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Single-center Experience of Intraneural Ganglion Cyst: a Clinical Review

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Purpose
Intraneural ganglion cysts are occurred within sheaths of peripheral nerves. Recently, the treatment and mechanism of development of intraneural ganglion cysts have been clarified. In the present study, we assessed the clinical, electrophysiological, imaging findings, treatment and prognosis of eight patients with intraneural ganglion cyst.

Method
We retrospectively investigated eight patients with intraneural ganglion cysts who visited to the outpatient clinic of Samsung Medical Center from 2007 to 2018. The diagnosis of intraneural ganglion cyst was confirmed by MRI.

Results
The localization of intraneural ganglion cysts is as follows: one for ulnar nerve, one for superior gluteal nerve, three for peroneal nerve and three for sciatic nerve. The average age of patients is 48 (±13.5) years old. Neuropathic or arthralgic pain was the first symptom in all patients. Motor weakness occurred in 86% of patients, and motor weakness developed on average 33 days (±66.1) after the onset of pain. Electrophysiologic study was performed in six patients. Decreased motor action unit potential (MUAP) recruitment in the involved muscles was the most common finding, and was found in all patients. Denervation potential in involved muscles appeared at 80% of patients, and abnormal findings of compound muscle action potential (CMAP) or sensory nerve action potential (SMAP) appeared at 83% of patients. Deep peroneal nerve involvement was more severe than superficial peroneal nerve involvement in the cases of intraneural ganglion cysts in peroneal nerve. In addition, peroneal division involvement was more severe than tibial division involvement in the cases of intraneural ganglion cysts in sciatic nerve. MRI findings of intraneural ganglion cysts were including multilobulated and elongated cysts though the involved nerve, articular branch which is small nerve branch connecting ganglion cyst and joint cavity and edematous change of denervated muscles. For treatment, one patient underwent ganglion cyst excision and nerve transposition, other patient underwent ganglion cyst decompression, two patients underwent arthroscopic synovectomy and ganglion cyst decompression, and four patients did not undergo any surgery or procedure. In the cases of ganglion cyst excision and observation, there was no improvement in symptoms. In addition, ganglion cyst recurred in the case of cyst decompression, and ultrasound guided cyst aspiration was performed several times after surgery. On the other hand, pain and neuropathic symptoms including motor weakness and hypesthesia were improved when arthroscopic synovectomy was performed.

Conclusion

In Conclusion, intraneural ganglion cysts could expand along the nerve and develop the neuropathic symptoms. MRI is the most useful diagnostic tool to find the articular branch. Dissection of articular branch and disarticulation are important to prevent recurrence