



European Society of
Regional Anaesthesia
& Pain Therapy

ESRA ITALIA

ESRA *Cè*

XXIX

CONGRESSO NAZIONALE

ESRA Italian Chapter
CESENA, Cesena fiere

Presidente del congresso
Vanni Agnoletti
Domenico Pietro Santonastaso
Andrea Tognù

7-9
Novembre
2024



 **MZ**
EVENTS

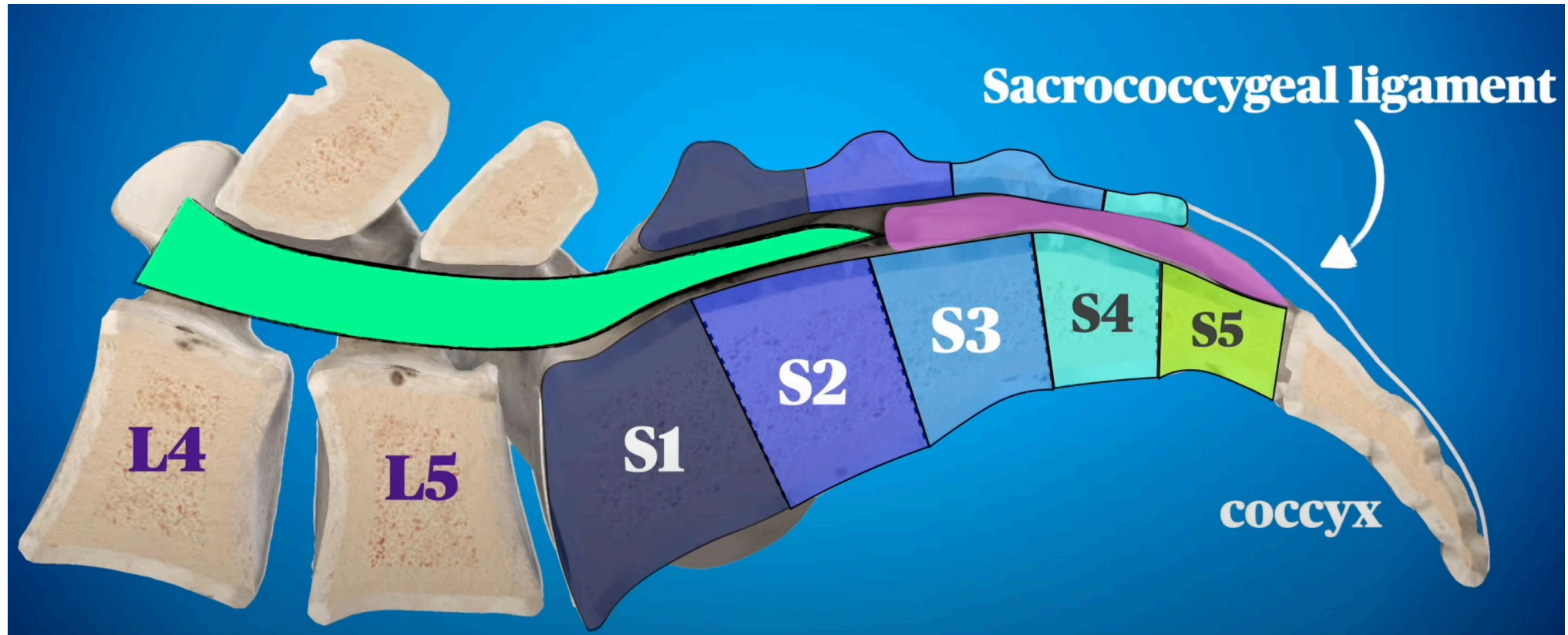


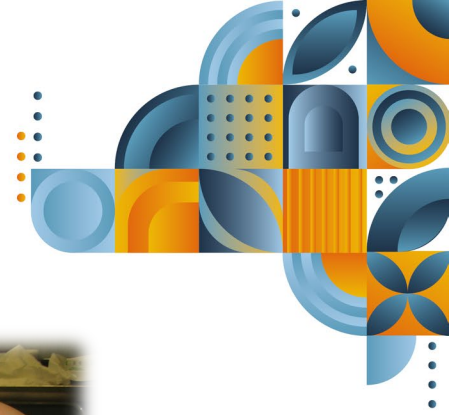
CAUDAL BLOCK: old style and new ultrasound approach



