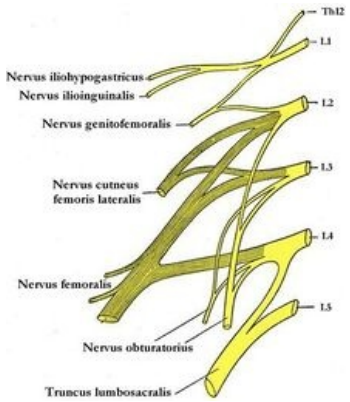
Lumbar plexus

The lumbar plexus is formed by the connection of the strong anterior branches of the spinal nerves L1–L3, to which a weak link from Th12 and a strong link from L4 are added. It is stored in the m. psoas major near the spine. Out of the knit are:

- **rr. musculares** - muscle branches for m. psoas major et minor, m. quadratus lumborum and for mm. intertransversii.
- Other departing branches first go along the inner side of the abdominal muscle wall (covered by the peritoneum and transverse fascia), then pass through the abdominal muscle wall and continue into the skin of the inguinal region and the thigh under the inguinal ligament.
- Lower nerves from the plexus − n. femoralis and n. obturatorius − first descend the pelvis along the back wall and then along the psoas major muscle reach the front wall of the pelvis and rise to the thigh.



Plexus lumbalis

Iliohypogastric Nerve (TH12 and L1)

It emerges from the outer edge of the psoas major m. It also runs laterocaudally behind the kidney along the quadratus lumborum m. In the middle axillary line, it emerges between m. transversus abdominis and m. obliquus internus abdominis.

Innervation area

1. **motorically** − m. obliquus internus abdominis and m. transversus abdominis,
2. **sensitive** - the skin in the threshold along the ligamentum inguinale, in the region of the hip joint and the skin in the regio pubica and in the lower part of the abdominal wall.

Branches

- **r. cutaneus lateralis'** - external cutaneous branch innervating the skin in the region of the hip joint and along the ligamentum inguinale
- **r. cutaneus anterior'** - branch for the skin above the inguinal ligament and in the pubic region

Ilioinguinal nerve (L1)

After exiting from the psoas major muscle, it goes along the inner surface of the abdominal wall - *together with the iliohypogastricus behind the kidney* - further along the wall it passes to the front side into the inguinal canal, through which it passes . It emerges from it in the *anulus inguinalis superficialis* and sends sensitive branches to the skin of the inner part of the inguinal landscape and to the skin of the external genitalia.

Innervation area

1. **motorically** − m. obliquus internus abdominis, m. transversus abdominis and m. cremaster,
2. **sensitively** - skin in the region of the inguinal canal, in men the skin of the front of the scrotum and root of the penis, in women the skin on the mons pubis and on the front parts of the labia majora.

Branches

- **rr. scrotales / labiales anteriores'** - for the skin of the external genitalia,
- **rr. musculares'** - for m. transversus and m. obliquus internus abdominis and for m. cremaster.

Genitofemoral nerve (L1 and L2)

After separating from the lumbar plexus, it passes forward through the psoas major muscle and descends along its surface to the inguinal ligament. It divides at different levels on the surface of the psoas, or it can emerge already divided. Sends **r. genitalis'** and **r. femoralis'**.

The n. genitofemoralis trunk may be absent, and its branches then arise from neighboring nerves. R. genitalis can emerge from the plexus independently, and r. femoralis is then a branch from the n. cutaneus femoris lateralis or from the nervus femoralis.

Innervation area

1. motory − m. cremaster,
2. sensitively − part of the skin on the front surface of the thigh, the skin of the scrotum in men or the skin of the

labia majora in women.

Branches

- **r. genitalis'** - descends into the inguinal canal and along the way follows the *funiculus spermaticus* in men or the *ligamentum teres uteri* in women. It motorically innervates the cremaster m. After exiting the *anulus inguinalis superficialis*, it sensitively innervates the surrounding skin.
- **r. femoralis** - passes under the inguinal ligament - usually in the *lacuna vasorum* - to the front of the thigh. Through the *hiatus saphenus* the branches enter the subcutaneous tissue and sensitively innervate the skin of the front surface of the thigh.

Nervus cutaneous femoris lateralis (L2 and L3)

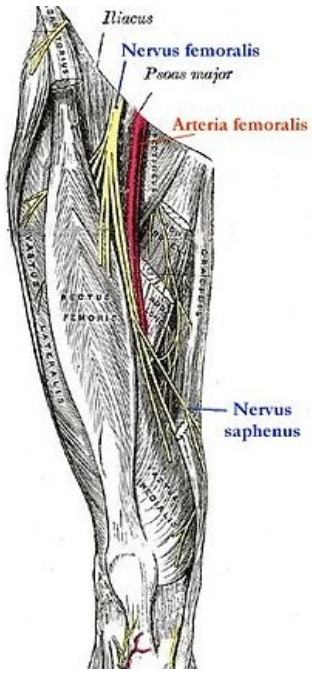
It emerges from the side of the psoas major muscle at the level of the crista iliaca - diagonally crosses m. iliacus under its fascia - towards the spina iliaca anterior superior. It runs under the ligamentum inguinale and passes to the thigh under the *fascia lata femoris*.

Innervation area

- **Sensitively** innervates the skin on the anterior surface of the thigh up to the area of the knee joint.

Femoral nerve (L1/L2–L4)

Nervus femoralis is formed by fibers from the roots of L2−4. It passes through the isthmus at the lacuna musculorum. Vulnerable places of this nerve are during its pelvic course on the lateral side of the psoat (pelvic tumors, laparoscopy), in the lacuna musculorum and in the fossa iliopectinea. It motorically innervates the iliopsoas, sartorius and quadriceps femoris muscles, providing sensitive innervation on the inner side of the thigh and the inner side of the lower leg. Allows for hip flexion and knee extension.



Nervus femoralis

Image of polio

1. high nerve damage
   - palsy m. iliopsoas (flexion disorder in the hip) and m. quadriceps femoris (extension disorder in the knee) − cannot step, cannot climb stairs
   - quadriceps atrophy
2. low nerve damage
   - extension damage in the knee − the knee breaks (especially when walking down stairs), walking is unstable

- sensitivity disorders in the innervation area (inner thigh and lower leg)

Causes

1. **pelvic trauma** - fractures, dislocations
2. **consequence of surgery** - hip joint surgery, extirpation of inguinal nodes, etc.
3. **iatrogenic** - wrong application of i.m. injections, hematomas after angiography
4. **pressure in the area of inguinal canal** - tumors, enlarged nodes, aneurysm *a. femoralis*

Links

Related Articles

- Inguinal canal
- Peripheral nerve involvement syndromes

Link

- PASTOR, Jan. *Langenbeck's medical web page* [online]. [cit. 2009]. <https://langenbeck.webs.com/>.
- AMBLER, Zdeněk – BEDNAŘÍK, Josef. *Klinická neurologie : část speciální. II.* 1. edition. Praha : Triton, 2010. ISBN 978-80-7387-389-9.

Obturator nerve (L2–L4)

Nervus obturatorius

Links

Related Articles

- Femoral nerve
- Obturator nerve

References

- ČIHÁK, Radomír. *Anatomie III.* 3. edition. Grada, 1997. 672 pp. ISBN 80-7169-140-2.