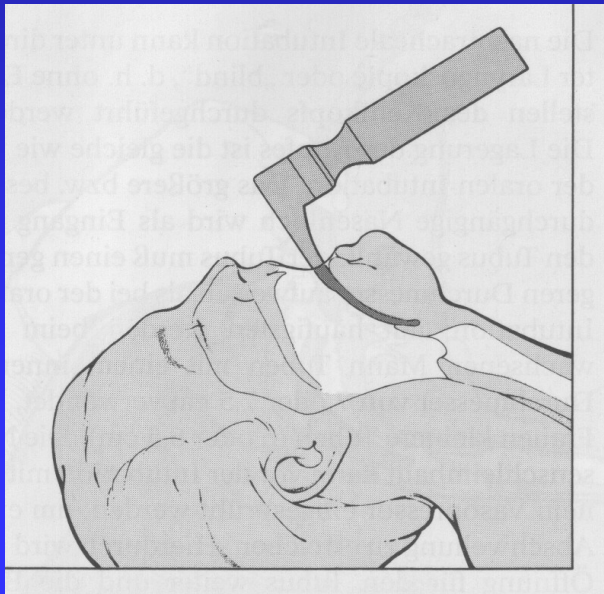
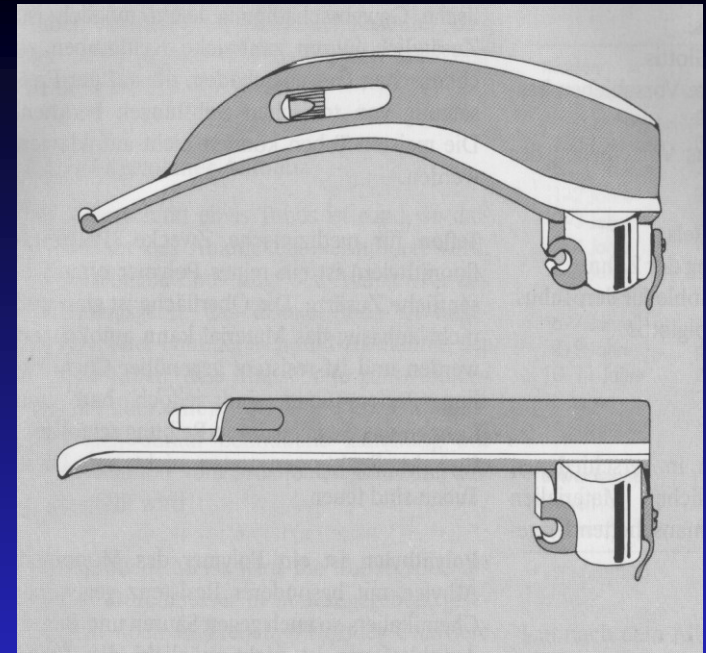
**Straight Blade Placement**