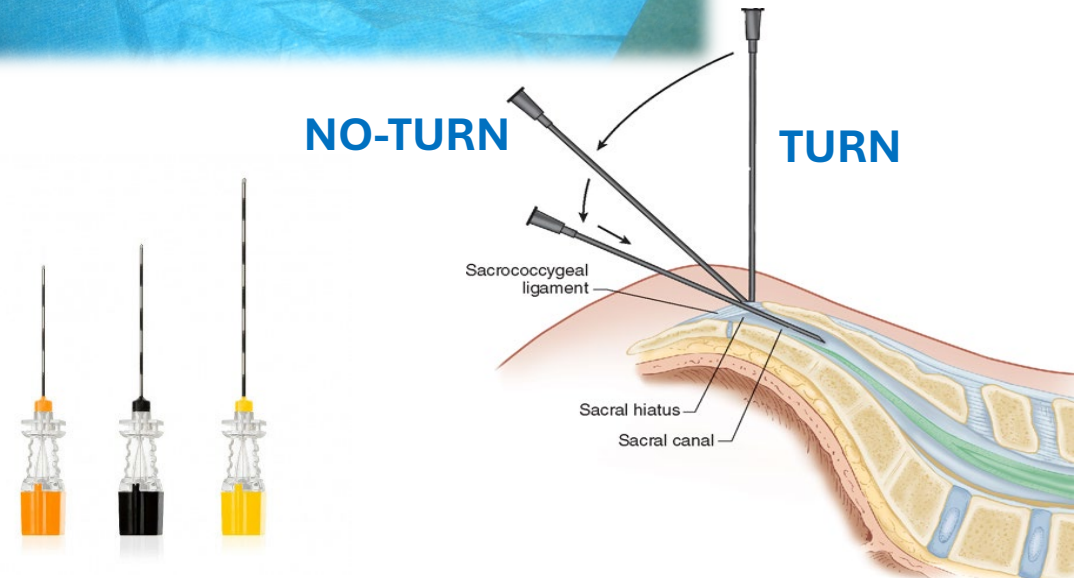
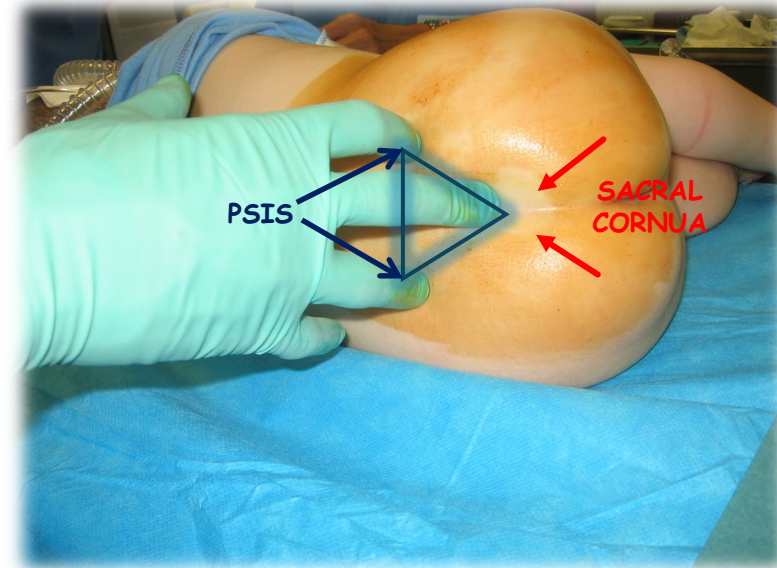
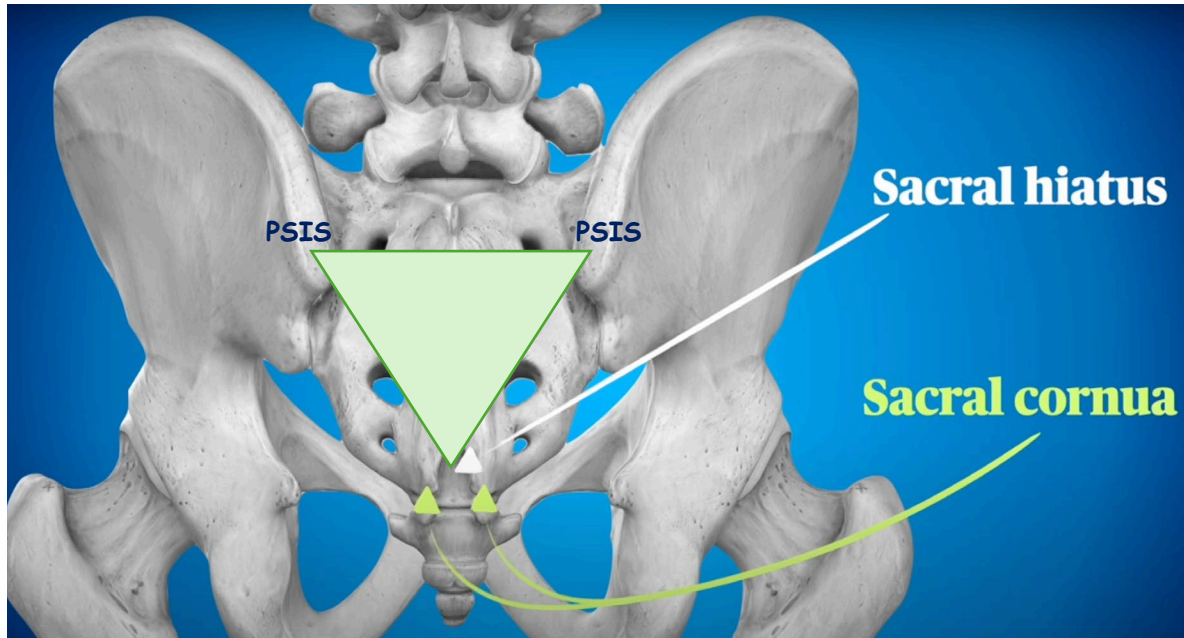
Dott.ssa Veronica Diotto

