Intraneural ganglion cyst

An intraneural ganglion cyst (INGC) is a non-neoplastic mucinous cyst within the epineurium of a nerve and commences from an adjoining joint. These cysts are filled with a mucinous material which is walled off by a fibrous layer. An intraneural ganglion cyst is an uncommon occurrence of the peripheral nerves.

Types

The most common type is the peroneal intraneural ganglion cyst. Other reported sites of involvement are the radial, ulnar, median, sciatic, tibial, and posterior interosseus nerves. The first case of intraneural ganglion cyst of the tibial nerve was described in 1967.

Etiology

According to the most widely accepted theory (articular/synovial theory), the cysts are formed from a capsular defect of an adjacent joint, so that synovial fluid spreads along the epineurium of a nerve branch.

Clinical features

As these cysts expand within the epineurium, they displace and compress the adjacent nerve fascicles leading to pain, paresthesia, tingling and muscle paralysis in the distribution of the involved nerve.

Diagnosis

MRI is the method of choice for diagnosing intraneural ganglion cysts. However, ultrasound is also important.

Differential diagnosis

The differential considerations for cystic intraneural lesions include cystic nerve sheath tumors, atypical Baker's cyst, and extraneural ganglion. Cystic nerve sheath tumors such as schwannomas and extraneural ganglion can be differentiated from cystic intraneural lesions by MRI. A Baker's cyst classically is more mass-like, with a
characteristic location extending from the tibiofemoral joint to within the confines of the medial head of the gastrocnemius and the muscles of the joint capsule. 

**Treatment**

Surgery is the only curative treatment with treatment success being dependent on ligature of the nerve endings supplying the articular branch.

**Case series**

Fricke et al. from Kiel, examined between 2011 and 2018 the patients using lower limb MRI. MRI scans were also performed for the follow-up examinations.

The patients had many symptoms. They were able to accurately detect the intraneural ganglion cysts on MRI and provide the treating surgeons with the basis for the operation to be performed.

The success of surgical therapy depends on the resection of the nerve endings supplying the joint as the only way to treat the origin of the disease and prevent recurrence. Based on their case studies, they support the commonly favored articular/synovial theory.

**References**

