

Subsartorial (Adductor Canal Block)

Dr Sanjay Desai

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Indications

The subsartorial block is a largely motor sparing block, anaesthetising the femoral nerve after most of the motor branches to quadriceps have already exited, providing anaesthesia and analgesia intraoperatively and postoperatively for:

Surgery to the anterior part of the knee e.g. Knee arthroscopy, Patellar surgery, ACL, MCL Reconstruction, Superficial surgery to the medial side of the leg.

In conjunction with a popliteal block for all surgery below the site of insertion on the lower limb.

Anatomy

The femoral nerve passes through the femoral canal to lie beneath the sartorius muscle, entering an aponeurotic intermuscular tunnel in the middle third of the medial side of the thigh called the Subsartorial canal, Adductor canal or Hunter's canal.

The Adductor canal is bounded anterolaterally by vastus medialis, anteromedially by sartorius and posteriorly by adductor magnus.

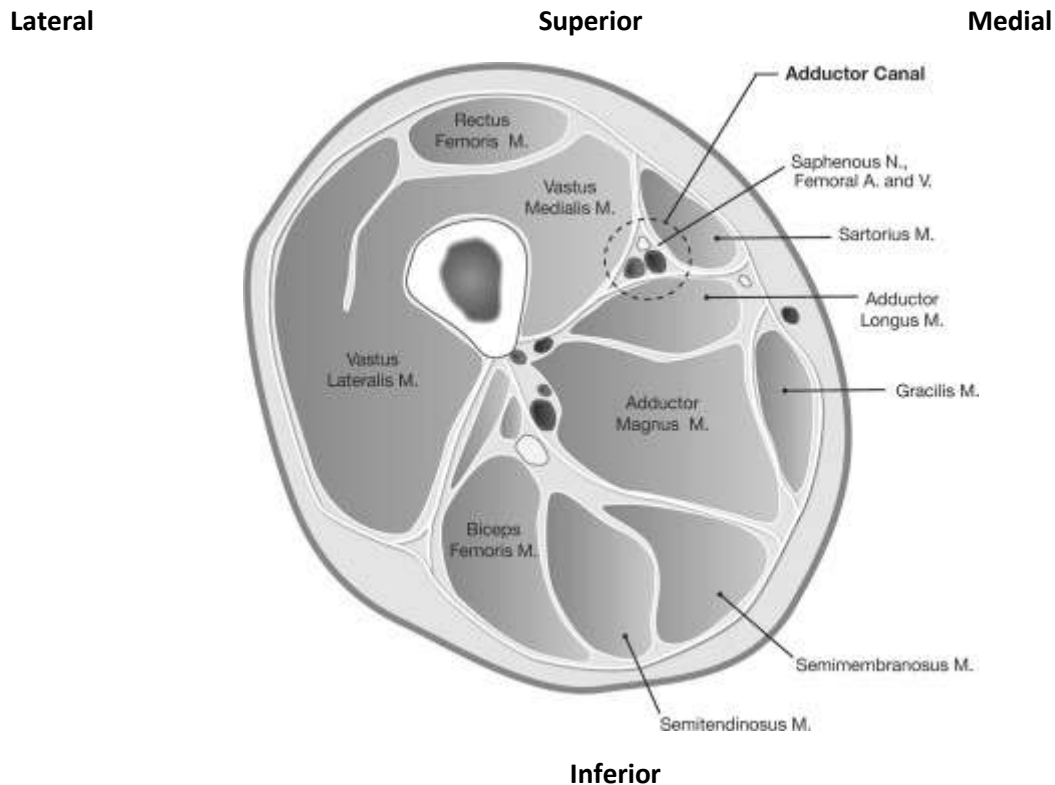
The Adductor canal contains the femoral artery, femoral vein, saphenous nerve, nerve to vastus medialis and the posterior branch of the obturator nerve (see Image 1).

Approximately two thirds down the thigh, the femoral vessels pass through the adductor hiatus. They change course to become deeper, indicating the end of the canal and the point at which the nerves that supply quadriceps have exited.

Some of the sensory articular nerve branches may have exited proximally to the Adductor canal therefore, an Adductor canal block may provide inferior anaesthesia for knee surgery compared to a classical femoral nerve block.

The Adductor canal block is considered a purely sensory block, with the motor branches to the quadriceps exiting more proximally, however proximal spread of large volumes of local anaesthetic may cause some motor blockade of vastus medialis and difficulty in ambulation.

