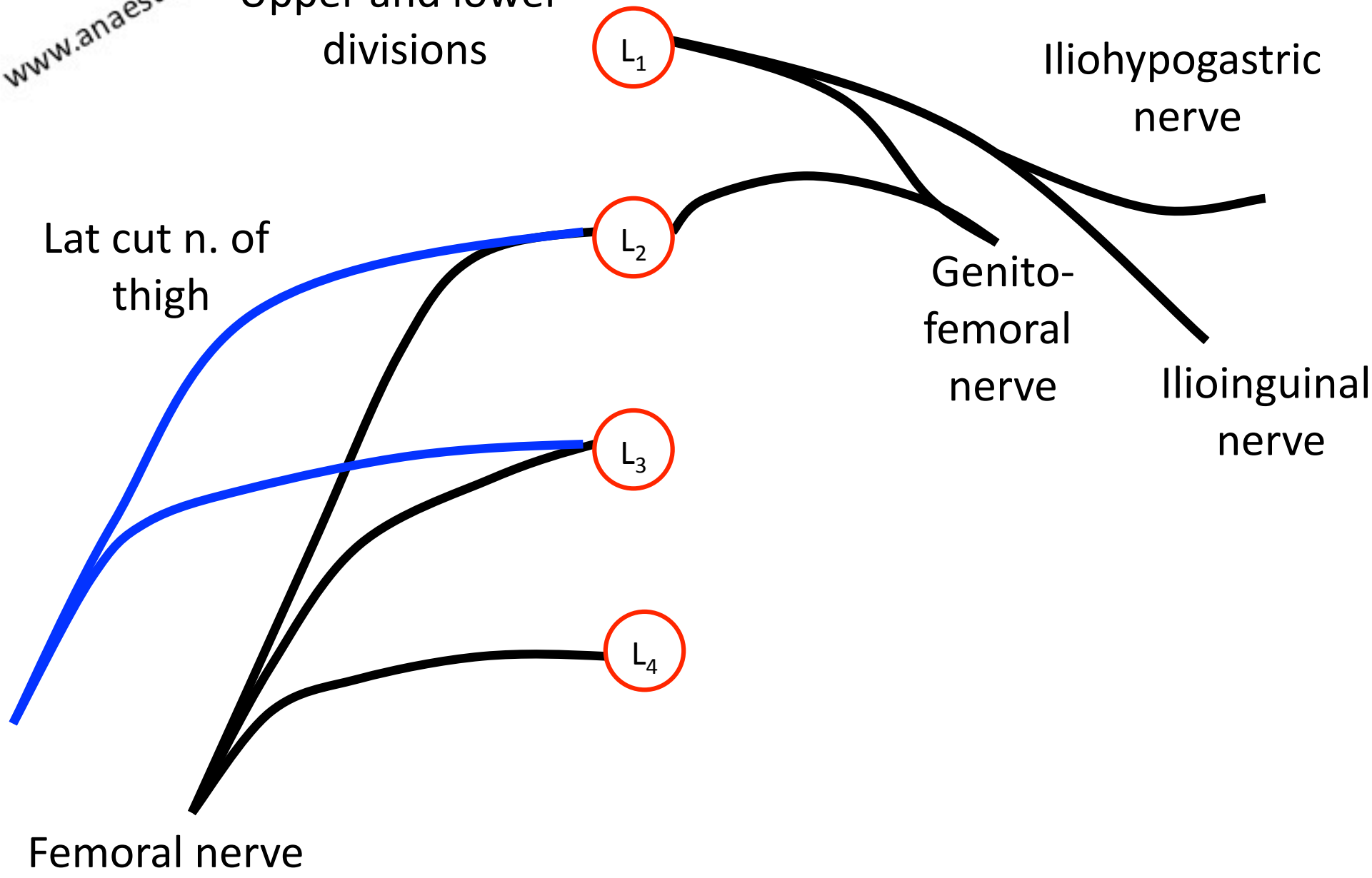
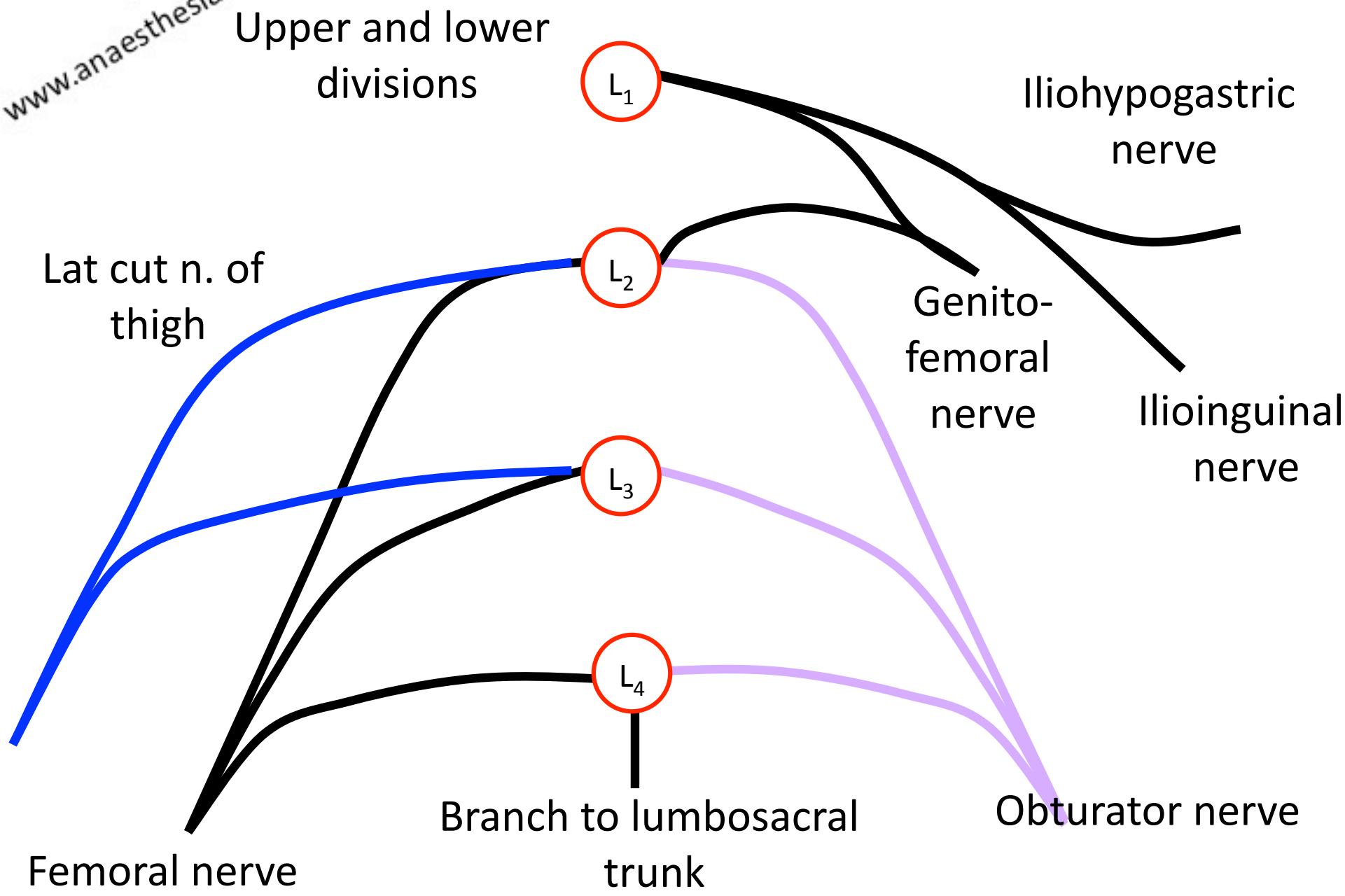
Lumbar and Sacral Plexus Blocks