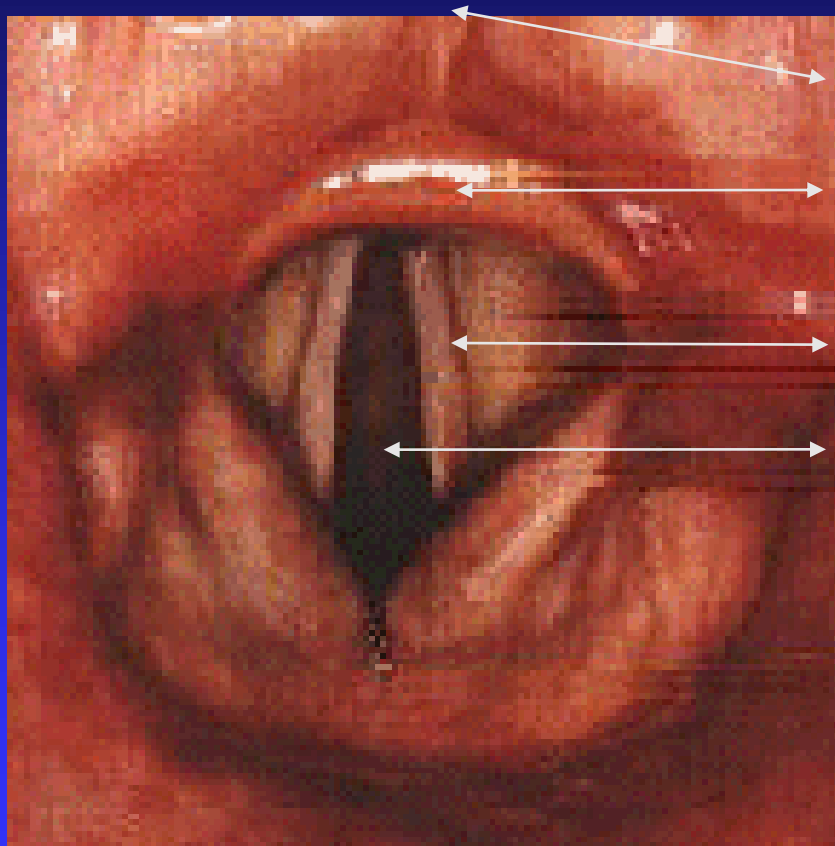


## Laryngoscope:

- crooked spoon - Macintosh
- straight spoon - Miller



## Laryngoscopic view:



radix of tongue

epiglottis

vocal cords

trachea

# Always easy? (Cormac & Lehane)

Grade I



Grade II



Grade III



Grade IV



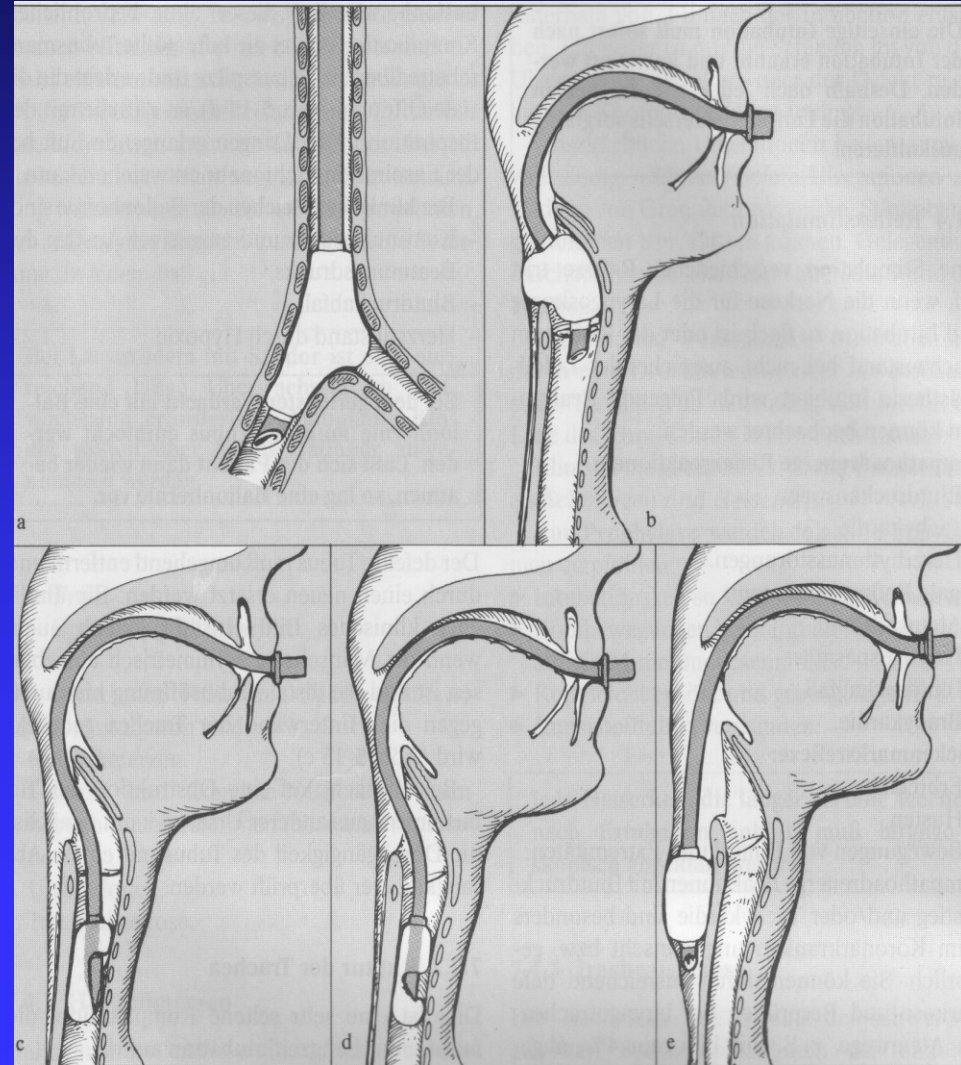


## Verify placing of the tube

- auscultation
- End tidal CO<sub>2</sub>
- fibroskopik view

## Complications of TI - early:

- trauma of teeth, soft tissue
- placed to esophagus / endobronchialy
- aspiration
- cardiovascular -  
    ■, ■ arrhythmia
- ■ CP
- laryngospasmus, bronchospasmus



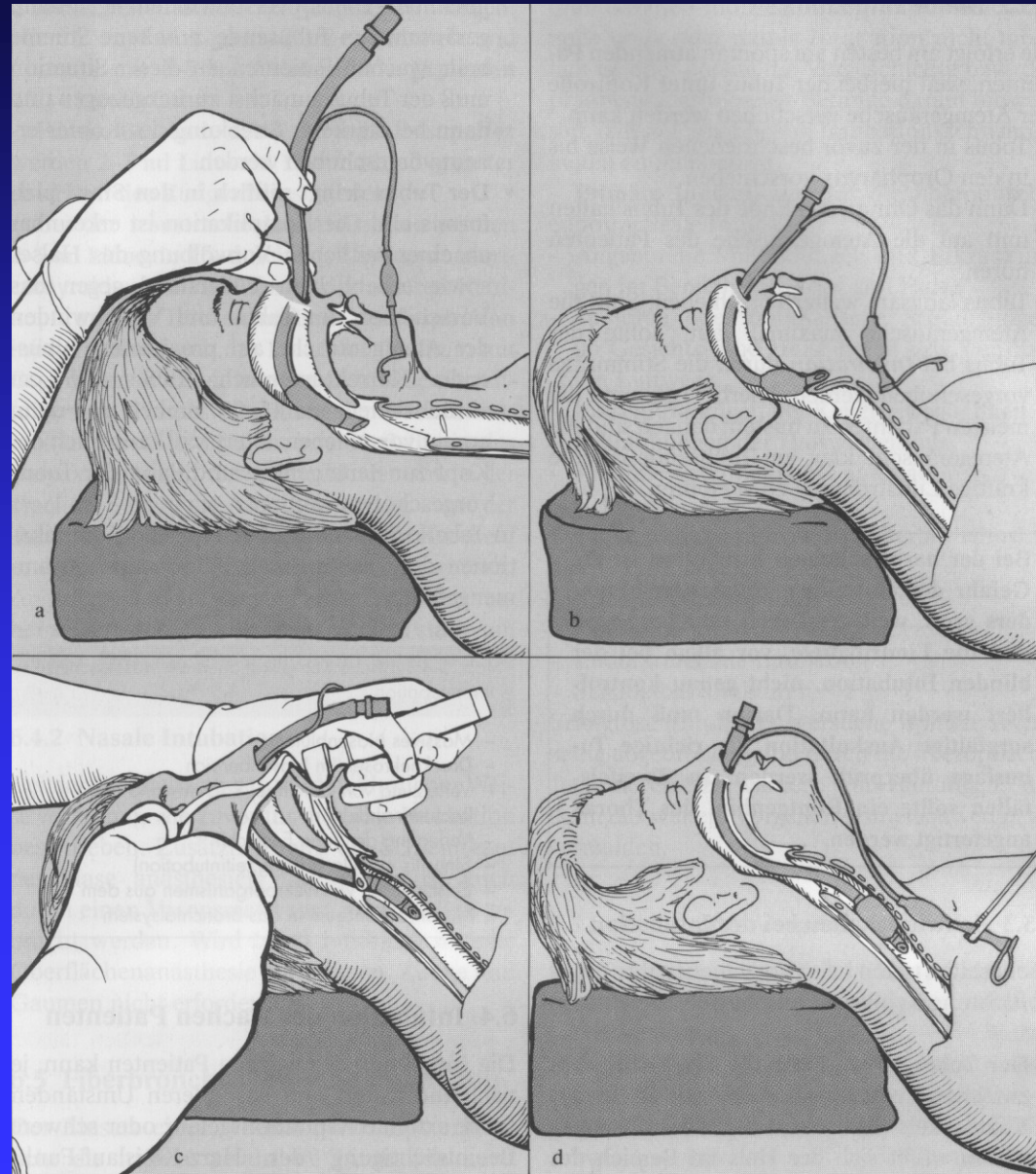
## Complication of TI - later:

- damage of vocal cords, trachea
- sinusitis, otitis,
- decubitus – lip, nose
- obturation of tracheal tube by secret, blood

