

Patient position and method

Patient in a lateral position with legs flexed, the back kyphotic and the leg to be blocked uppermost.

Guiding structures:

L4 vertebral spinous process.

A mark is made 3 cm caudal from the L4 vertebral spinous process in the interspinal line. From this point at a right angle to the interspinal line draw a line at a right angle to the midline and mark its lateral end after 5 cm. Check by palpating the posterior iliac spine, which should be in the immediate vicinity. After local infiltration, insert a 10 – 12 cm 22 G needle in the marked point in a sagittal direction. After bony contact (transverse process of the L5), withdraw the needle a few cm and redirect it more cranially. Advance it until stimulation contractions of the quadriceps muscle appear at 0.3 mA/0.1 ms at a depth of 7 – 11 cm, indicating that the tip of the needle is in the immediate vicinity of the femoral nerve. Inject a test dose of the local anaesthetic to preclude an intraspinal needle position.

Comments on the technique:

- The most effective method of lumbar plexus blockade
- Injecting at the L3 level does not improve the quality of anaesthesia, but carries a risk of causing a subcapsular haematoma of the kidney
- Injection into the peritoneal cavity may appear with an injection depth of > 12 cm
- Complete block of the sacral plexus (sciatic n.) is not possible, even with higher volumes of local anaesthetic

Indications:

- In combination with proximal sciatic nerve block, all types of leg surgery (including endoprosthesis)
- Wound treatment in the ventral and lateral thigh regions, skin grafts in the upper thigh
- Physiotherapy
- Pain therapy (e. g. postop. after hip or knee surgery)

Side effects/complications: Spinal anaesthesia, epidural-like block due to spread to the epidural space, hematoma

Local anaesthetics:

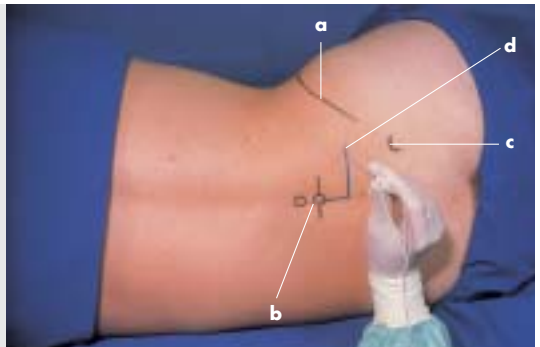
Initial: 40 – 50 ml lidocaine 1% or mepivacaine 1% or 30 ml ropivacaine 0.75%

Continuous: 6 ml (5 – 15 ml) ropivacaine 0.2 – 0.375%, max. 37.5 mg/h or bolus (alternatively): 20 ml ropivacaine 0.2 – 0.375% (approx. every 6 hours)

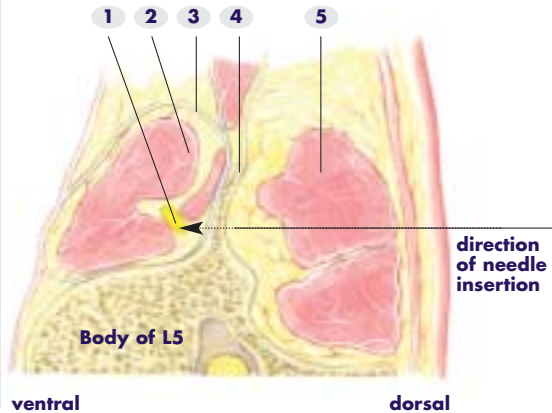
Special contraindications:

Anticoagulation therapy, same recommendations as for patients with neuroaxial block

- a** iliac crest
- b** L4 vertebral spinous process
- c** sup. post. iliac spine
- d** needle insertion site:
3 cm caudal and 5 cm lateral of the L4 vertebral spinous process



- 1** lumbar plexus
- 2** psoas major m.
- 3** iliac fascia
- 4** transverse process (costal process)
- 5** erector spinae m.



Needles:

E. g. 22 G, 12 cm needle

Continuous: E. g. Plexolong B® 19.5 G, 12 cm (Pajunk co.), UP 18 G/22 G, 11 cm (B. Braun)

Continuous: The catheter is advanced 5 cm beyond the tip of the cannula, preferably in a caudal direction

Femoral nerve block in the inguinal region

("3-in-1" technique acc. to Winnie, continuous technique acc. to Rosenblatt)

Patient position and method:

Patient supine with the leg abducted and externally rotated.

Guiding structures:

The inguinal fold, femoral artery with vein medial, nerve lateral. The insertion site is 2 cm below the inguinal fold, 1.5 cm lateral of the artery. The stimulation cannula is advanced at a 30° angle in a cranial direction until occurrence of a double-click, indicating passage through the fascia lata femoris and the fascia iliaca. A motor stimulus response in the quadriceps muscle with a "dancing" kneecap at 0.3 mA/0.1 ms indicates that the needle tip is in the immediate vicinity of the femoral nerve.