Dr Shiv Kumar Singh

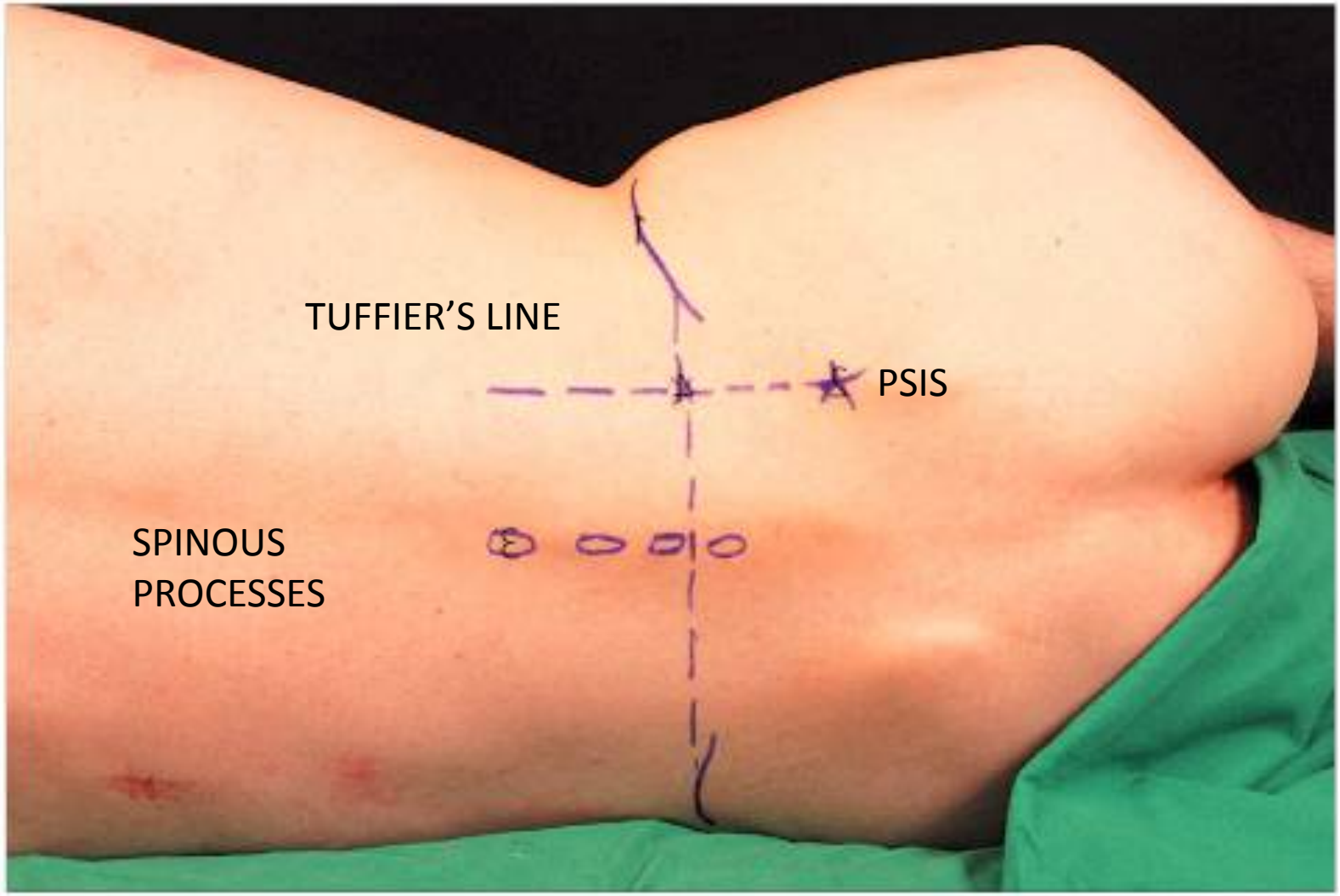
Lumbar Plexus



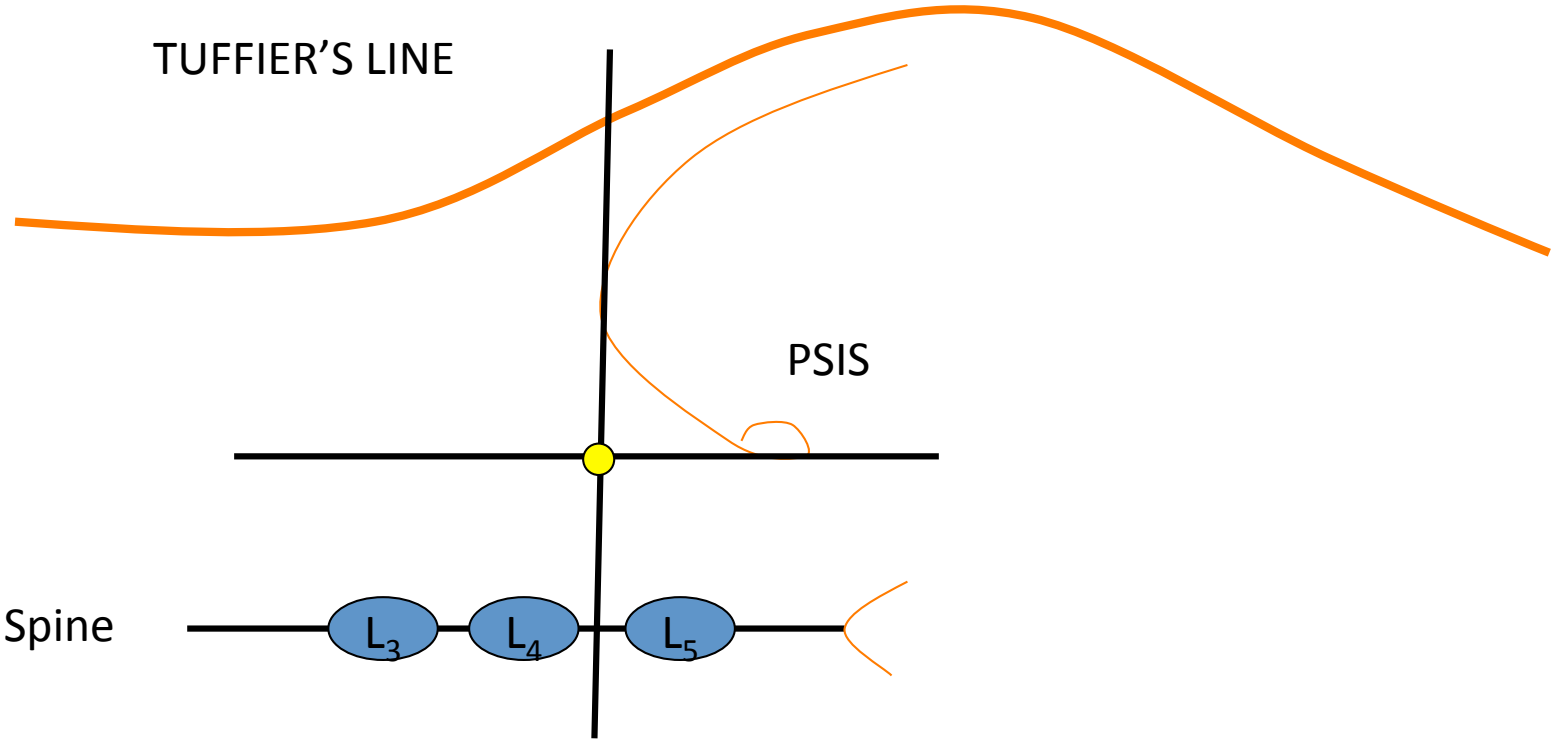
Lumbar Plexus



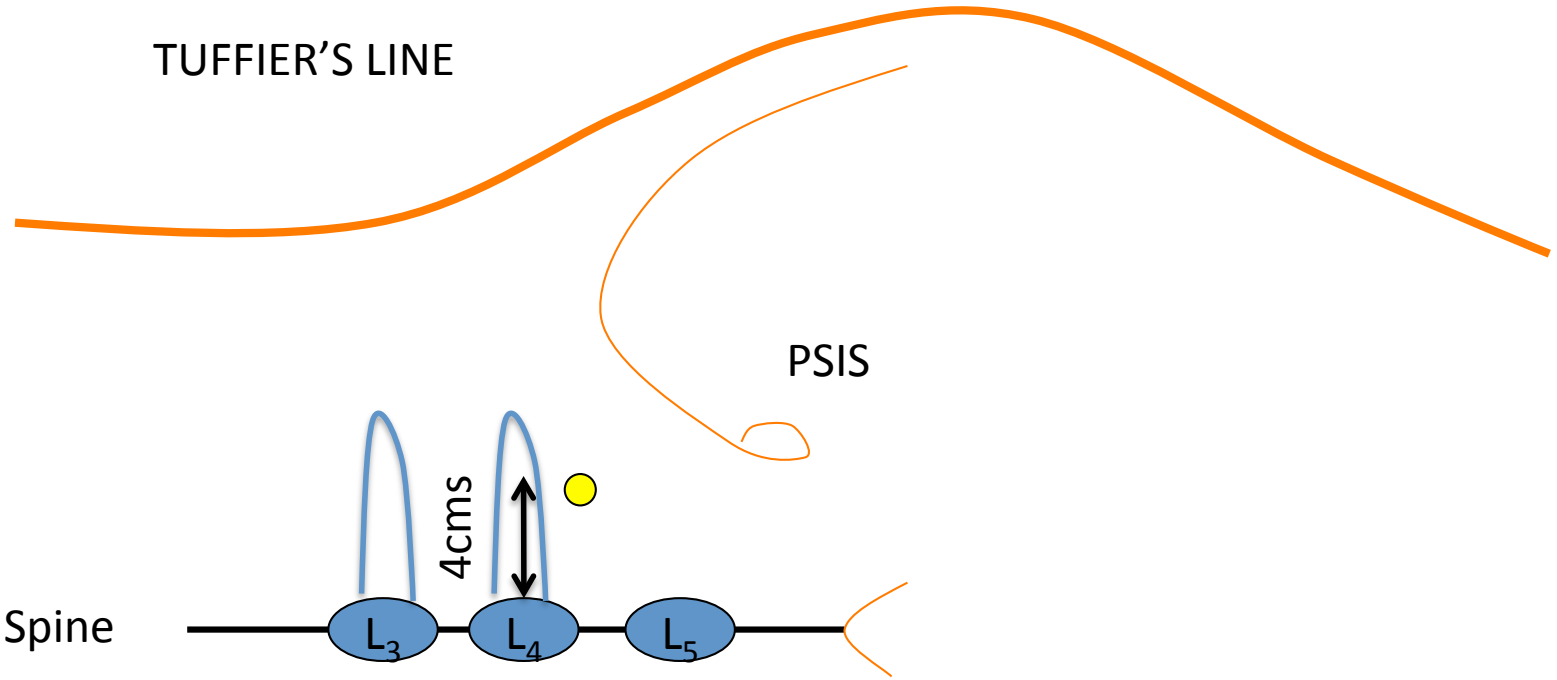
Winnie's approach



Winnie's approach



Chayen's approach



Winnie's and Chayen's approach