## How to do NTI:

1. LA  
anemisation of  
nose
2. tube through nose
3. placing tube  
under visual  
control

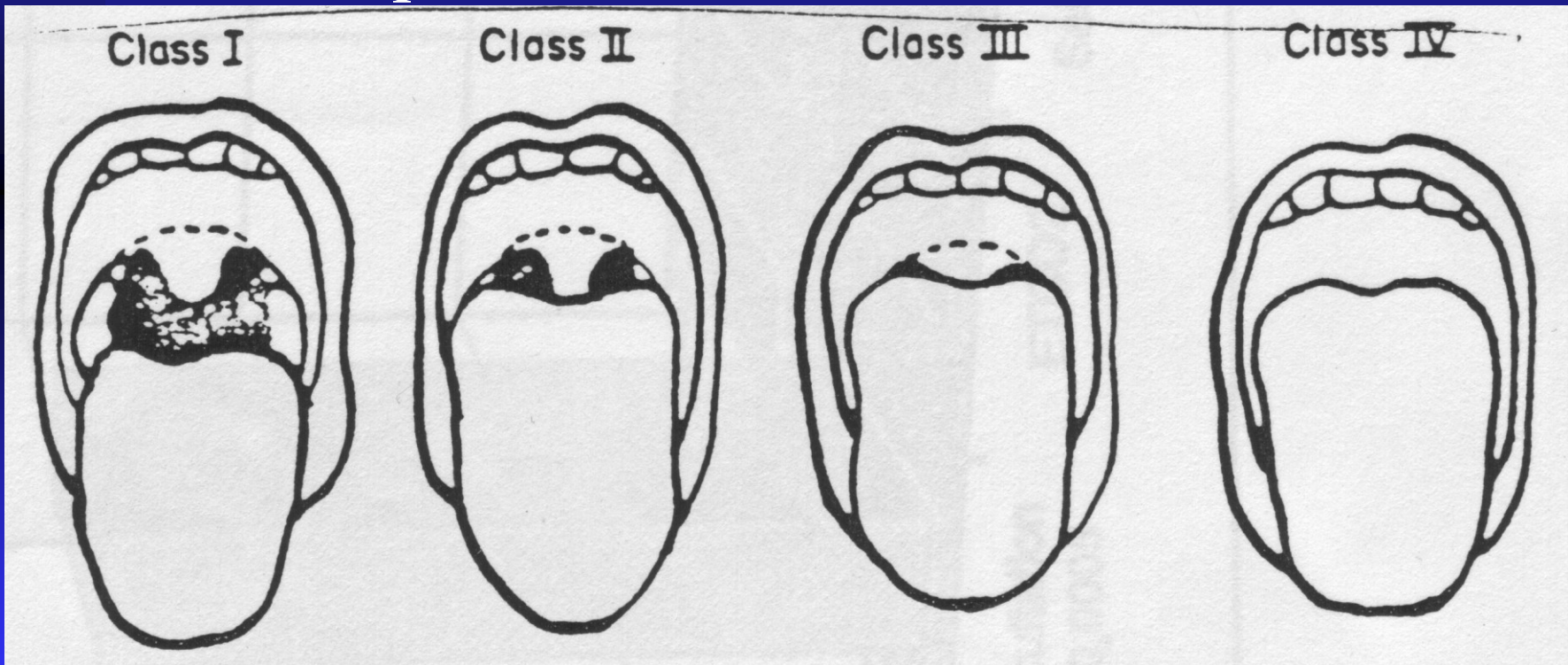
**CAVE:**  
deviation of  
septum nasi





# Check your neck

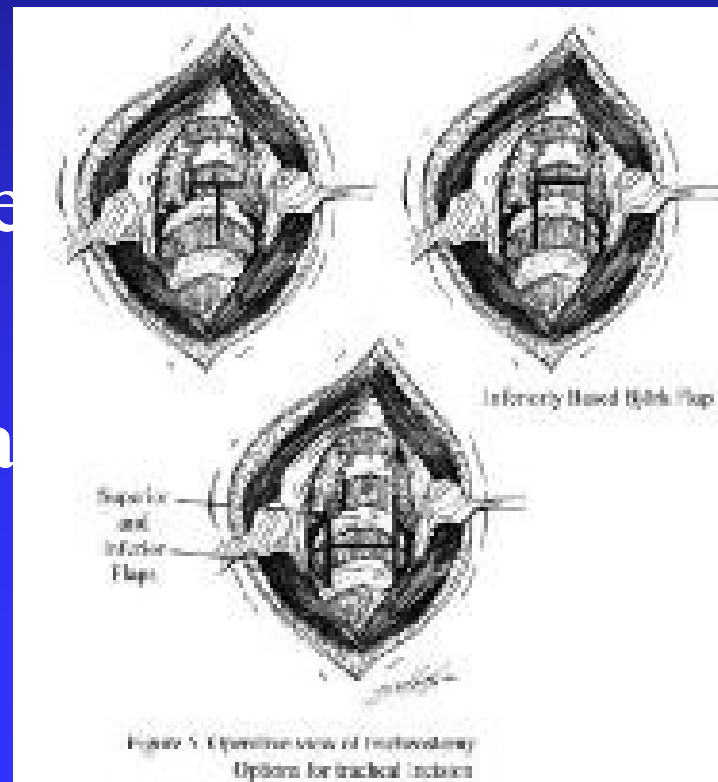
- Mallanpati



- 3-3-2

# Tracheotomy

- surgical access to trachea
- puncture TS
- I: maintain AW long time
  - **artificial ventilation**
  - **limitation of dead space**



# Coniotomy

- urgent access to airway
- lig. cricothyreoideum (lig. conicum)

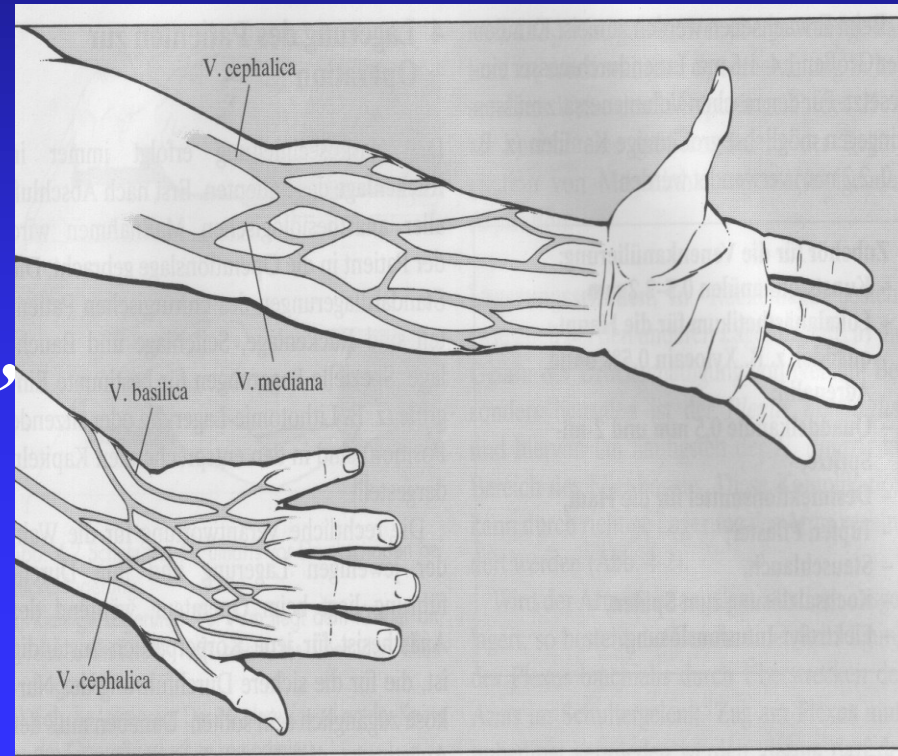
## Peripheral venous access - indication:

