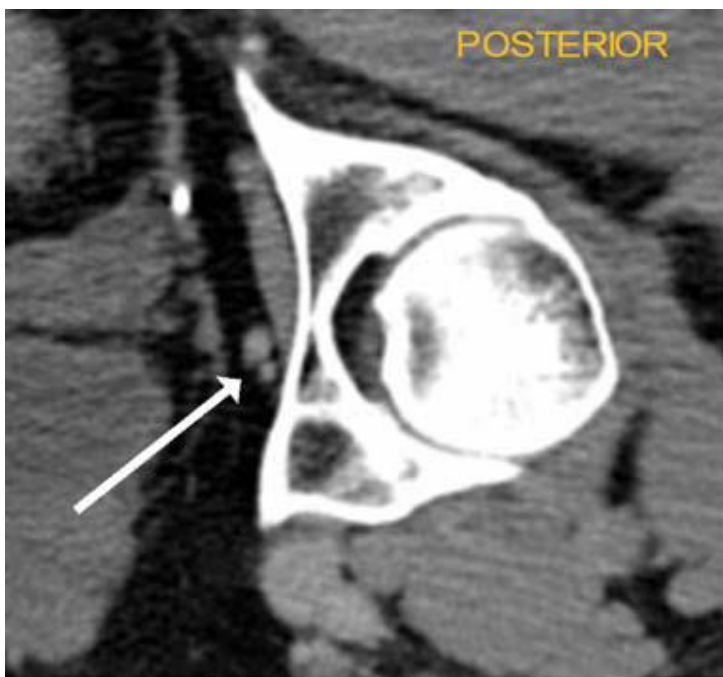


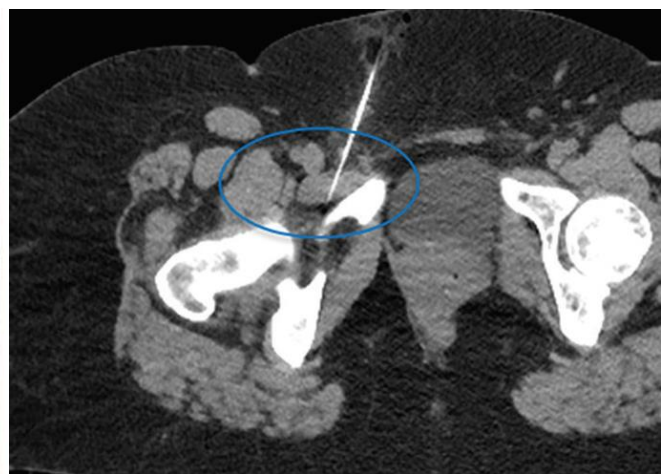
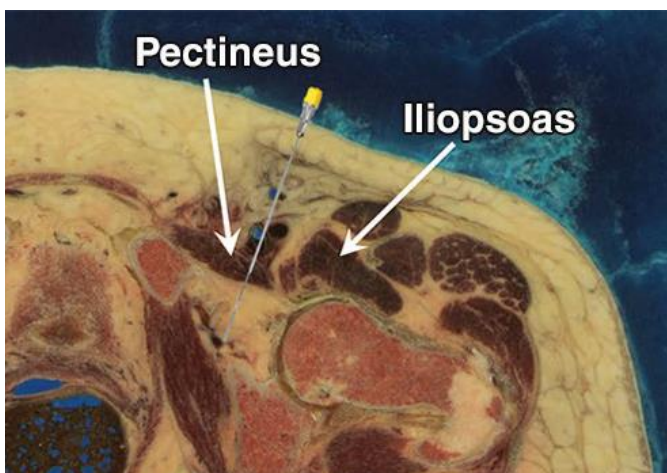
A review of a percutaneous procedure available for management of chronic hip pain

Procedural guidelines

- Use imaging guidance to identify a deep pelvic structure, the obturator nerve
- Local anaesthesia and sterile technique used
- Needle advanced to the obturator nerve as it courses over obturator internus via a posterior approach
- Diagnostic/therapeutic injections offered, either of anaesthetic or steroid
- IOP prefers posterior approach to avoid large pelvic/femoral vessels endangered from anterior technique