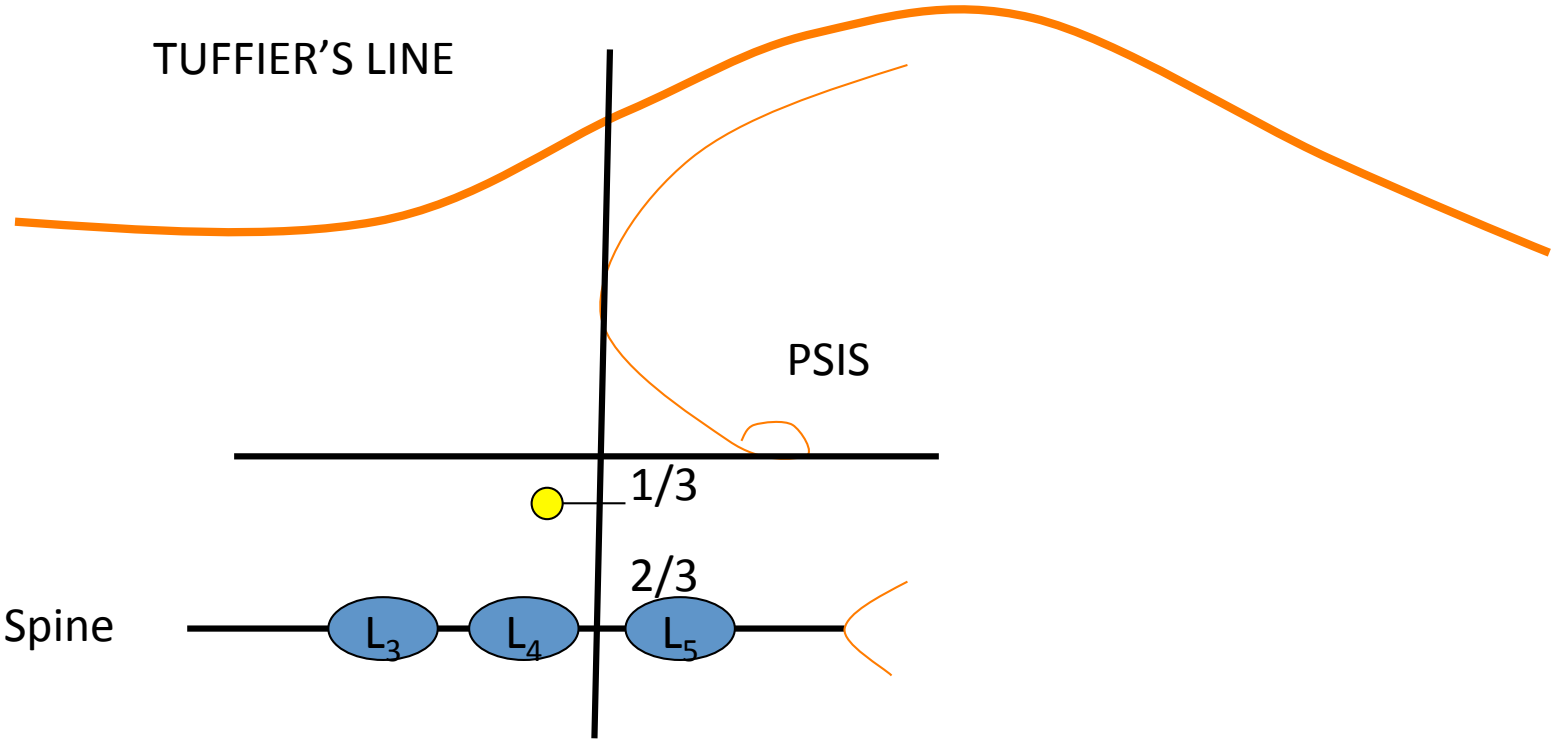
- Winnie's approach: Point of puncture overly lateral, > chances of missing the Lumbar Plexus, failure rates too high.

- Chayen's paravertebral approach: Overly medial, excessive number of peridural anaesthesia