- acute drugs
- repeated blood samples
- infusion th (crystalloid, colloid, blood)
- anesthesia

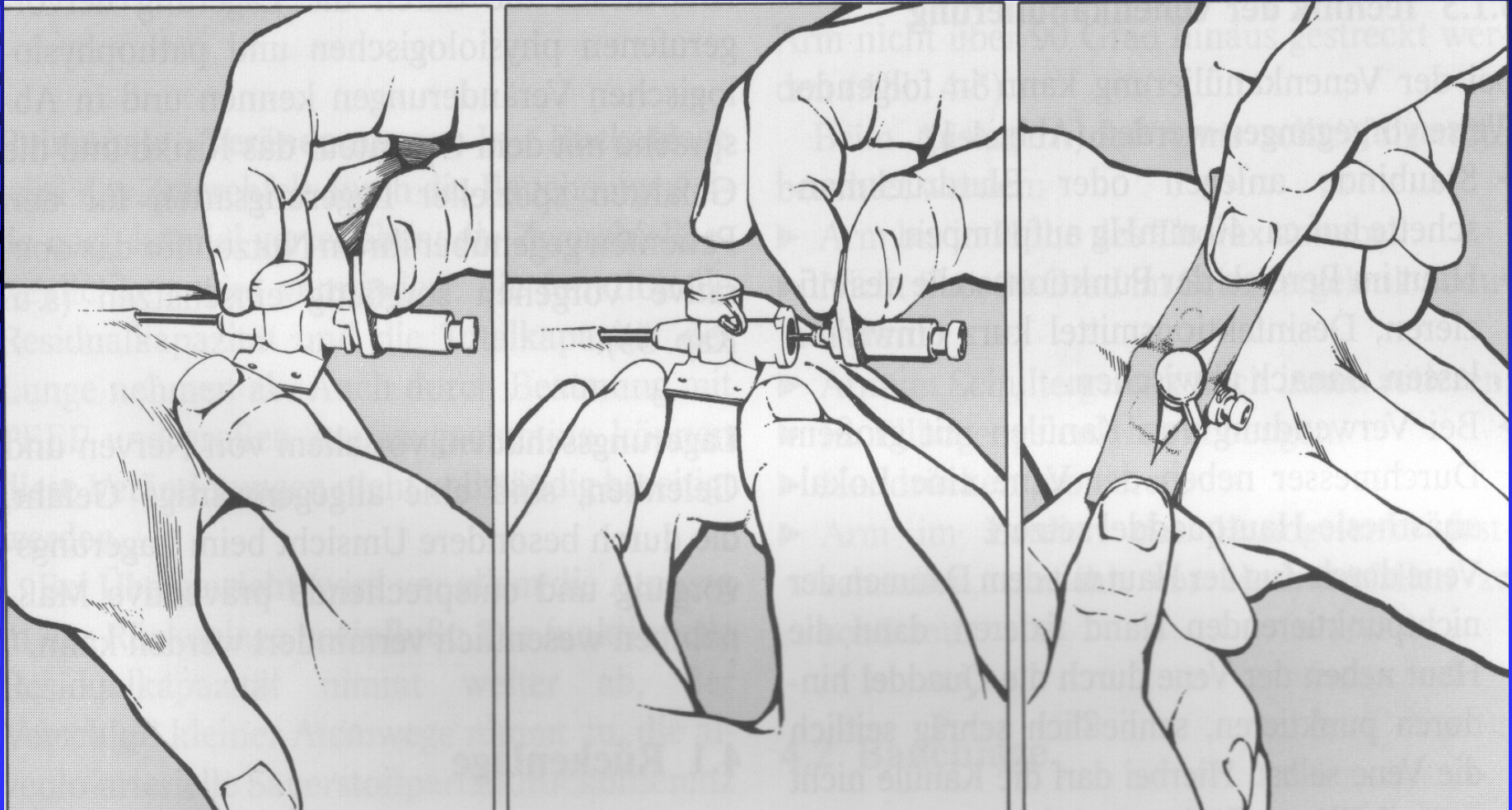


# Peripheral venous access – where

- *hand (wide, well filled)*
- *2./3 antebrachium*
- *cubit*
- *wrist*
- *v. jugularis externa,*  
*v. femoralis*
- *head*



# How to



## How to

- place turniket
- disinfection of skin
- fix skin and vein
- punction of vein
- pull out metal needle, pull in flexible part
- displace turniket,
- fixation by plaster
- next attempt proximally

## *Complication of cannulation of peripheral vein:*

- puncture a. brachialis, n. medianus
- thrombosis

insufficient blood filling

## Central vein:

I:

- concentrated fluid, KA, chemotherapy
- CVP
- parenteral nutrition
- continual elimination
- temporary cardiostimulation
  