**Anestesia e Rianimazione Pediatrica
Ospedale dei Bambini Vittore Buzzi Milano
ASST Fatebenefratelli - Sacco**





LANDMARK





CAUDAL BLOCK

- 44% of all regional blocks in pediatrics (PRAN 2018)
- Easy to perform
- Easy to learn
- Success rate 96%
- Safe
- Complication rate 1.9%
- US-guided < 3%

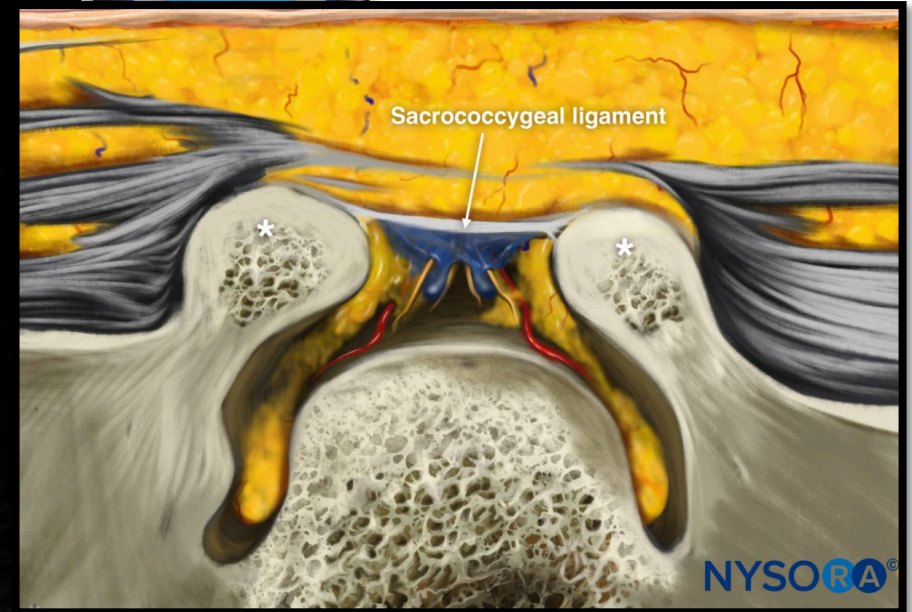
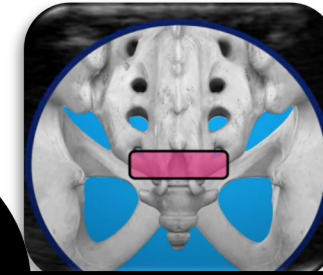
Table 2. Incidence of Specific Complications in Caudal Block

| | Incidence (95% confidence interval) |
|--------------------|--|
| Block failure | 1% (0.8 to 1.1) |
| Blood aspiration | 0.6% (0.5 to 0.8) |
| Positive test dose | 0.1% (0.1 to 0.2) |
| Dural puncture | 0.08% (0.005 to 0.01) |
| Cardiac arrest | 0.005% (– to 0.002) |
| Seizure | 0.005% (– to 0.002) |
| Sacral pain | 0.005% (– to 0.002) |
| Muscle spasm | 0.005% (– to 0.002) |