Capdevila's approach
Anesth analg 2002;94:1606–13

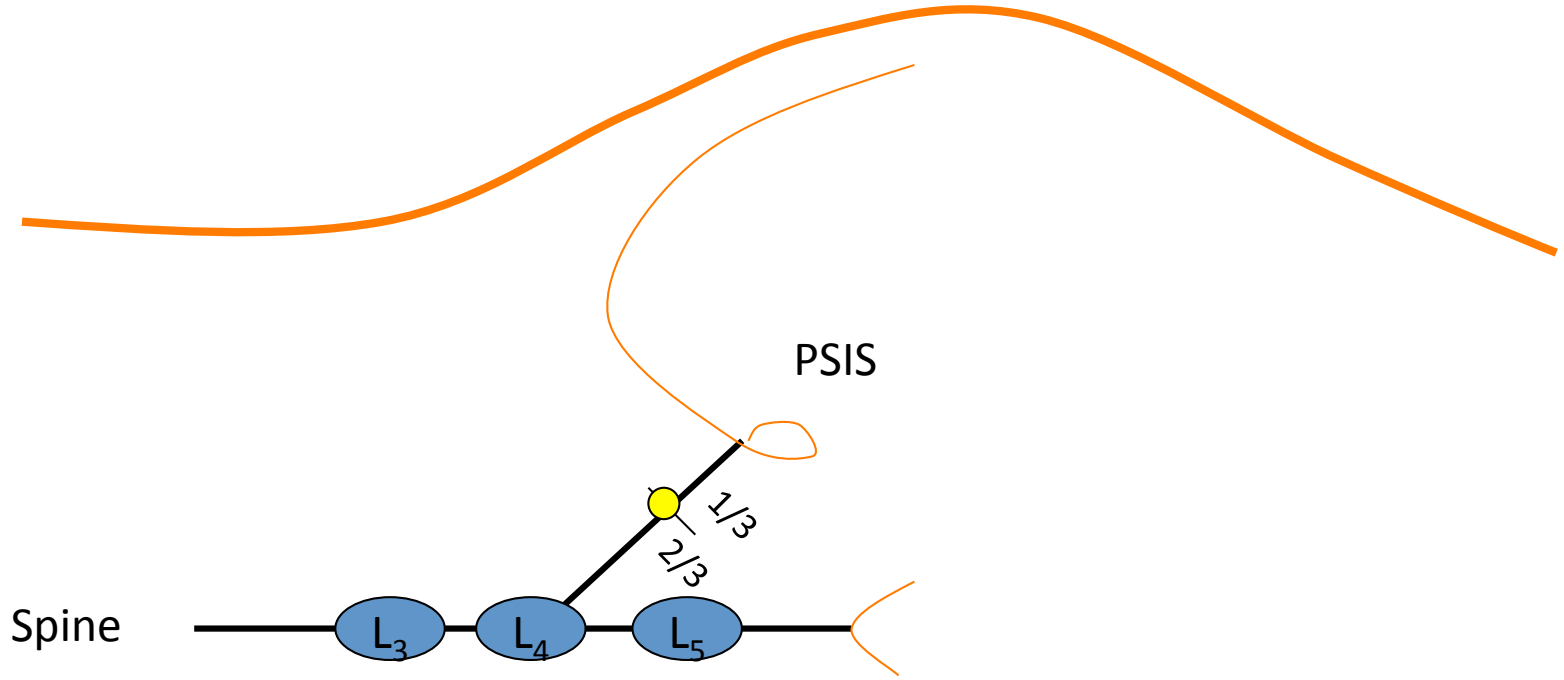
Continuous Psoas Compartment Block for Postoperative Analgesia After Total Hip Arthroplasty: New Landmarks, Technical Guidelines, and Clinical Evaluation Xavier Capdevila, MD, PhD, Philippe Macaire, MD, Christophe Dadure, MD,Olivier Choquet, MD, Philippe Biboulet, MD, Yves Ryckwaert, MD, and Franc¸oise d'Athis, MD