- unable maintain other vein access

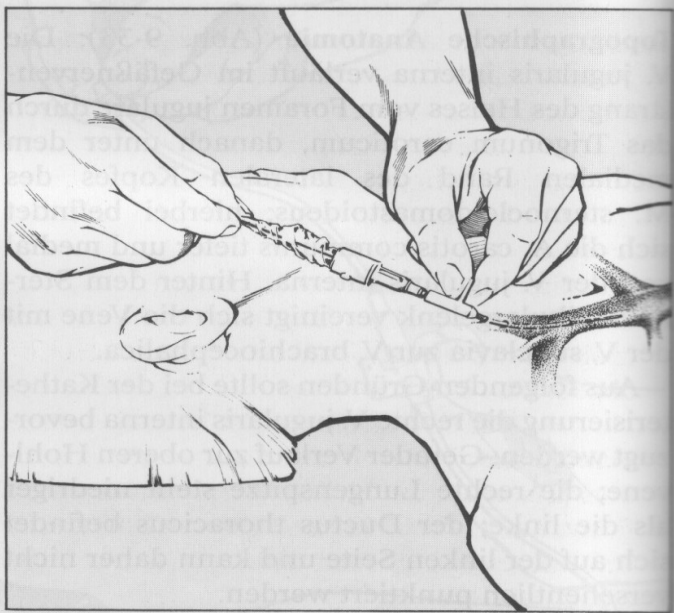
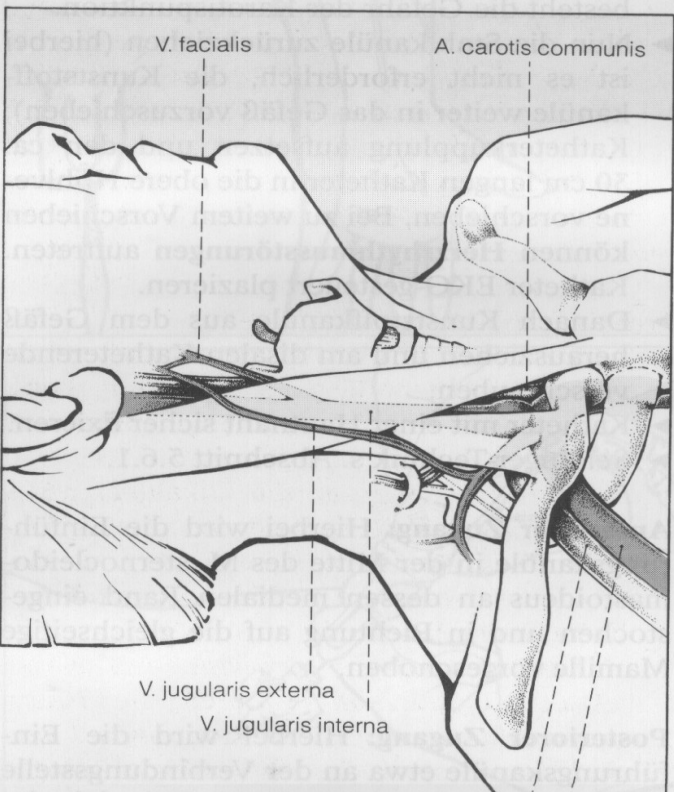
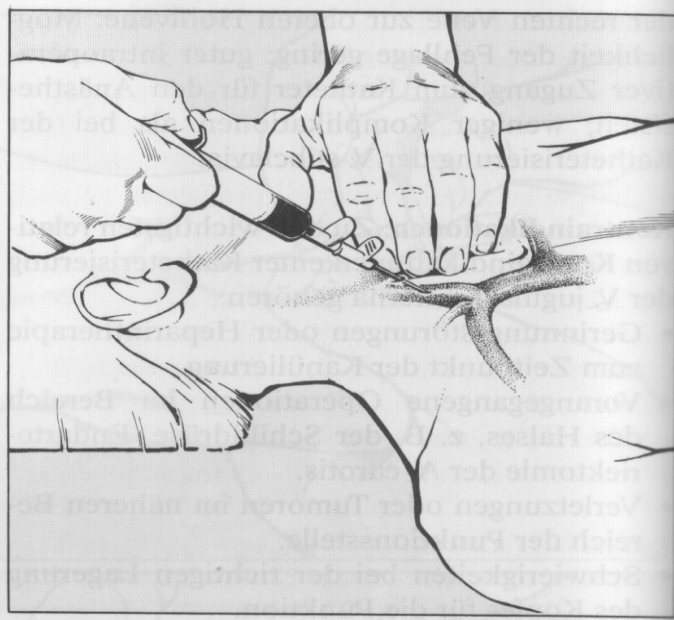
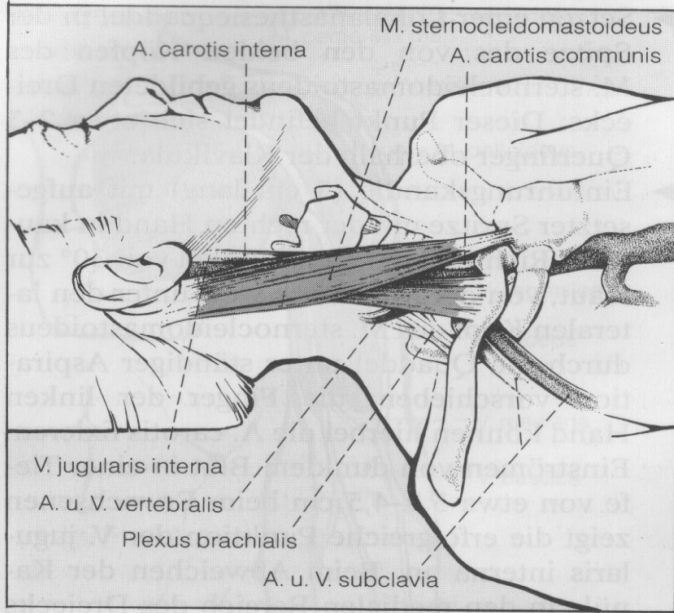
## Contraindications:

- wrong coagulation
- thrombocytopenia
- tumor nearby
- troubles with placing head

