

# BLOCK GURU - Trunk

## PARAVERTEBRAL



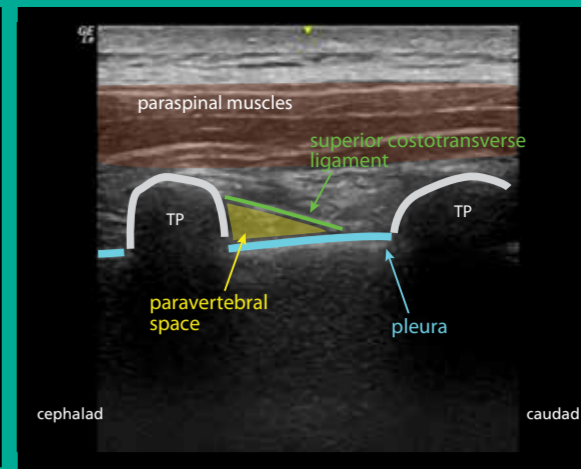
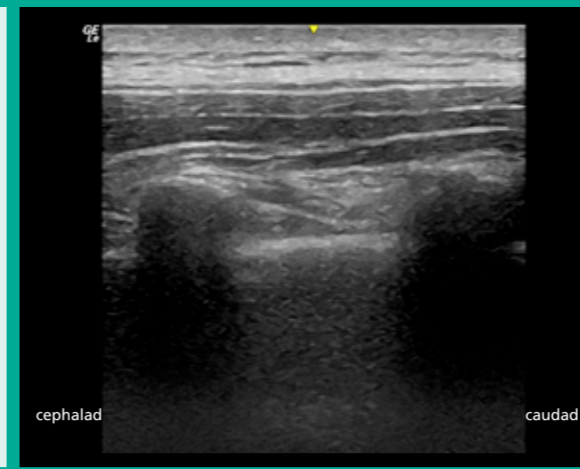
**Thoracic Paravertebral** – surgery involving the breast, ribs and chest wall

**Identify:** In a parasagittal plane identify the ribs at the level you wish to block, then trace medially until the bony shadow changes to the more superficial and squarer outline of the transverse processes. Tilt the probe laterally to demonstrate the pleura and superior costo-transverse ligament in the same image

**Target:** The small triangular paravertebral space lies between the superior costo-transverse ligament and the pleura

**Tips:** While maintaining the same probe orientation, angle the caudad end of the probe away from the midline to improve the needle access past the rib and transverse process below

**Avoid:** Keep the needle tip in view at all times to avoid pneumothorax, never advance the needle if you cannot see the tip



## PECS



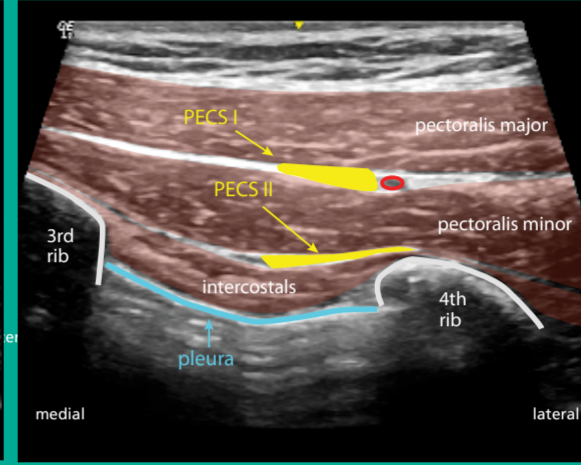
**PECS** – breast surgery

**Identify:** Starting in the infraclavicular brachial plexus position in the deltopectoral groove, count the ribs down from the clavicle to identify the 3rd and 4th ribs, then rotate the probe towards the axilla. There are 3 muscle layers: pectoralis major lies superficially, the pectoralis minor is beneath that and the intercostals are deepest, running between the ribs. Serratus anterior arises beneath the lateral border of pec minor

**Target:** The PECS I injection is between pec major and pec minor; the PECS II injection is between pec minor and the intercostal muscles

**Tips:** A single needle path in plane from the medial end of the probe allows both targets to be reached through one insertion point. This block relies on volume to spread the local anaesthetic, eg 10ml for PECS I, plus 20ml for PECS II

**Avoid:** Keep the 4th rib deep to the needle path to act as a safety measure against pneumothorax, ensure the safe dose of local anaesthetic is not exceeded especially when performing bilateral blocks. Avoid the artery that runs in the PECS I plane (a pectoral branch of the thoracoacromial artery)