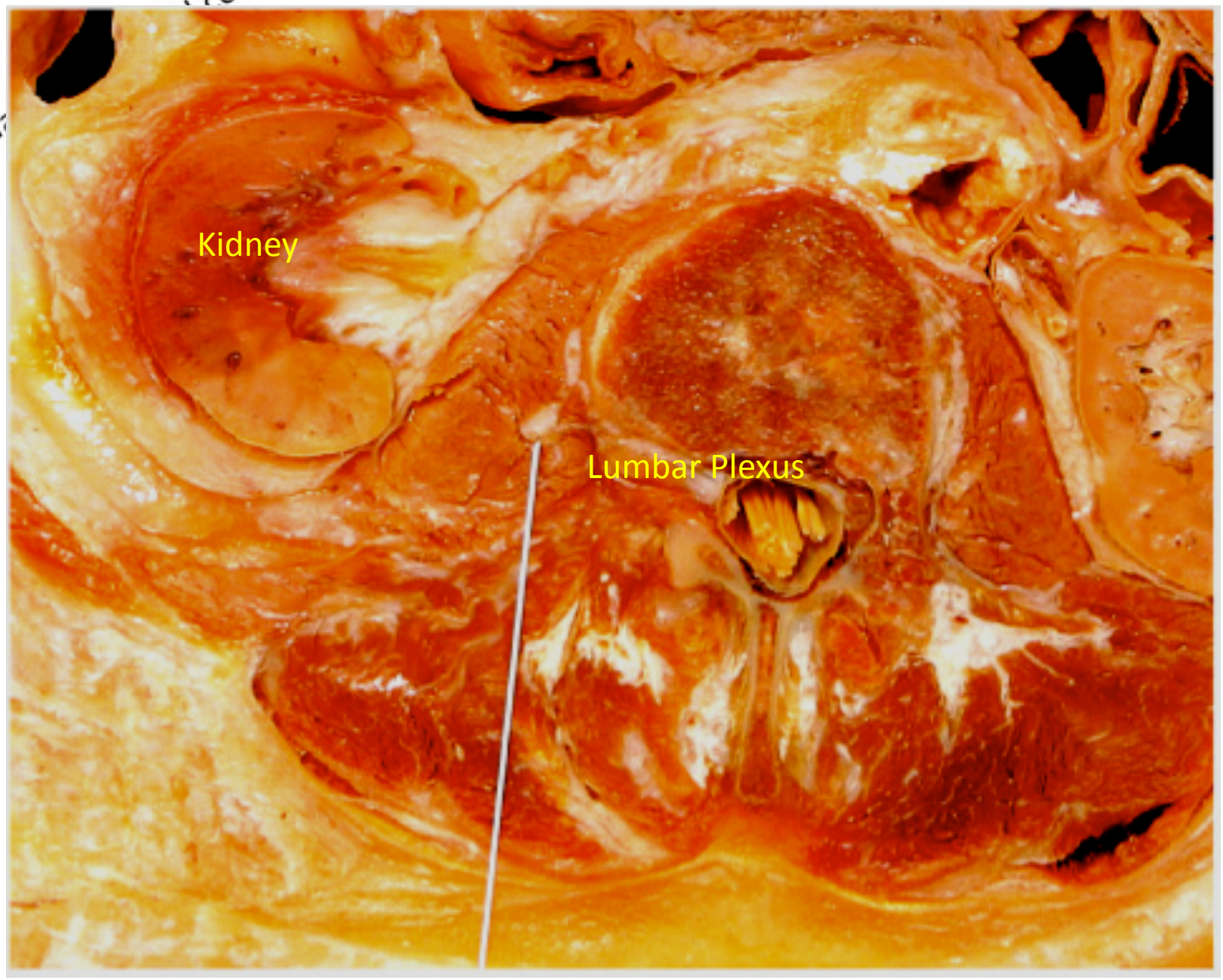
Capdevila's approach

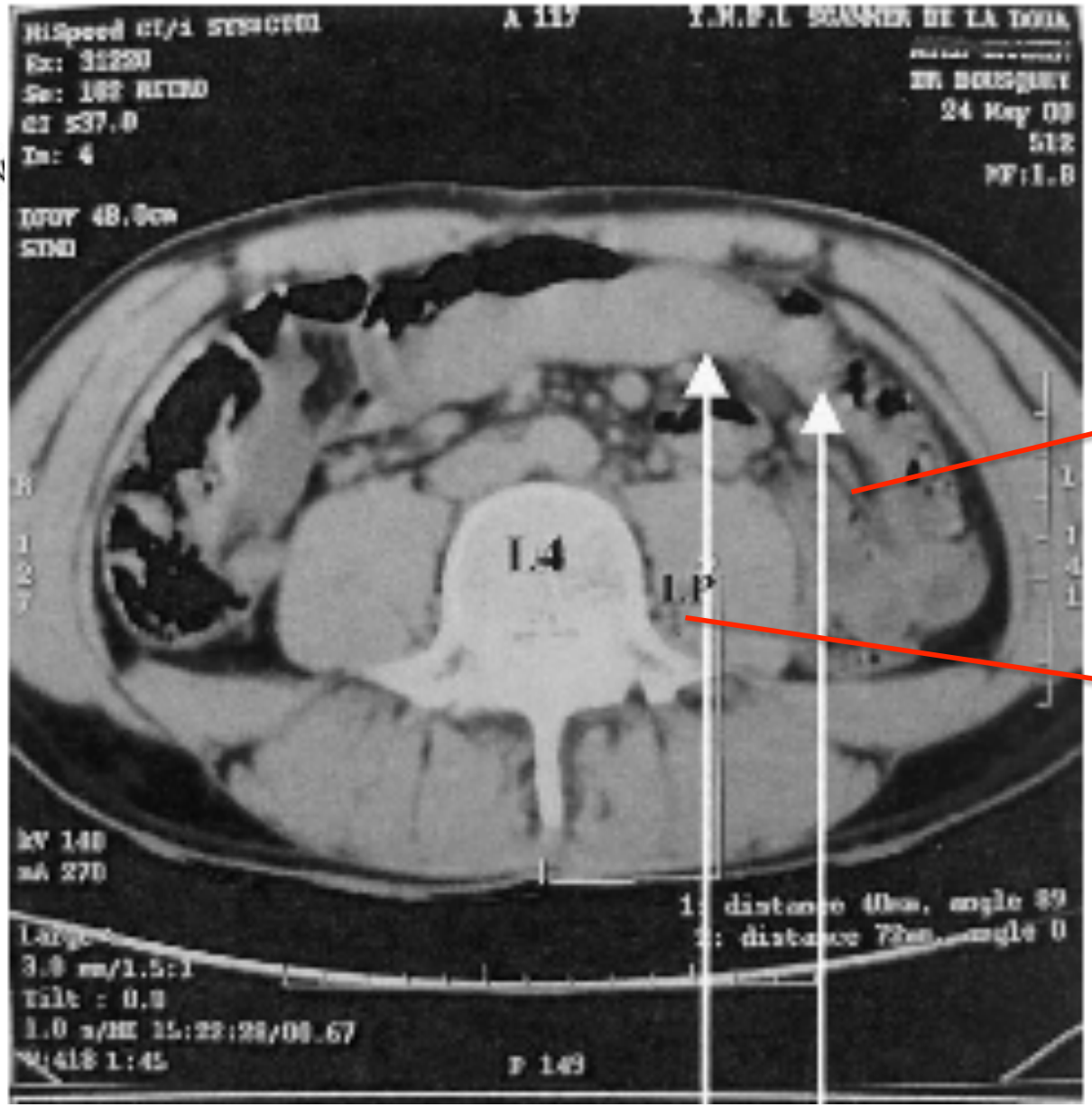


Hit the transverse process and walk off it by 18-20mm to stimulate roots of femoral nerve

Another approach

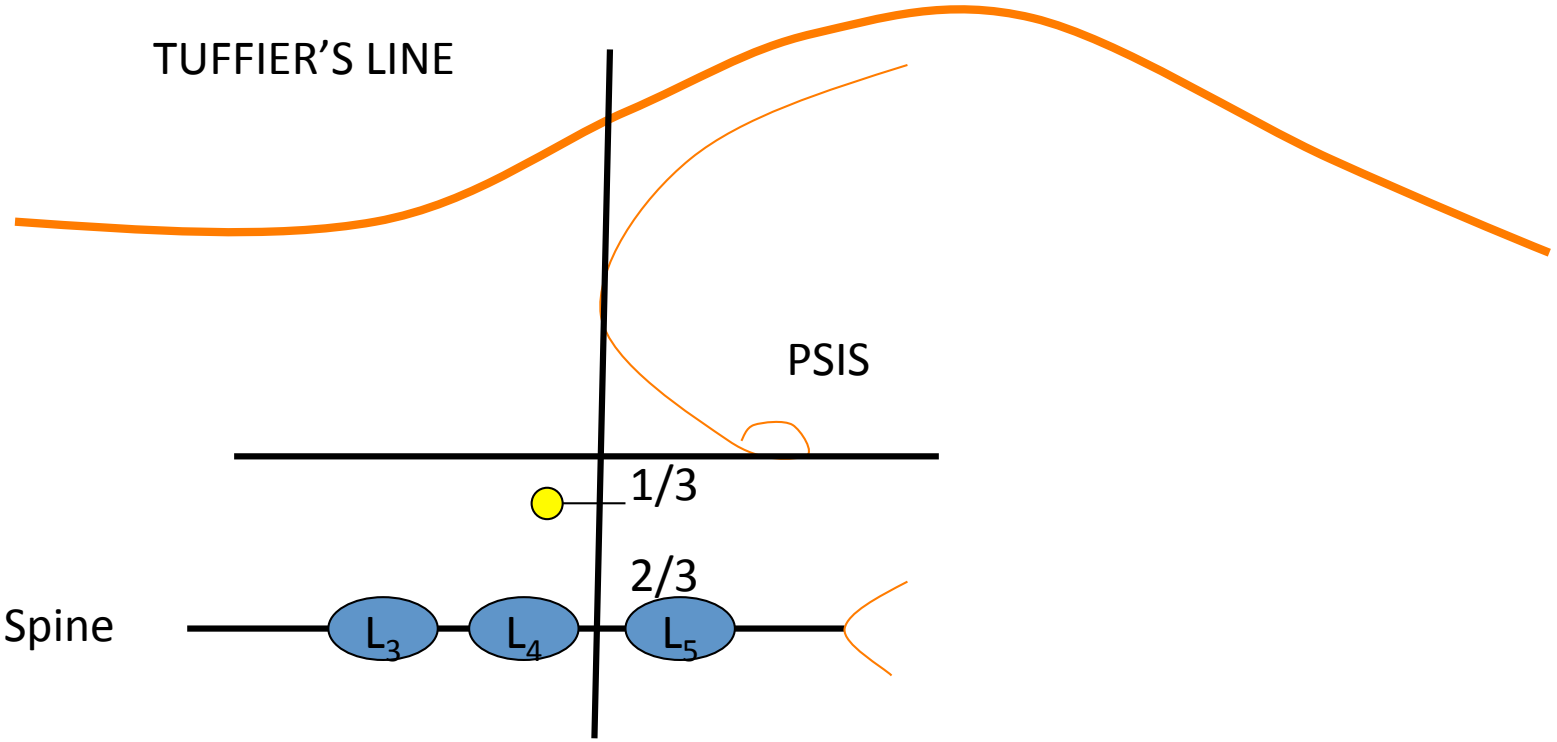





L4
L5
Winnie's approach, overly lateral
Lumbar Plexus

The Approach I use and teach!!!

Capdevila's approach



Hit the transverse process and walk off it by 18-20mm to stimulate roots of femoral nerve