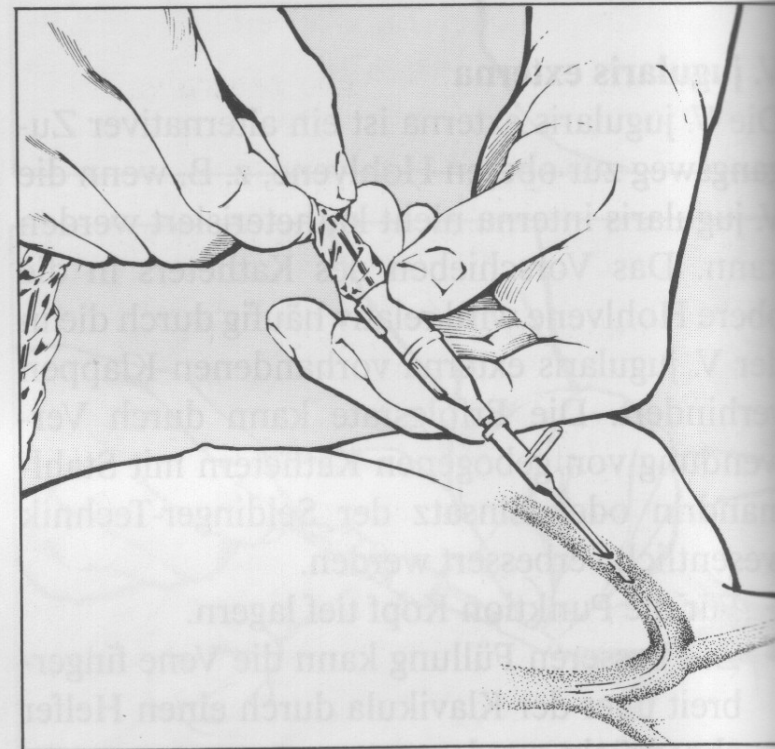
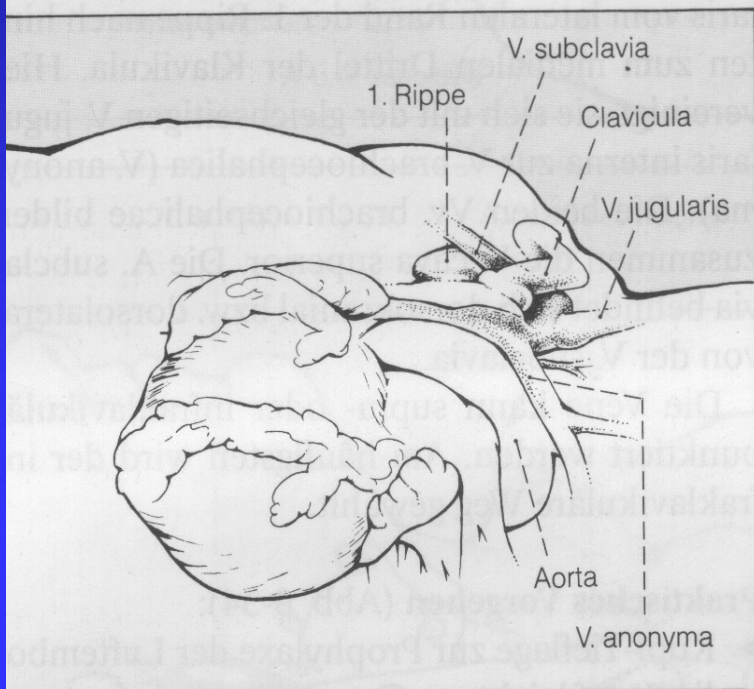
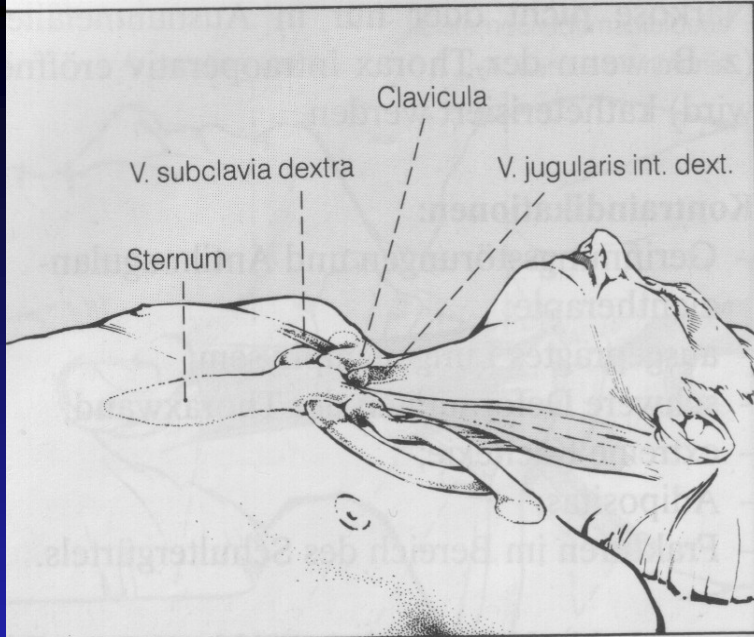
## Where:

- v. jugularis interna
- v. subclavia
- v. femoralis
- v. brachiocephalica









## Aids for cannulation central vein

- steril table
- skalpel
- pean
- set
  - catheter-through-needle
  - catheter-over-needle
  - Seldinger techniek