ANATOMIC CONSIDERATIONS

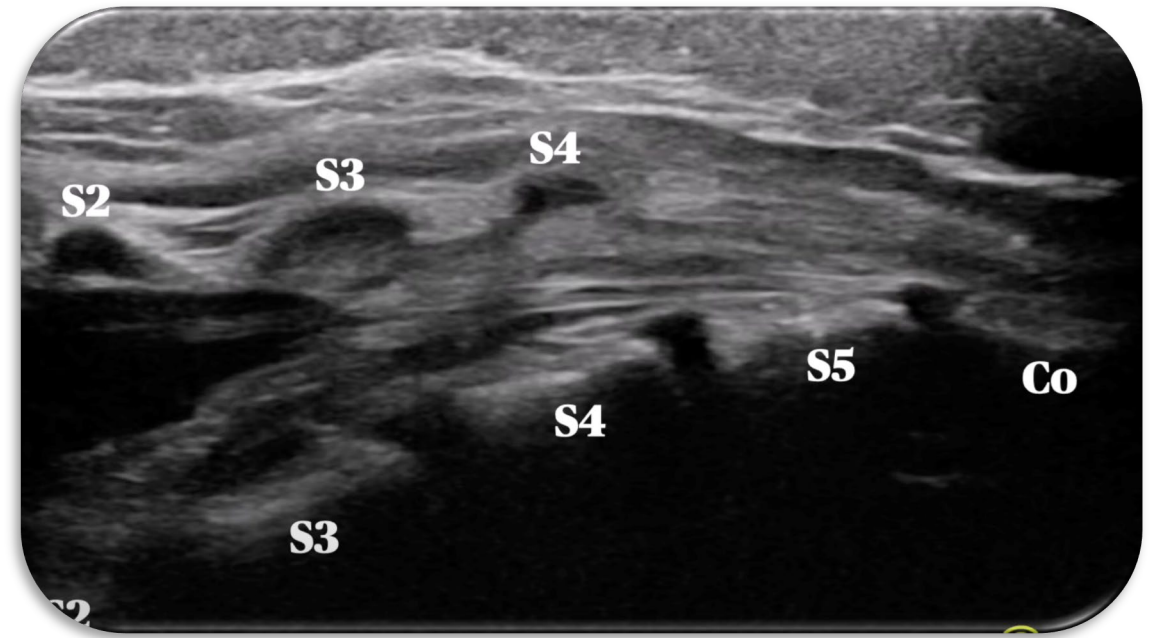
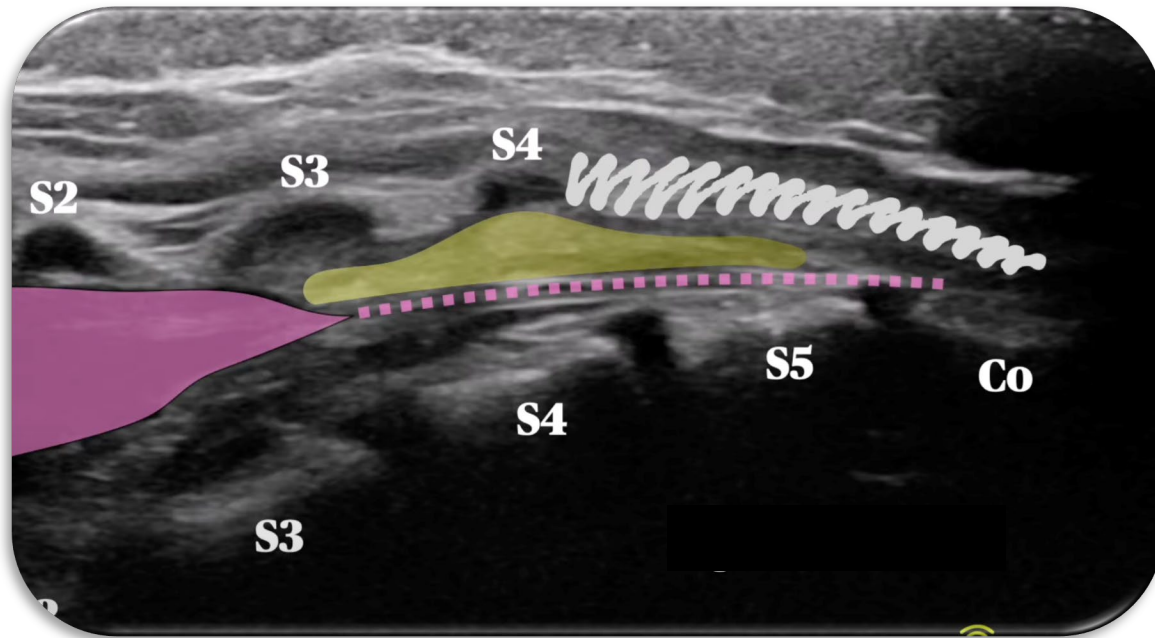
Identification of sacral hiatus





ANATOMIC CONSIDERATIONS

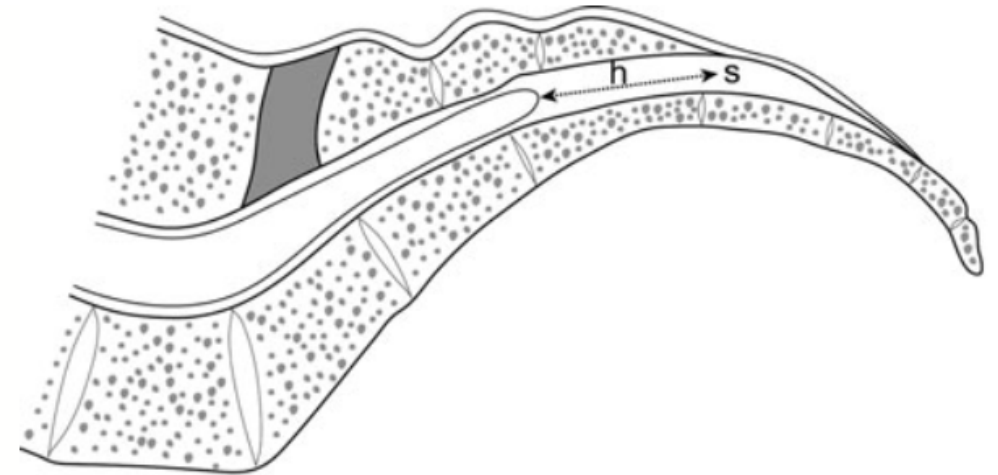
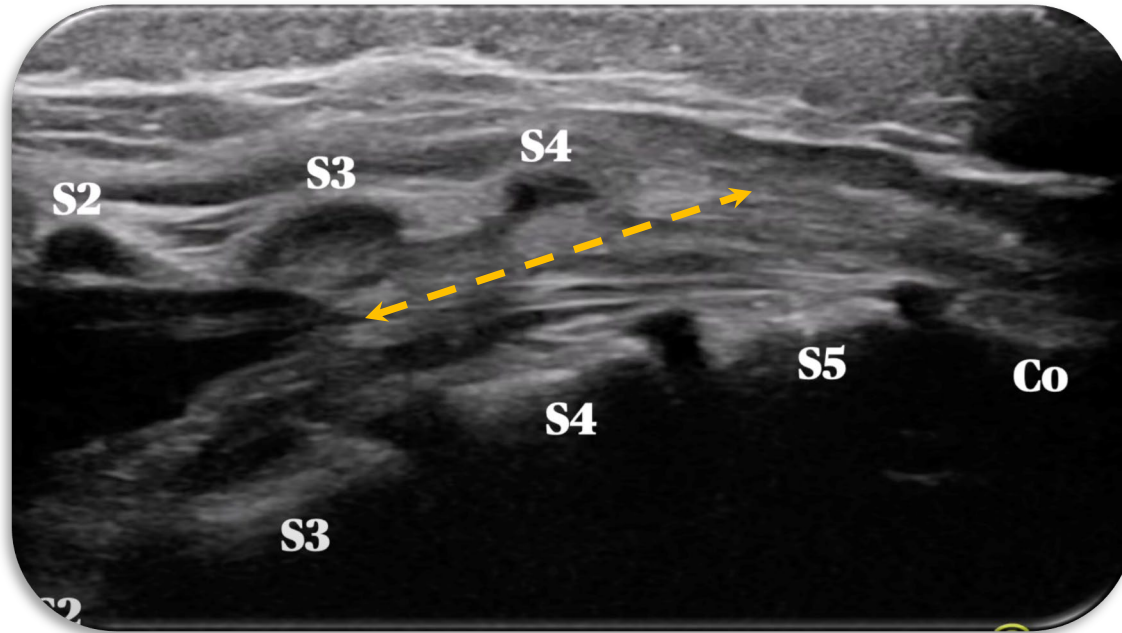
Identification of sacral hiatus