Comments on the technique:

Direct stimulus response in the sartorius muscle may mimic a quadriceps response but leads to "anaesthesia failure" so make sure that the patella dances! Avoid intraneural needle insertion (nerve stimulation).

Indications:

- When used in combination with a proximal sciatic block, most types of leg surgery
- Wound treatment, skin grafts in the ventral thigh, mobilisation, physiotherapy
- Pain therapy (fractures of the shaft of the femur, postop. after knee joint surgery, e. g. synovectomy, anterior cruciate ligament reconstruction; pain alleviation in fractures of the neck of the femur)

Special contraindications:

None

Relative contraindications:

After e. g. fem. popliteal bypass (useful devices: Doppler, sono), lymphomas in the groin

Local anaesthetics:

Initial:

30 – 40 ml lidocaine 1% or mepivacaine 1% or ropivacaine 0.75%

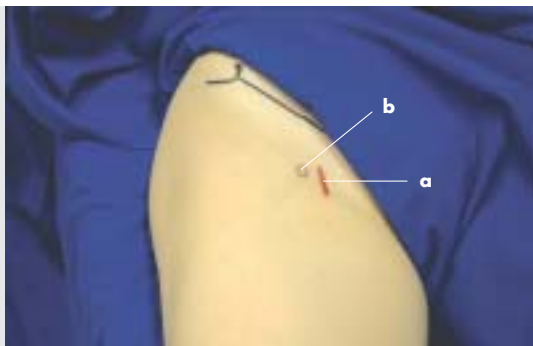
Continuous:

6 ml (5 – 15 ml) ropivacaine 0.2 – 0.375%, max. 37.5 mg/ml or bolus (alternatively): 20 ml ropivacaine 0.2 – 0.375% (approx. every 6 hours)

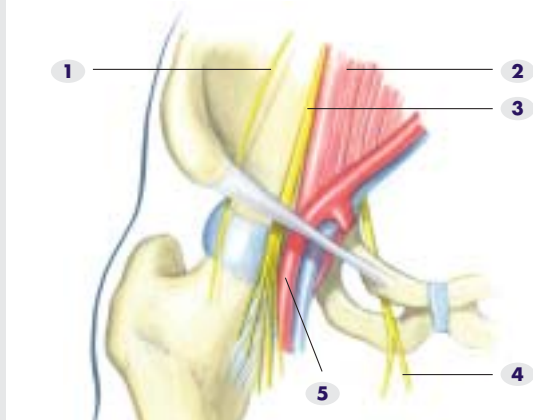
Needle: E. g. a combination needle Plastic cannula set, 18 G, 5 cm (Pajunk co.) or 5.5 cm Contiplex D® (B. Braun)

Continuous: The catheter is advanced 5 cm beyond the end of the cannula

- a** femoral artery
- b** needle insertion site



- 1** lateral femoral cutaneous n.
- 2** psoas major m.
- 3** femoral n.
- 4** obturator n.
- 5** femoral a.



Direction of needle:
 cranially at
 30° angle,
 lateral to and
 parallel with
 the femoral artery.



Obturator nerve block

The anterior branch (superficial n.) innervates the anterior adductors, the hip joint and, to a varying extent, a section of skin on the inner surface of the thigh.

The posterior branch (profound n.) innervates the deep adductors and (variably) medial portions of the knee joint.

Patient position and method:

Patient supine with the leg abducted.

Guiding structures:

Palpate the tendon of the long adductor m.

Insert the stimulation needle immediately ventral of the tendon's proximal attachment point. Advance the unipolar needle cranially at an angle of approx. 45° to the body's longitudinal axis (toward the sup. ant. iliac spine) and in a slightly dorsal direction. After approx. 4 – 8 cm at 0.3 mA/0.1 ms, contractions of the adductors indicate the proximity of the obturator nerve.

A catheter technique can be used for continuous block. The catheter is advanced approx. 3 – 4 cm beyond the tip of the needle in a cranial direction.

Indications:

- TUR of tumors of the ipsilateral wall of the bladder
- Supplementary to incomplete lumbar plexus (3-in-1) block
- Diagnosis and therapy of pain syndromes in the region of the hip joint
- Adductor spasm

Special contraindications:

None

Local anaesthetics:

10 – 15 ml lidocaine 1% or mepivacaine 1% or ropivacaine 0.75%

Needle: 20 G, 10 cm short bevel, insulated unipolar needle

- a** femoral artery
- b** tendon of the long adductor m.



- 1** obturator n., anterior (superficial) branch
- 2** obturator n., posterior (deep) branch
- 3** adductor longus m.
- 4** adductor brevis m.
- 5** adductor magnus m.
- 6** gracilis m.
- 7** needle insertion site



Needle insertion:
ventral of the
tendon attachment
in a cranial-dorsal
direction (the
obturator nerve is
at 4 – 8 cm depth).