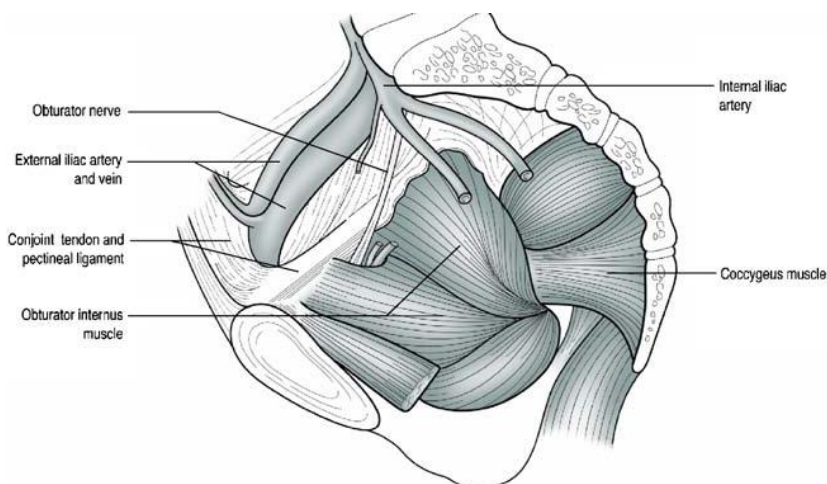
Axial CT (zoomed in) – The image on the left shows the obturator nerve as it courses over obturator internus, travelling with the obturator artery. The image on the right shows a posteriorly-introduced needle which was used for therapeutic injection.



Cut cadaveric specimen, and CT correlate, of anterior approach – The two images above show the potential hazards of a conventional anterior approach – specifically, damage to significant vascular structures, which has prompted the development of the posterior approach to obturator nerve access at IOP. Images taken from Wadhwa et al, *CT-guided perineural injections for chronic pelvic pain*, Radiographics, 2016, 36:1408-1425

Discussion of the obturator nerve block

- Revision of relevant anatomy
 - Obturator nerve is the nerve of the medial thigh (excepting pectineus)
 - Origin
 - L2,3,4 anterior divisions of anterior rami
 - From medial border of psoas (lumbar plexus)
 - Course
 - Arises medial to psoas
 - Runs posterior to common iliac vessels
 - Passes through obturator canal, enters thigh
 - Termination
 - Divided into anterior and posterior portions by adductor brevis
- Indications – can be both diagnostic or therapeutic procedure
 - Diagnostic
 - Hip pain aetiology complex and multiple
 - If obturator nerve blockade brings transient hip joint pain relief, diagnostic procedure
 - Nerves innervating hip include obturator nerve, femoral nerve, sciatic nerve, nerve to quadratus femoris, superior gluteal nerve involved (Hilton's law)
 - However, dominant nerve considerations – obturator and femoral nerves innervate anterior hip capsule, sciatic nerves innervate posterior capsule
 - Considerations in athletes - direct obturator neuropathy secondary to fascial entrapment/repetitive microtrauma
 - Therapeutic
 - Local anaesthetic/steroid use of benefit for patients with chronic hip pain
 - Hip innervation complex and multiple: obturator nerve, femoral nerve, sciatic nerve, nerve to quadratus femoris and superior gluteal nerve (Hilton's law).
 - IOP experience has been some patients with treatment-resistant chronic hip pain receive good therapeutic benefit from imaging-guided injection
- Complications:
 - Infection / haematoma, as per any percutaneous intervention
 - Posterior approach avoids great vessels (femoral artery/vein), as well as removes procedural complications such as groin shaving, gantry angulation, out-of-plane needle placement etc.



Diagrammatic representation on the **left** shows the course of the obturator nerve through the pelvis. Image on the **right** shows another patient receiving a therapeutic intervention. Note that the posterior approach has removed the risk of vascular injury, and medial large viscera such as the bladder and rectum are avoided relatively easily.

Further Reading:

House CV, Ali KE, Bradshaw C, Connell DA, *CT-guided obturator nerve block via the posterior approach*, *Skeletal Radiol*, 2006, 35: 227-232
Wadhwa et al, *CT-guided perineural injections for chronic pelvic pain*, *Radiographics*, 2016, 36:1408-1425
Locher et al, *Obturator nerve block: a technique based on anatomical findings and MRI analysis*, *Pain Medicine*, 2008, Vol 9(8), 1012-1015
Yoshida et al, *Ultrasound-guided obturator nerve block: a focused review on anatomy and updated techniques*, *Biomed Res Int*, 2017, doi: [10.1155/2017/7023750](https://doi.org/10.1155/2017/7023750)