ANATOMIC CONSIDERATIONS

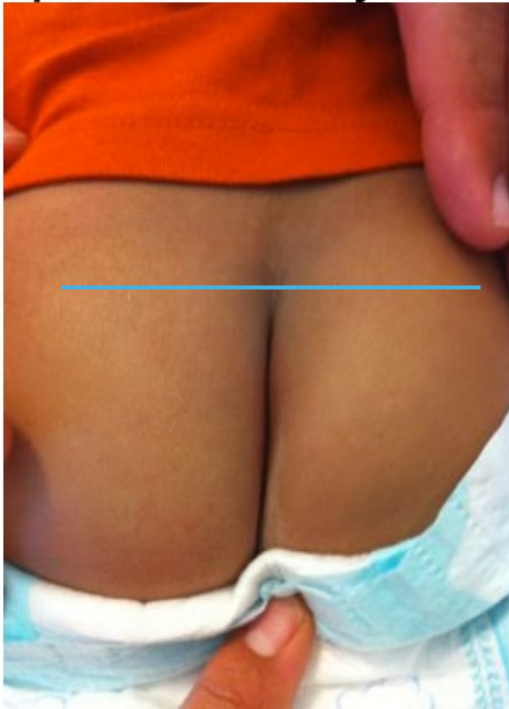
Identification of dural sac





ANATOMIC CONSIDERATIONS

The fear of sacral dimples



Coccygeal Pits



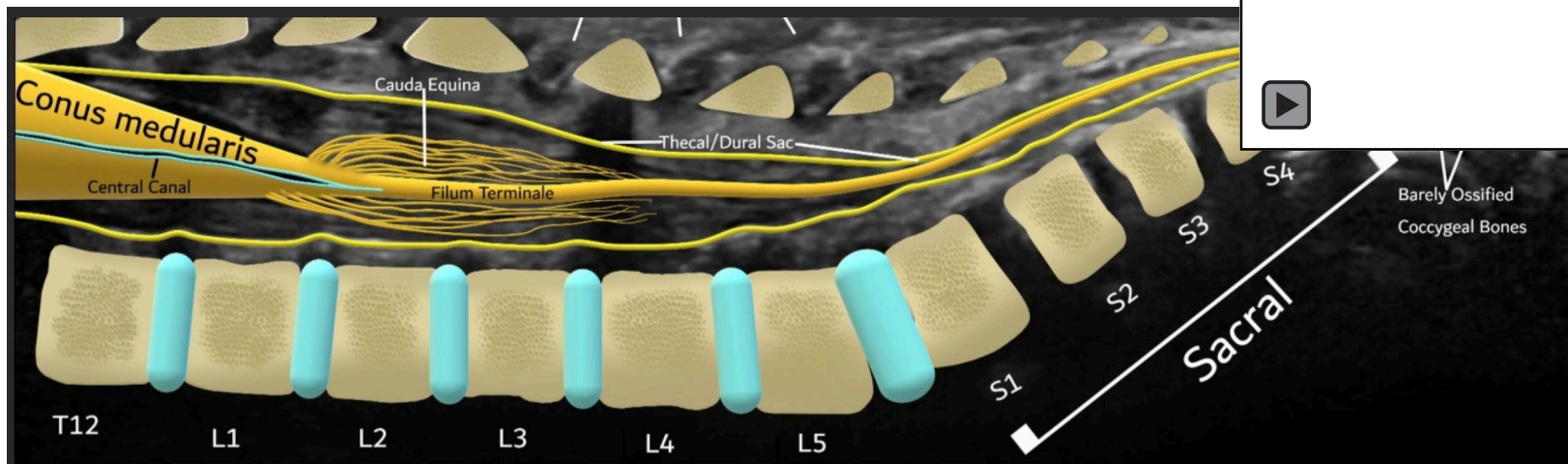
Sacral Dimples



ANATOMIC CONSIDERATIONS

Occult Spinal Dysraphism

- Low conus (below L2)
- Thickened or tight filum terminale
- Connection skin-dural sac (dermal sinus)
- Restricted movements of the nerves strands