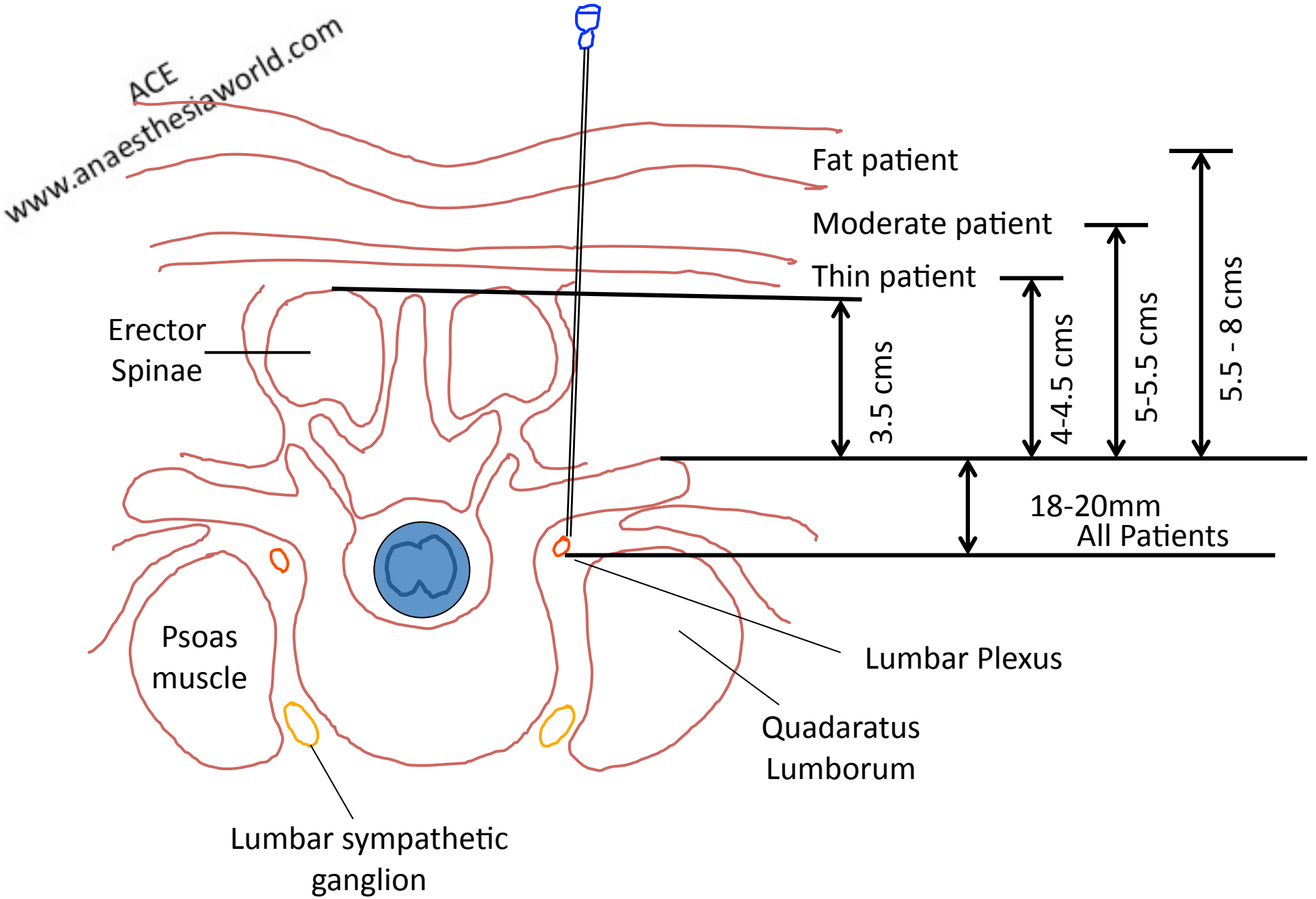
Lumbar Plexus Block

1. Patient on lateral side
2. Mark the spinous process and draw a line through them (Line 1)
3. Feel the PSIS and draw a line from it going cranially (Line 2), parallel to Line 1
4. Draw the Tuffier's line (Line 3) cutting the line 1 and 2
5. Mark the point of transection, medial 2/3 and lateral 1/3 (between Line 1 and 2)

Lumbar plexus block

- Use 100mm Stimuplex Needle and insert it absolutely perpendicular to the skin.

- Insert it till it touches the transverse process of L_4. The tip of needle should lie on the cranial or caudal edge of the transverse process (not the centre). Usually 5-7 cms in most normal size patients.


ACE
www.anaesthesiaworld.com
Fat patient
Moderate patient
Thin patient
Erector Spinae
3.5 cms
4-4.5 cms
5-5.5 cms
5.5 - 8 cms
18-20mm
All Patients
Psoas muscle
Lumbar Plexus
Quadaratus Lumborum
Lumbar sympathetic ganglion