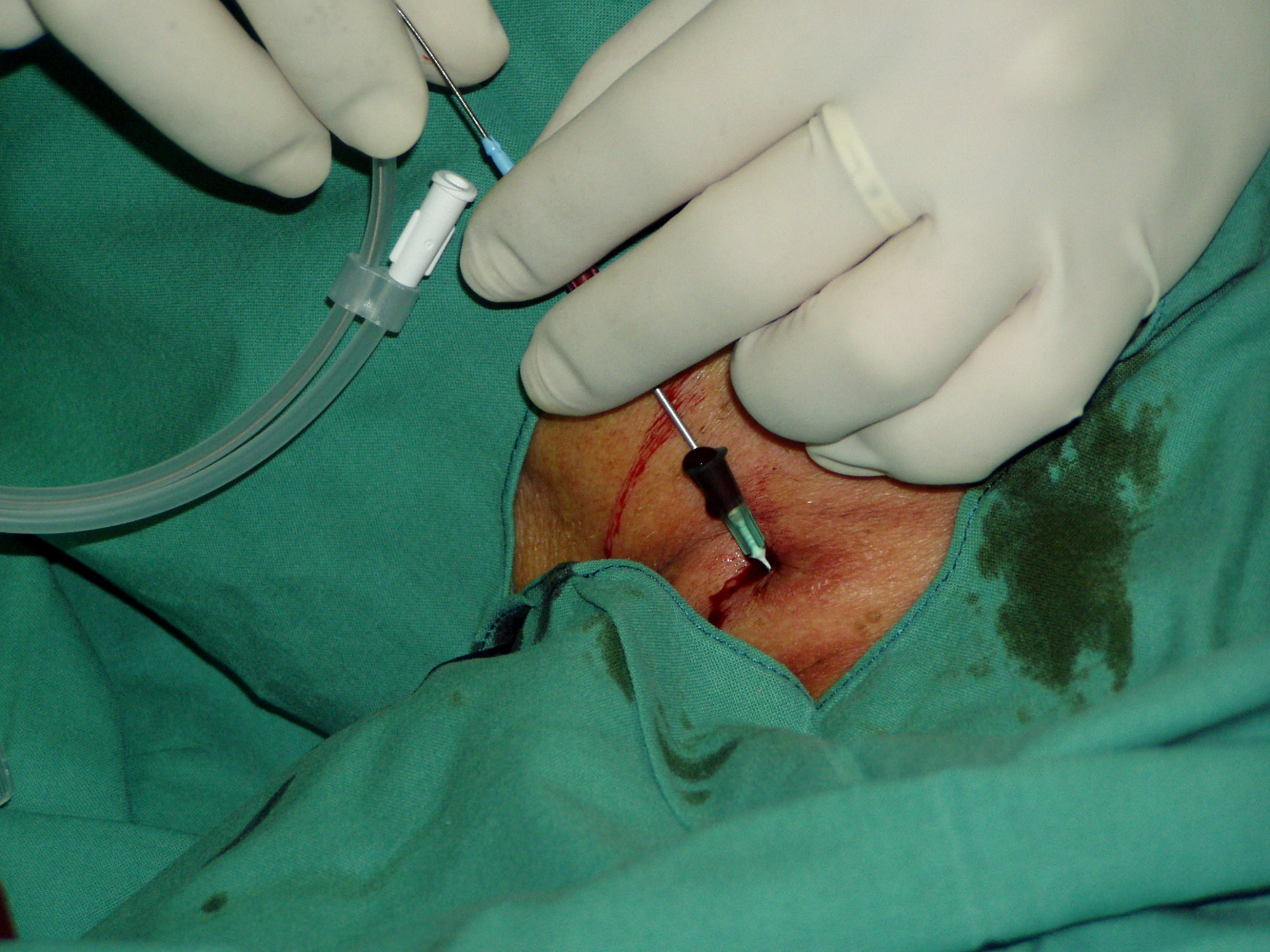




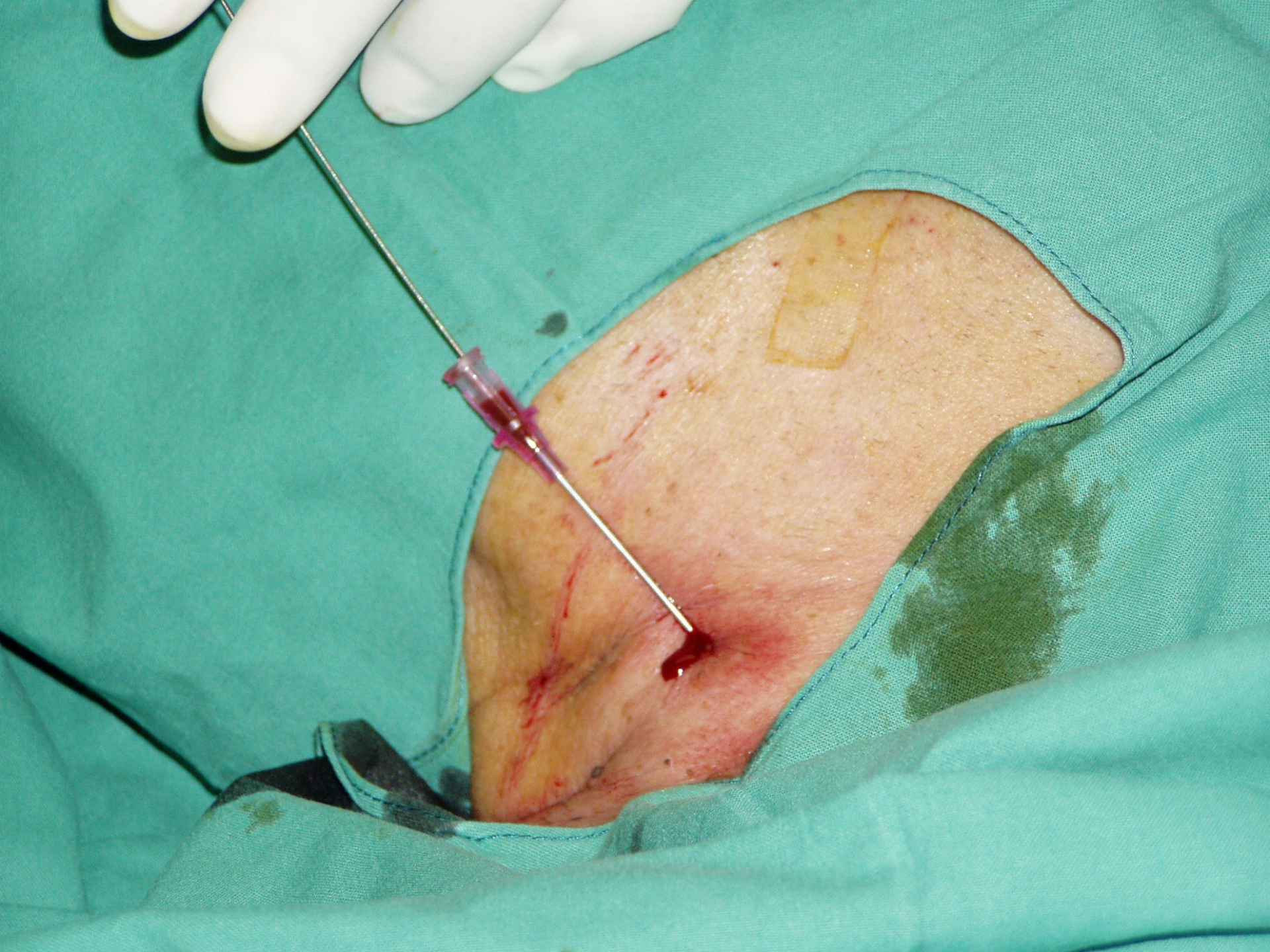












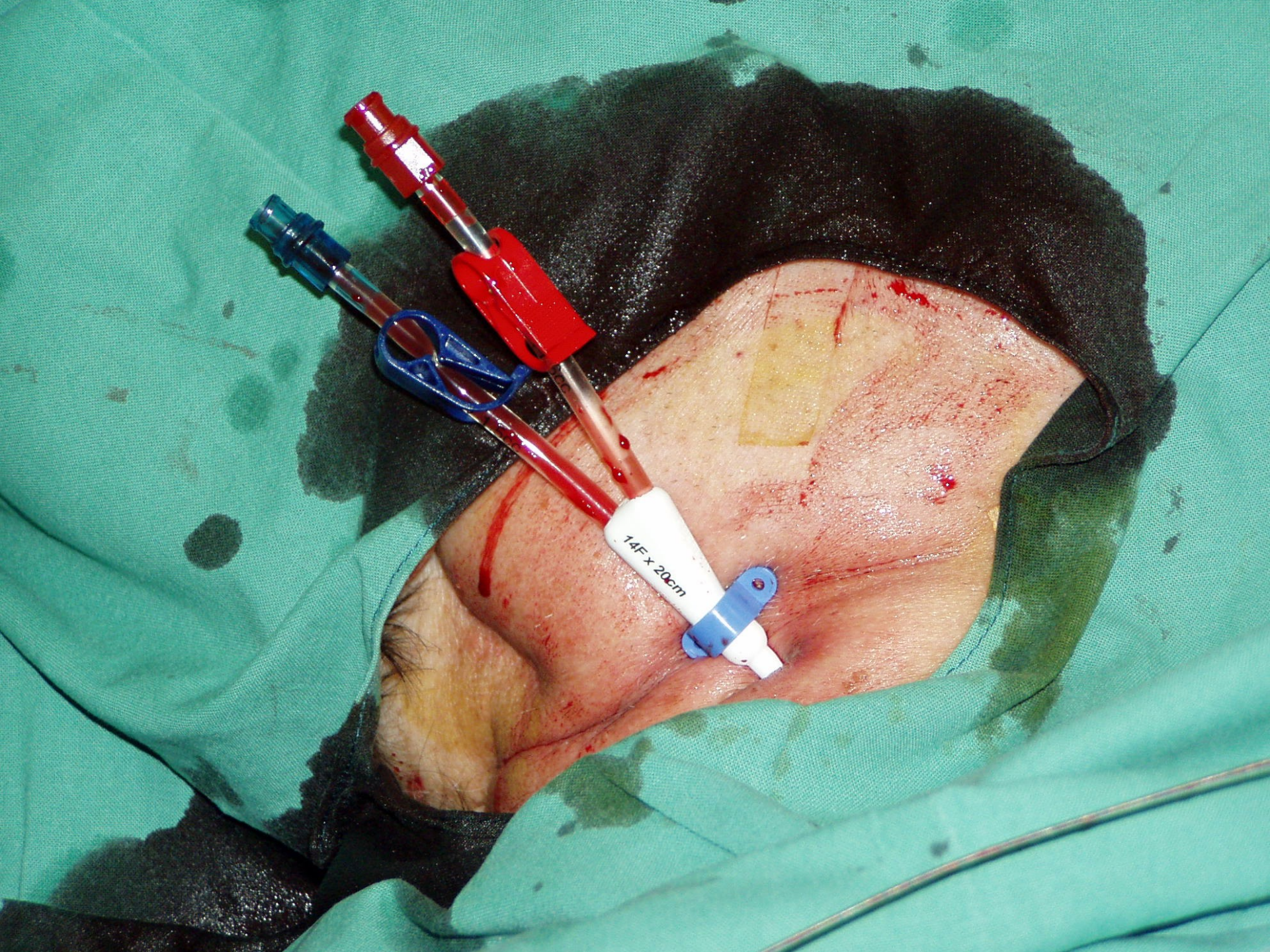




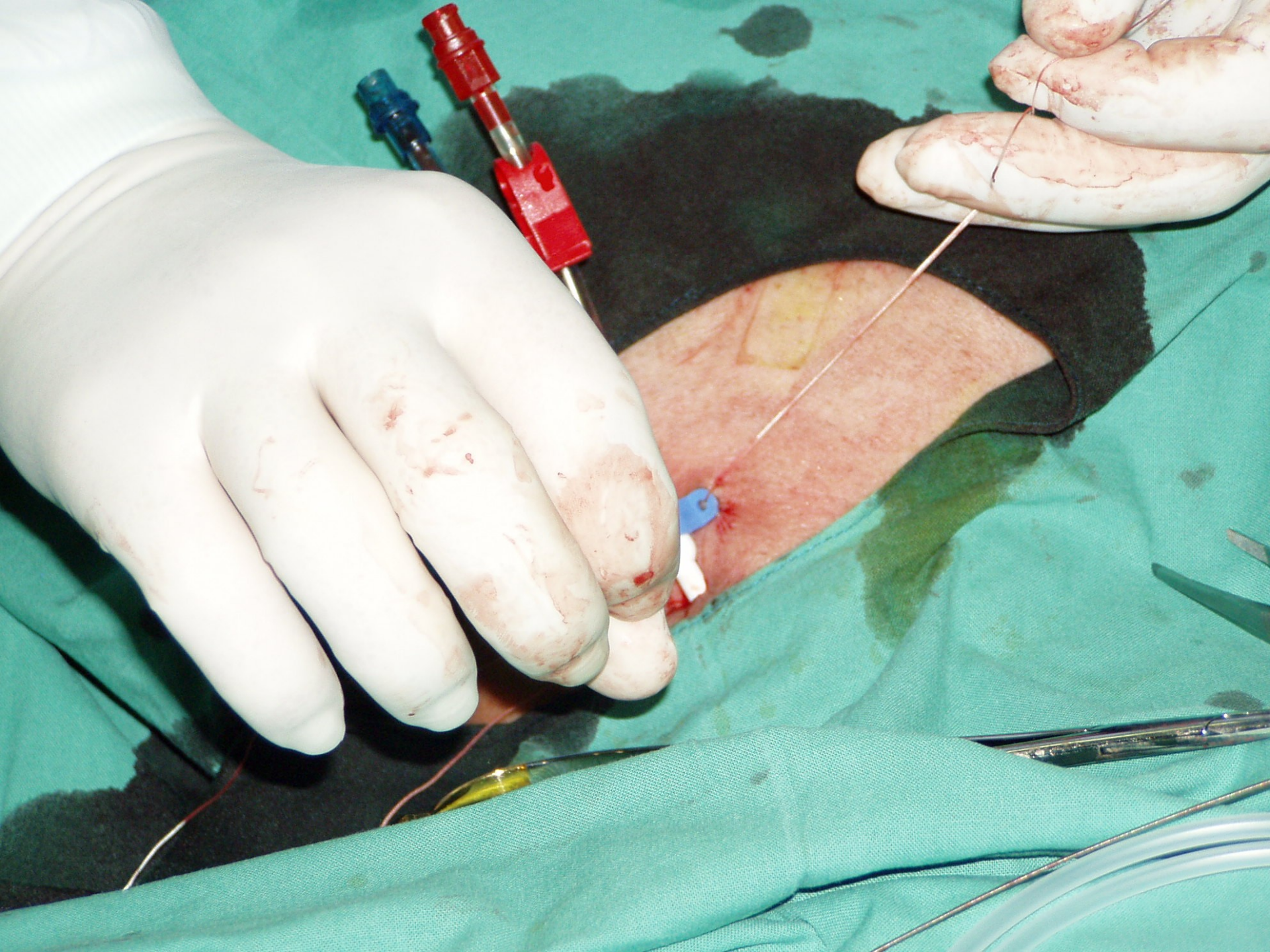












## After canylation

- sterile cover
- control RTG
  - exclude PNO
  - check placeing of catether

## Complications:

- arrhythmias
- PNO
- bleeding
- puncture of arteria
- damage of plexus brachialis
- air emboly
- thrombosis (v.femoralis)
- infection, sepsis













## Alternatives to vein access

- intraosseal access
  - children – tuberositas tibiae
  - adult:
    - maleolus medialis
    - caput humeri
    - distal radius
- intratracheal access – CPR:
  - adrenalin
  - atropine
  - Mesocain (trimecain)