FIRST PUNCTURE SUCCESS

- Wang et al. (2013) 92% vs 50%
- Ahiskalioglu et al. (2018) 80% vs 63%
- Karaka et al. (2019) 90% vs 60%
- Riaz et al. (2019) 95% vs 70%

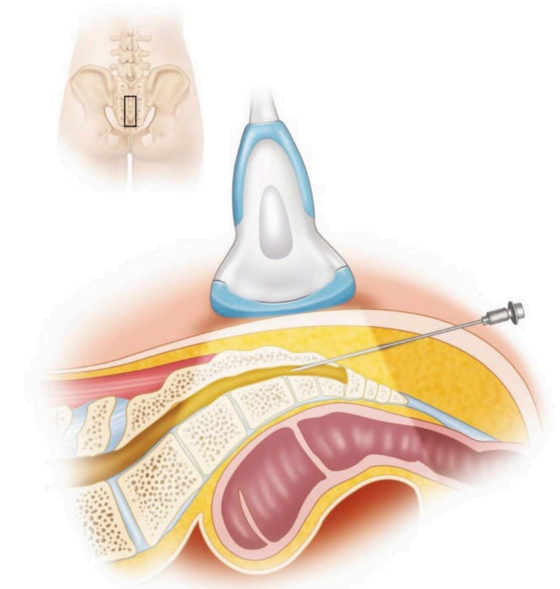


Table 2
Caudal block details.

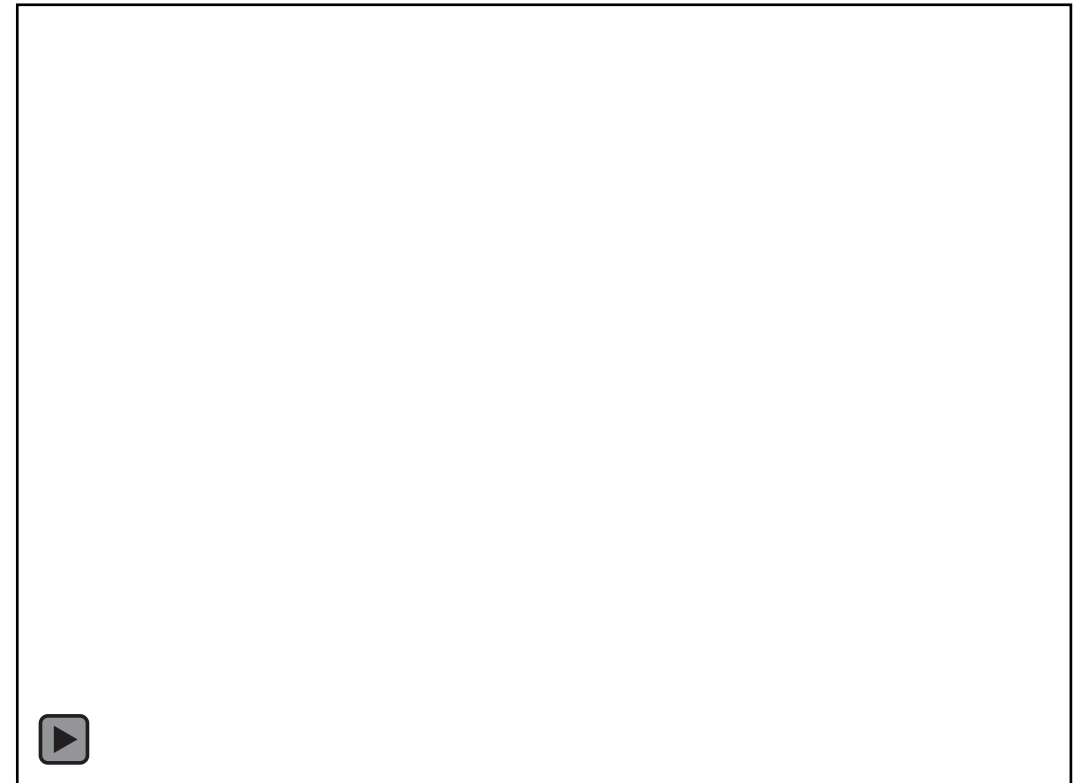
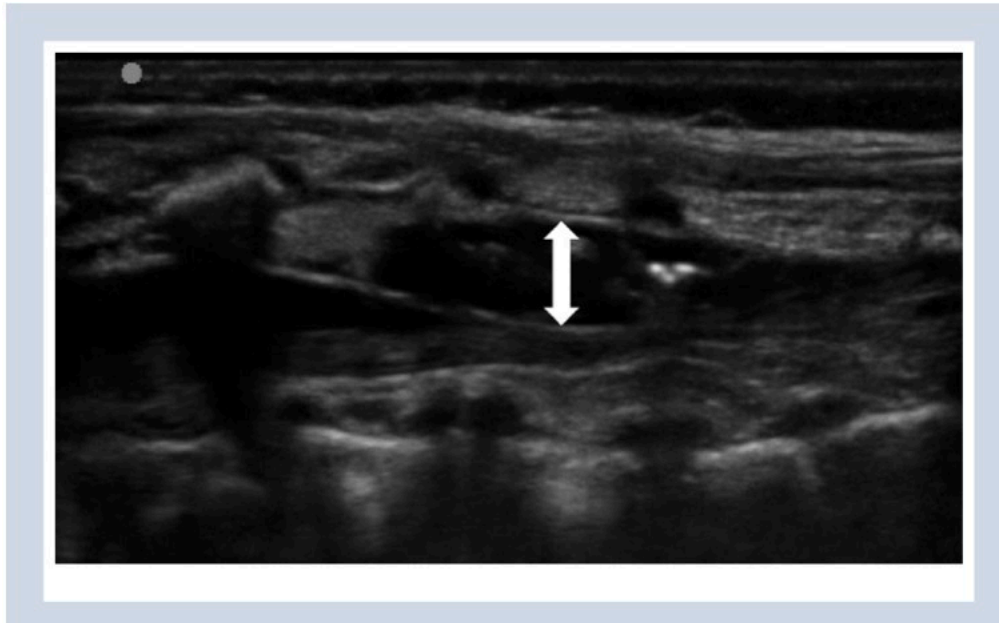
| | Group C (n = 66) | Group U (n = 68) | p |
|---------------------------------|------------------|------------------|----------------------|
| Block performing time (sec) | 103.1 ± 45.1 | 109.9 ± 49.7 | 0,463 ^a |
| Block success rate (n,%) | 62 (%93) | 66 (%97) | 0,404 ^b |
| Number of needle puncture | 1.4 ± 0.7 | 1.32 ± 0.7 | 0,060 ^a |
| Success at first puncture (n,%) | 42 (%63) | 55 (%80) | 0,026 ^{b,*} |