Image 1



Technique

Position the patient supine with the knee slightly flexed and externally rotated.

Position the ultrasound machine so that the operator, insertion site and ultrasound machine lie in series, improving ergonomics and chance of success.

Use a high frequency linear probe (>10MHz).

Place the probe axially at the level of the central mid-thigh, visualising the femur.

Slide the probe medially until the femoral artery becomes visible with the “boat shaped” sartorius muscle above.

Adjust the depth so that the femoral artery and Adductor canal lie in the centre of the screen.

Scan down the femoral artery to the point at which the artery dives posteriorly (the adductor hiatus), ultimately becoming the popliteal artery. The optimal position for insertion is immediately proximal to the adductor hiatus.

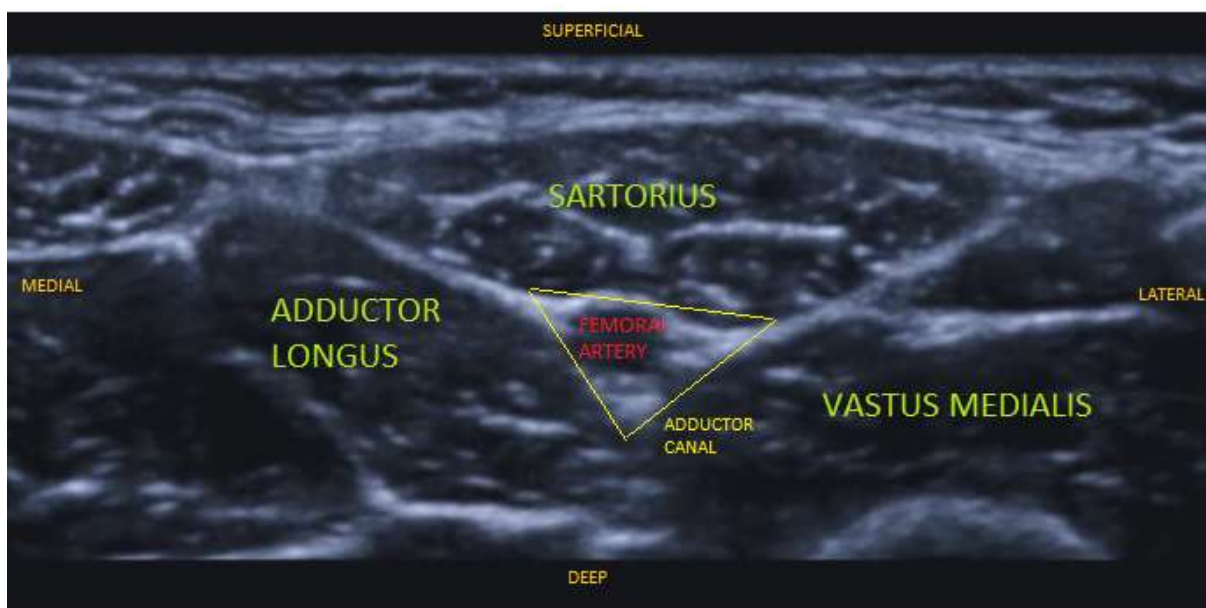
The nerves may be seen anterolateral to the artery, but may not be easily visualised (see Image 2).

Insert the needle from lateral to medial using an in-plane technique. This can be achieved via a steep angle traversing sartorius, or more horizontally, by piercing vastus medialis and travelling perpendicular to the ultrasound beam.

Once the needle enters the Adductor canal, the needle tip should lie immediately lateral or superficial to the femoral artery.

Perform an aspiration test then inject a test dose of local anaesthetic, ensuring spread around the nerve. If the nerve is not visible position the needle tip superficial to the artery and ensure the local anaesthetic spreads around the artery. If no local anaesthetic can be seen, consider intravascular injection and stop injecting immediately. Once the correct position has been confirmed, inject the total volume of local anaesthetic, aspirating frequently to rule out intravascular injection.

Image 2



[Link to Adductor Canal Video](#)

Volume of LA

There is no accepted consensus on local anaesthetic volume however 0.2ml/kg of 0.25% or 0.5% Chirocaine, is likely to ensure good spread around the artery without significant proximal spread and motor block.

Specific Complications

Motor block of anterior thigh

Arterial puncture, bleeding, bruising

Intra vascular injection/ Local Anaesthetic Toxicity

Block failure

Infection

Nerve Injury

References

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