## SERRATUS ANTERIOR



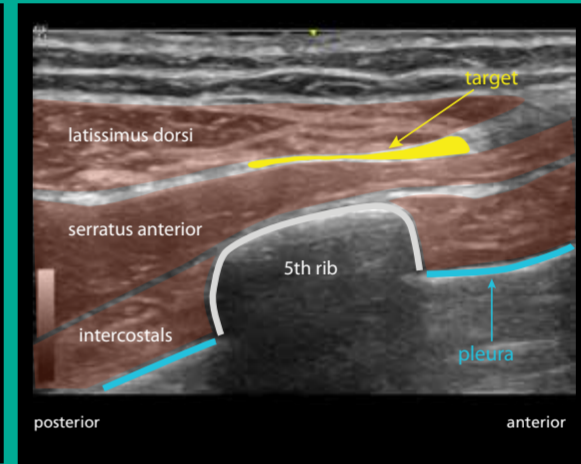
**Serratus anterior plane** – rib fractures, breast surgery

**Identify:** Starting with the probe in a transverse plane in the midaxillary line, scan posteriorly until the latissimus dorsi muscle appears. There is usually an artery in the vicinity (a branch of the thoracodorsal artery)

**Target:** The aim is to inject in the fascial plane between latissimus dorsi and serratus anterior

**Tips:** This approach is also very suitable for insertion of a nerve catheter. This block relies on adequate volume for spread eg 30ml of local anaesthetic

**Avoid:** Vascular puncture, intravascular injection, pneumothorax



## RECTUS SHEATH



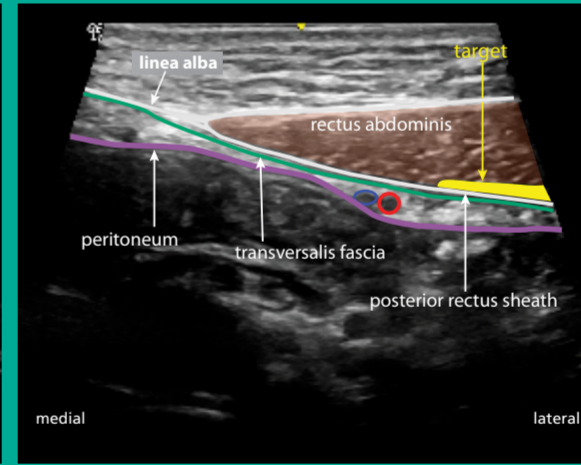
**Rectus Sheath** – midline incision, paraumbilical hernia repair

**Identify:** In the midline identify the linea alba with the rectus muscle lying on either side, the posterior wall of the sheath appears as a double hyperechoic layer because the transversalis fascia lies behind it

**Target:** In-plane from the lateral end of the probe. Aim for injection above the double layer, not between the layers, allowing local anaesthetic to spread freely along the rectus sheath

**Tips:** Look for the muscle being pushed up away from the posterior wall of the sheath; check for adequate cephalad/caudad spread. This block needs to be performed bilaterally in all cases. Alternatively, rotate the probe 90° to a parasagittal position and approach the same target in-plane from the caudad or cephalad end of the probe

**Avoid:** Penetrating the posterior rectus sheath; be aware of the total local anaesthetic dose. Be aware of superior and inferior epigastric vessels running in the sheath



## TAP



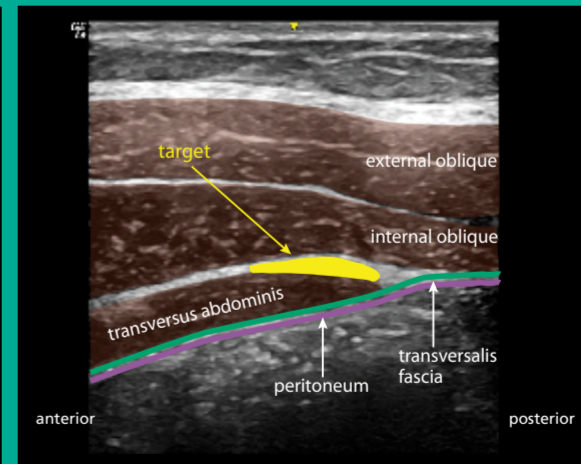
**Transversus Abdominis Plane** – abdominal surgery

**Identify:** The 3 muscle layers of the abdominal wall (external oblique, internal oblique, transversus abdominis) and trace them back posteriorly to the termination of transversus abdominis

**Target:** Beneath the fascial layer between the internal oblique and transversus abdominis muscles near the posterior limit of the transversus muscle

**Tips:** The posterior target site is generally the most effective and because of the tangential approach through the abdominal wall a 100mm needle is appropriate. The block can be performed unilaterally or bilaterally, depending on surgical site, and adequate volume is required for spread eg 20-30ml each side. The local anaesthetic should spread over the belly of transversus abdominis, i.e. it needs to be beneath the fascial layer. Visceral pain will not be blocked by a TAP block. For surgery above the umbilicus use the Subcostal TAP block technique or Rectus sheath block