NEEDLE & LA SPREAD VISUALIZATION

- Anterior dural displacement by LA





RELATIONSHIP VOLUMES - CRANIAL SPREAD

- Poor clinical value of US assessment of the cranial spread

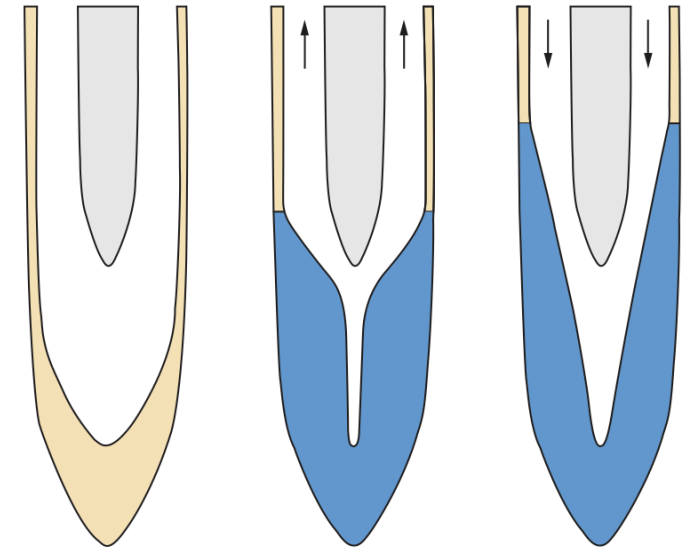
Lundblad, Eksborg, Lönnqvist, Marhofer. **Segmental distribution of high-volume caudal anaesthesia in neonates, infants and toddlers as assessed by US.**

Pediatric Anesthesia (2011)

- Dynamic secondary spread

Lundblad, Eksborg, Lönnqvist. **Secondary spread of caudal block as assessed by US.**

British Journal of Anaesthesia (2012)