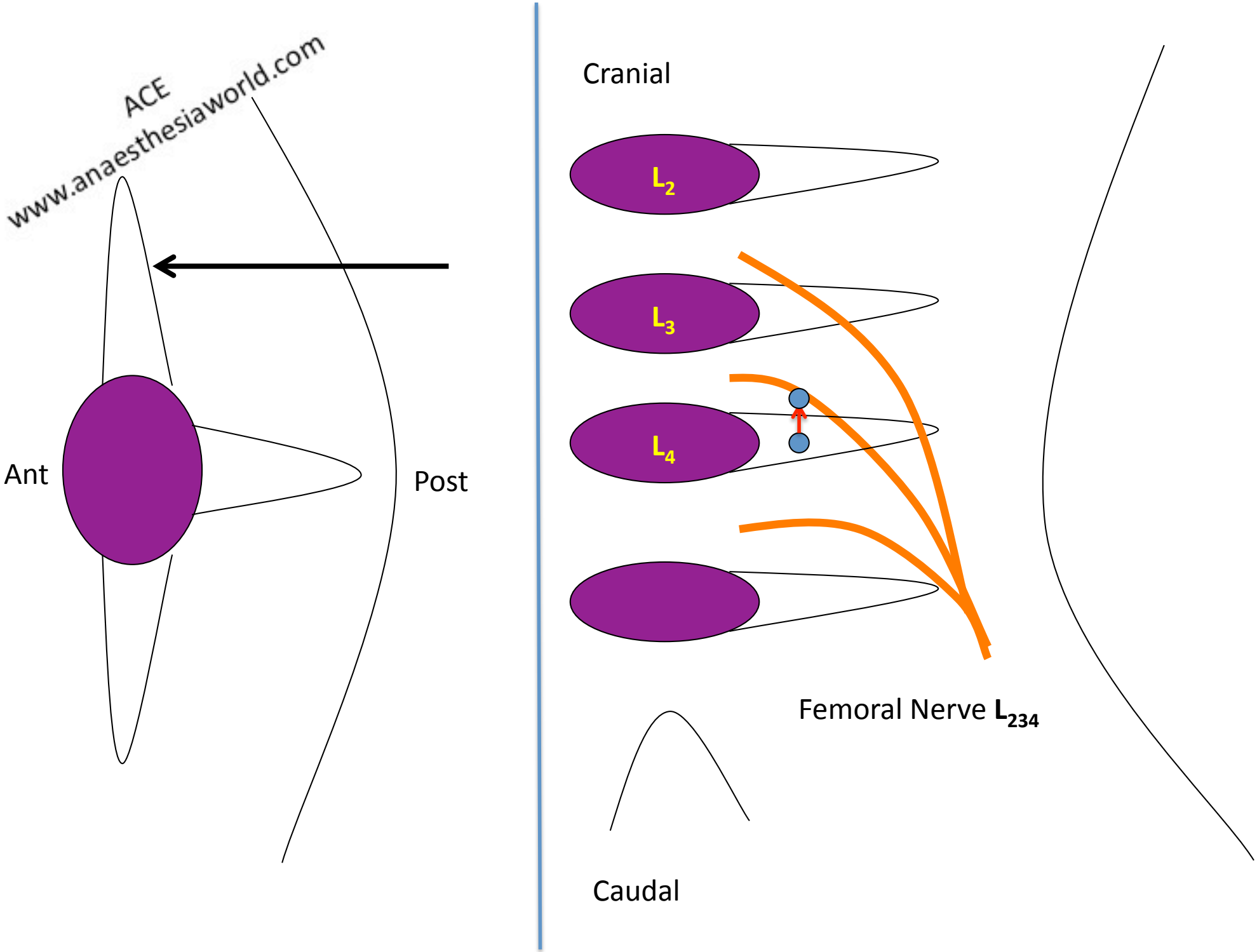
Lumbar plexus block

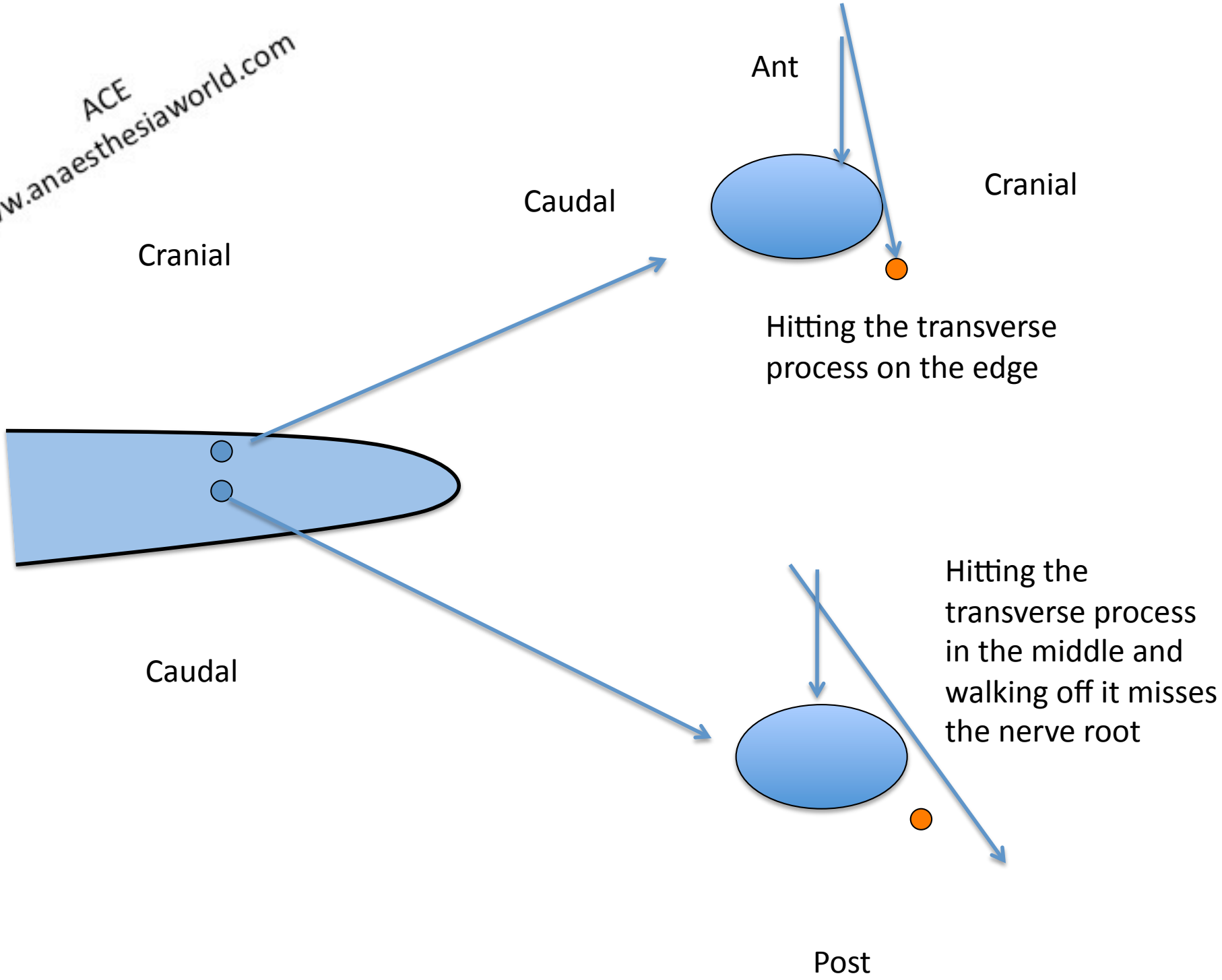
- Distance from skin to transverse process differs depending on size of the patient but from there to nerve roots, it is 18-20mm

- Walk off the transverse cranially or caudally (do not angle the needle too much, you should glide off at angle of 10-15^{o}) by approx 2.0cms, till you see twitching of quadriceps. Drop the current from 1.5mA to 0.5 mA

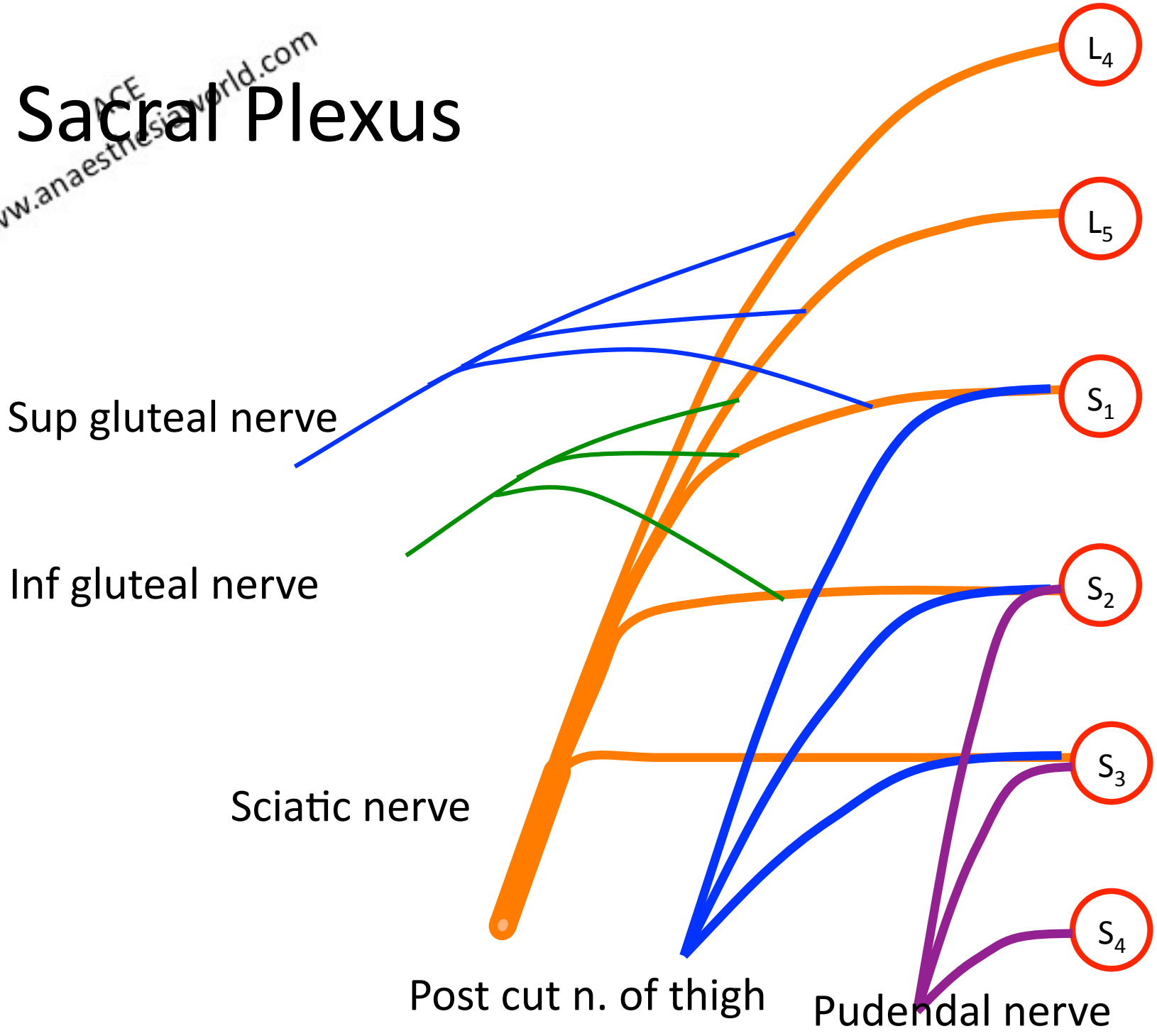
When do we fail to find the LPB

- Too lateral, revisit your landmarks
- Point of insertion not on the edge of the transverse process, walking off at a greater angle
- Wrong landmarks, some patient have very high iliac crest. Move the point caudally. Count your spine from caudal to cranial direction