**Avoid:** Intravascular injection - check for small vessels with doppler prior to injection; avoid intraperitoneal injection; be aware of total local anaesthetic dose



## ILIOINGUINAL



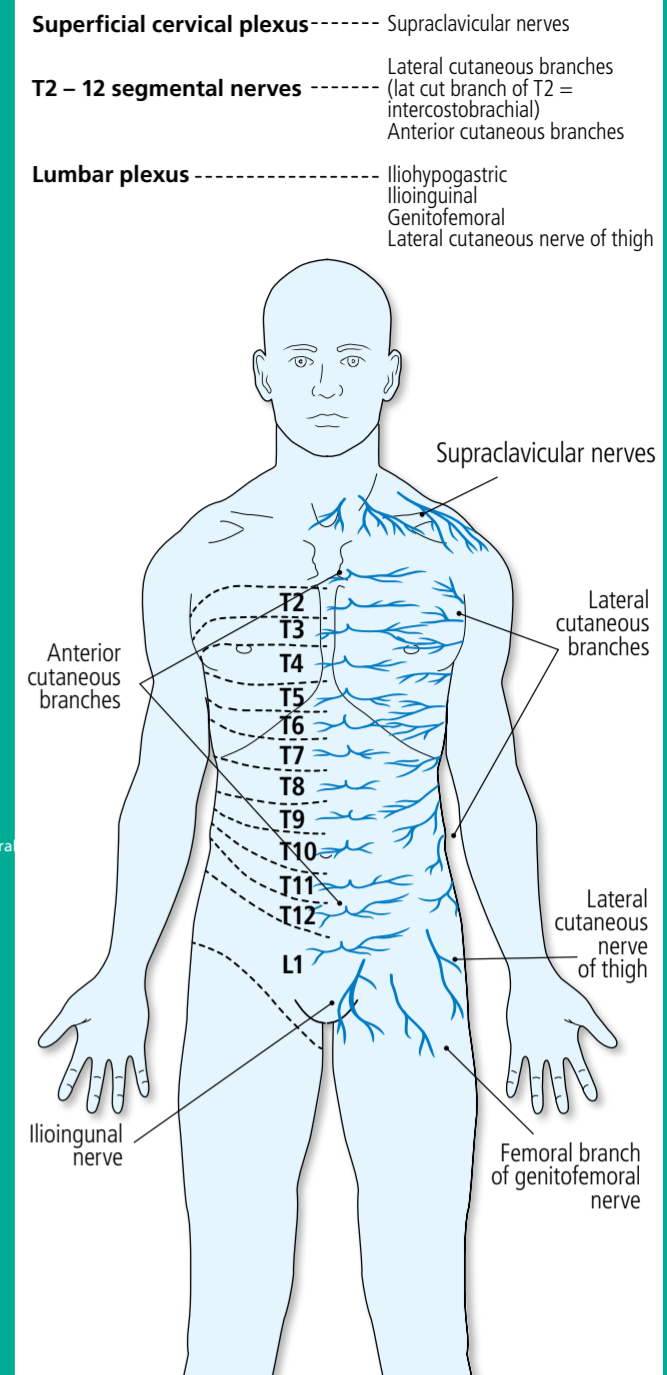
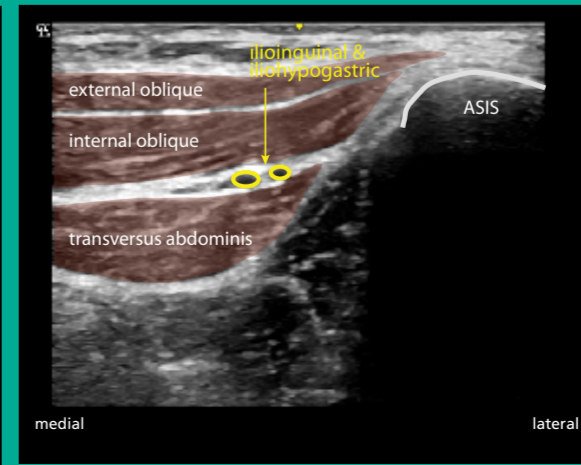
**Ilioinguinal / Iliohypogastric** – hernia and groin surgery

**Identify:** Position the probe at the anterior superior iliac spine (ASIS) angled towards the umbilicus. The 3 muscle layers of the abdominal wall should be visible, if not move the probe cephalad

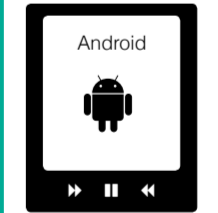
**Target:** The 2 nerves (branches of L1) are usually visible in the plane between internal oblique and transversus abdominis, close to the ASIS

**Tips:** Adjust the tilt of the probe to improve the ultrasound image, angling down into the pelvis

**Avoid:** Intraperitoneal injection



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