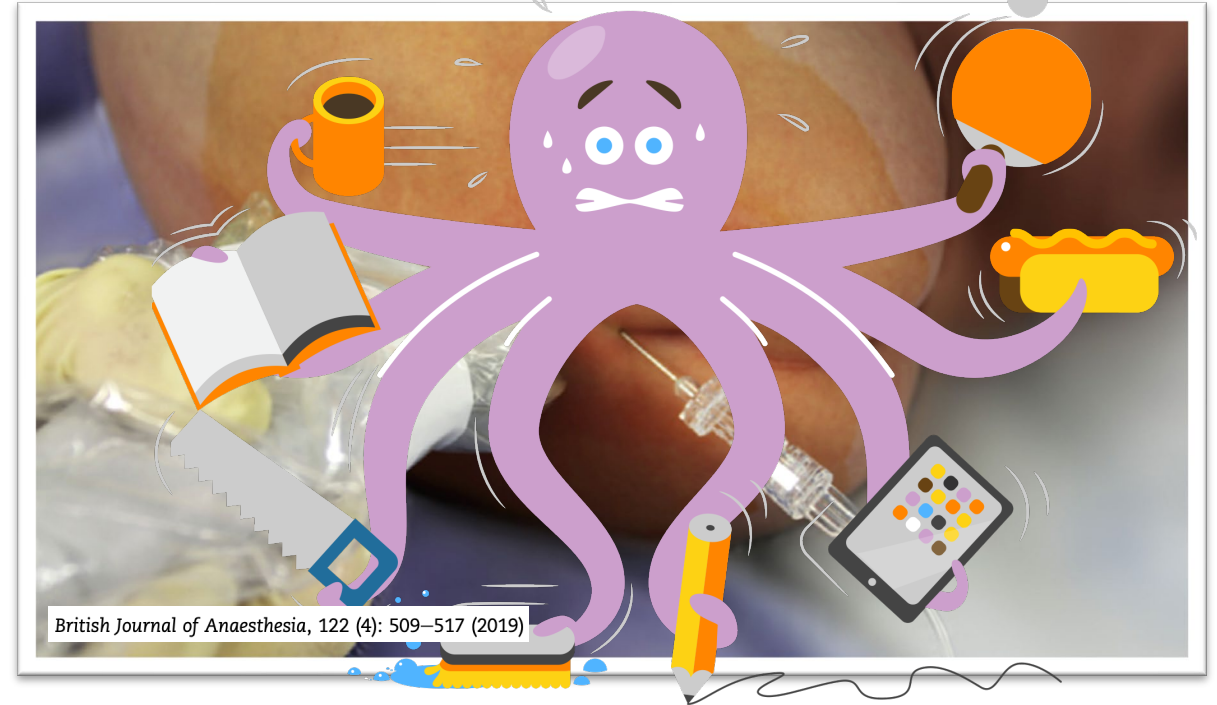
BLOCK PERFORMANCE TIME

- Wang et al. (2013) 145 s vs 164 s
- Ahiskalioglu et al. (2018) 109 s vs 110 s
- Riaz et al. (2019) 110 s vs 63 s
- **NO DIFFERENCE**





US-GUIDED TECHNIQUE





BLOCK SUCCESS RATE

- Wang et al. (2013) 92.8% vs 95.7%
- Ahiskalioglu et al. (2018) 97% vs 93%
- Karaka et al. (2019) 96.2% vs 94.7%
- **NO DIFFERENCE**





SAFETY AND COMPLICATIONS RATE

- Major complications (LAST, neurological injury)
- ↓ Minor complications (bloody puncture, subcutaneous injection)

- Wang et al. (2013) 18.6% vs 5.7%
- Ahiskalioglu et al. (2018) 12% vs 1.4%
- Roberts et al. (2005) 10.6% vs 5.3%

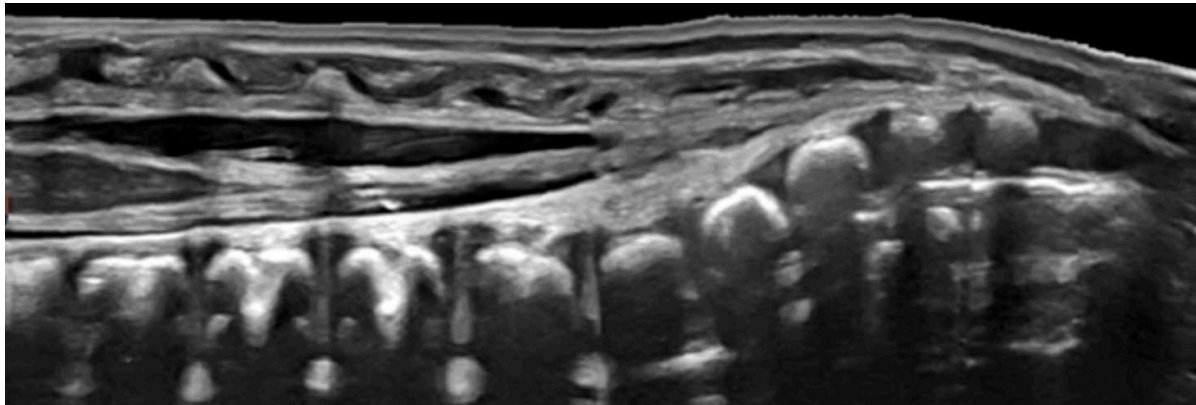


Table 3
Complications of caudal block.

| | Group C (n = 66) | Group U(n = 68) | p* |
|----------------------------|------------------|-----------------|--------|
| Vascular puncture | 8 | 1 | 0,014* |
| Subcutaneous bulging | 8 | 0 | 0,031* |
| Dural puncture | 0 | 0 | 1000 |
| Local anesthetics toxicity | 0 | 0 | 1000 |



CONCLUSIONS

- New US approach???
- Real-time, non-invasive, safe.
- Key advantages: visualisation of anatomic structures, LA spread, improved first puncture success rate.
- Useful teaching tool.
- Outcome-based prospective randomized controlled studies still required.

- SU UNA SCALA DA
1 A 10, QUANTO SEI
PIGRO?
- E' UNA SCALA
MOBILE?





Pediatric Regional Anesthesia BUNDLE

- Anatomical and physiological peculiarities
- Expertise (sedation)
- Equipment & Monitoring
- Adherence to dosing guidelines
- Ultrasound



A person is silhouetted in the foreground on the left, holding a camera up to take a picture of a sunset over the ocean. The sun is low on the horizon, creating a bright orange and yellow glow across the sky and reflecting on the water. The overall mood is peaceful and contemplative.

Grazie per l'attenzione

Veronica Diotto

*Ogni alba ha i suoi dubbi.
Alda Merini*

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