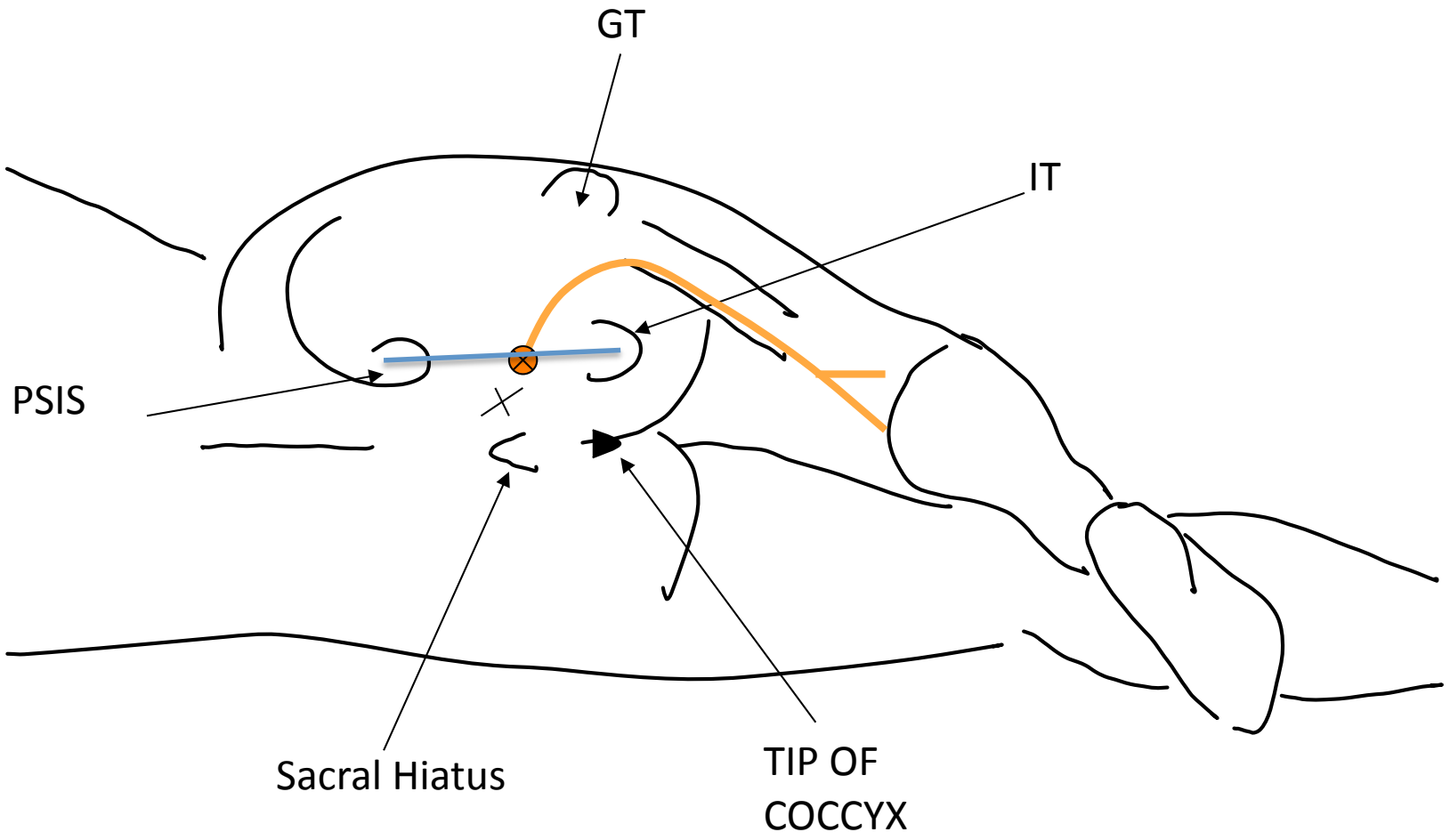

ACE
www.anaesthesiaworld.com
Ant
Post
Cranial
L2
L3
L4
Femoral Nerve L234
Caudal



Sacral Plexus



Mansour's approach



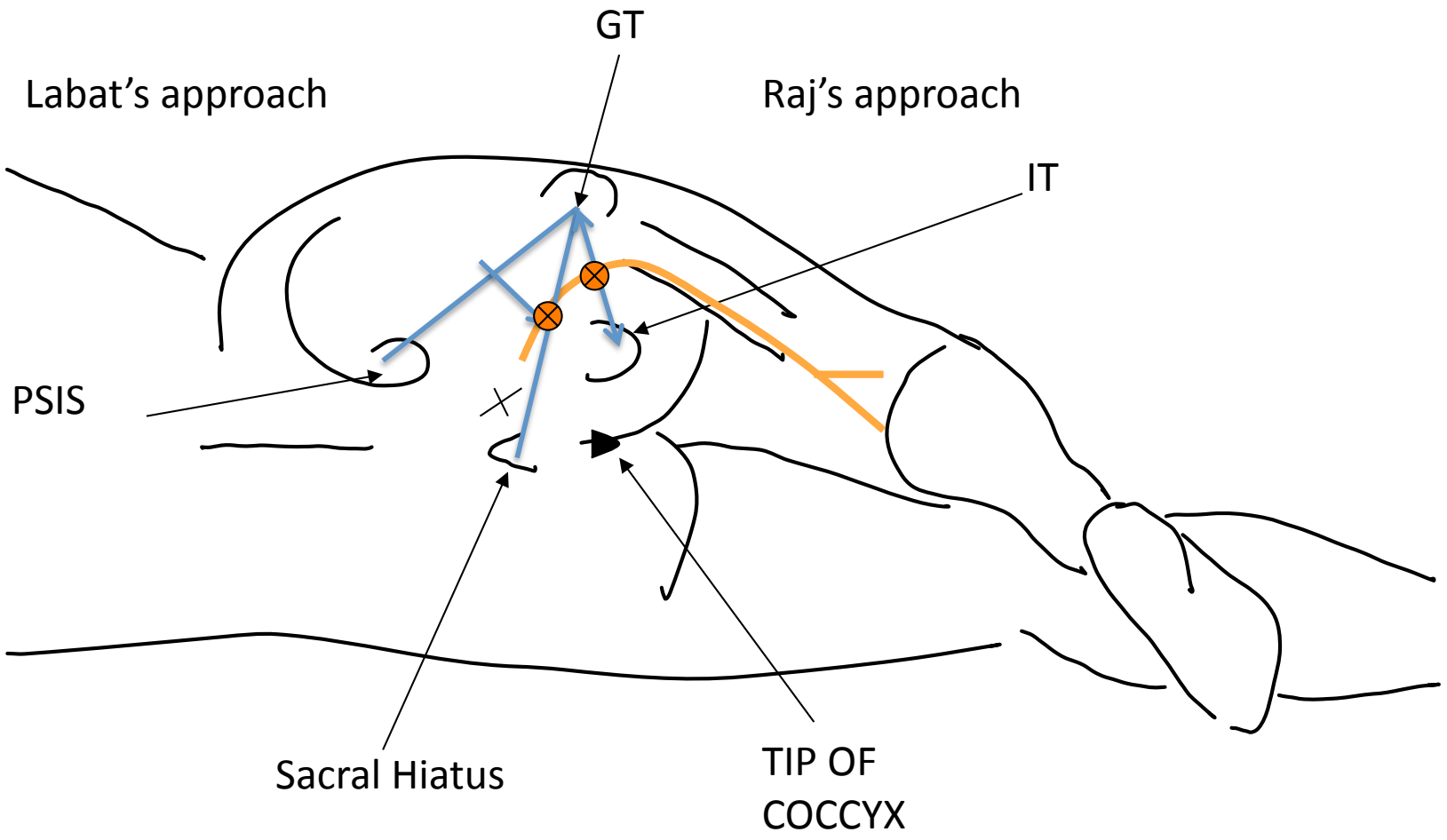
Mansour's parasacral approach

1. Patient in lateral position
2. Mark the PSIS and the Ischeal Tuberosity
3. Draw a line joining these points
4. Mark a point 6 cms from the PSIS caudally, this is the point of needle insertion
5. It is also sometimes useful to mark other landmarks for sciatic nerve.

Real Sacral Plexus Block

- The point is at the junction of cranial 1/3 and caudal 2/3rd Junction
- This has been tested on CT studies
- This is the point I use for my blocks

Approaches to the Sciatic nerve



Parasacral approach

- If the original point of insertion fails, point the needle towards the Raj's approach to sciatic nerve at around 45-60^{O} angle to the point of insertion.

- Completes the anaesthesia for the arthroplasties of the hip by blocking the sciatic nerve and the nerves to the gluteal muscles

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