CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 40 (2017) 10–12

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Compression neuropathy of the common peroneal nerve caused by an intraosseous ganglion cyst of fibula

Adnan Kara[a], Sercan Yalçın[a,*], Haluk Çelik[b], Ersin Kuyucu[a], Ali Şeker[a]

[a] İstanbul Medipol University, Dept. of Orthopaedics and Traumatology, İstanbul, Turkey
[b] Zonguldak Atatürk State Hospital, Dept. of Orthopaedics and Traumatology, Zonguldak, Turkey

ARTICLE INFO

Article history:
Received 3 June 2017
Received in revised form 26 August 2017
Accepted 27 August 2017

Keywords:
Case report
Ganglion cyst of fibula
Common peroneal nerve neuropathy
Compression neuropathy

ABSTRACT

We present a case of a compression neuropathy of the common peroneal nerve caused by an intraosseous Ganglion cyst of fibula.

1. Introduction

Ganglion cysts are cystic lesions surrounded by soft tissues. They originate from tendon sheath or joint capsule [1]; and are mostly found on hand, wrist and ankle. They are commonly seen in patients between 30 and 50 years of age. A few authors reported Neuropathy related to ganglion cysts in current literature. However; we could find only one case report on intraosseous ganglion cyst causing symptoms in the literature [2]. Sultan et. al first reported a case of compression neuropathy related to a synovial cyst in 1921 [3] (C, 1921). Bassett et al. described the characteristics of ganglia on MRI; on T1 weighted images the signal intensity is low to intermediate and on T2 weighted images they appear homogenous and with high signal intensity [4]. Synovial cysts consist of two layers. The outer layer consists of fibrous coat and inner layer is synovial lining and contains a clear, lucent, gelatinous fluid [5]. This case report has been reported in line with the SCARE criteria [6].

2. Presentation of case

A 61-year old female presented with pain and numbness in the left lower limb. The physical examination revealed loss of sensation on lateral side of the foot. Plain radiographs of lower extremity were obtained. X-ray showed a lucency in the medulla of the head of the fibula (Fig. 1). Further investigation was performed by MRI which revealed a hyperdense lesion at the same place as X-ray (Fig. 2a,b). This was followed by surgical excision of the cyst. The peroneal nerve was exposed and detected as swollen and edematous (Fig. 3). During surgical exploration we found that the cyst was well surrounded by intramedullary spongious bone. The cyst was completely intramedullary and no cortical bone erosion was detected (Fig. 4). It was assed to be 25*34 mm in size. Gross examination of the cyst revealed lobulated, lucent, serous gelatinous fluid (Fig. 5).

3. Discussion

The common peroneal nerve is the most commonly damaged nerve of the lower extremity. The common reasons are fracture of the head of fibula, compression due to the splint or cast, compression during sleep, traumatic knee dislocation, gunshot injuries and iatrogenic injury [7,8]. Rare causes include traction applications, ganglion cyst, fabella, hematoma due to hemophilia, compression of callus, tumors of the head of the fibula or nerve sheath.

Spjut et al. classified these cysts as separate distinct entities of "subchondral bone" and "synovial cyst of bone" both separate from degenerative subchondral cysts [9]. The histological features of the intraosseous ganglia are essentially the same as those of a soft tissue ganglion "cyst" with internal mucoid gelatinous content, and fibrous lining [3,9]. Since it lacks an epithelial lining, it is therefore not a true cyst [3,10].

Lipoma, fibroma, osteoma, sarcoma, tuberculosis, rheumatoid tenosynovitis and aneurysm should be considered in the differential diagnosis [11]. Different recurrences varies between%10 and 40 [11,12].

Radiological studies and electromyography (EMG) are used in establishing the diagnosis [7]. EMG may demonstrate the site and

* Corresponding author at: İstanbul Medipol University, Dept. of Orthopaedics and Traumatology, Bağcılar, İstanbul, 34214, Turkey.
E-mail address: seralple@gmail.com (S. Yalçın).

http://dx.doi.org/10.1016/j.ijscr.2017.08.050

Fig. 1. X-Ray of ganglion cyst in the head of right fibula.

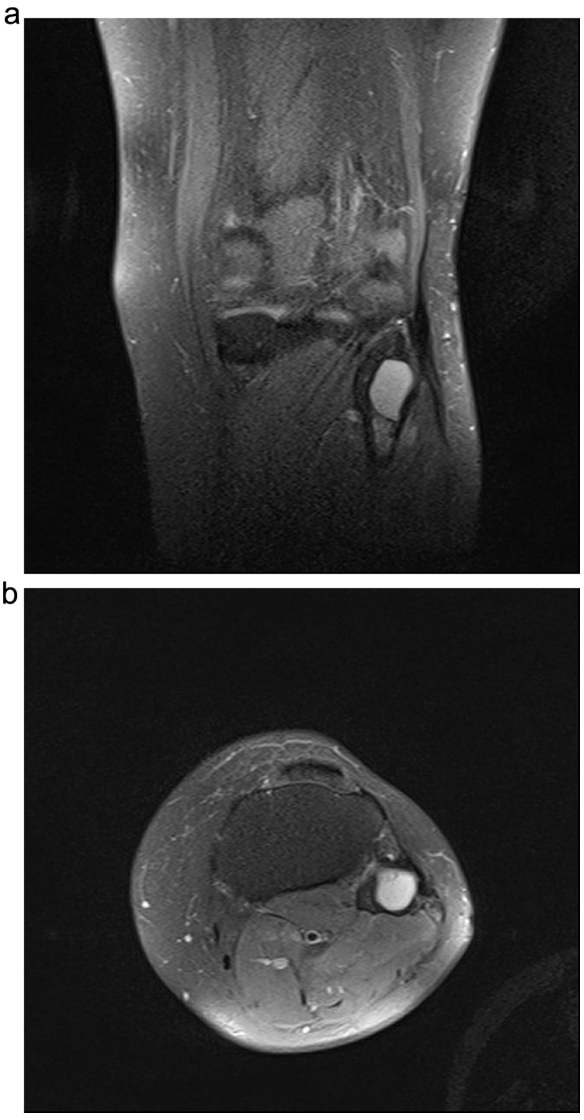

Fig. 2. a: Coronal view of the ganglion cyst on T2 weighted MRI. b: axial view of the ganglion cyst on T2 weighted MRI.

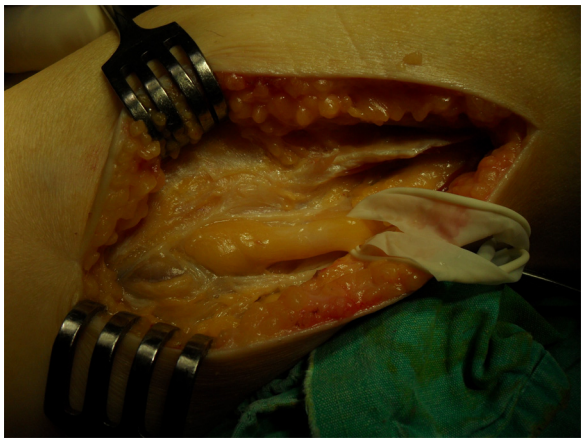

Fig. 3. Swollen common peroneal nerve.

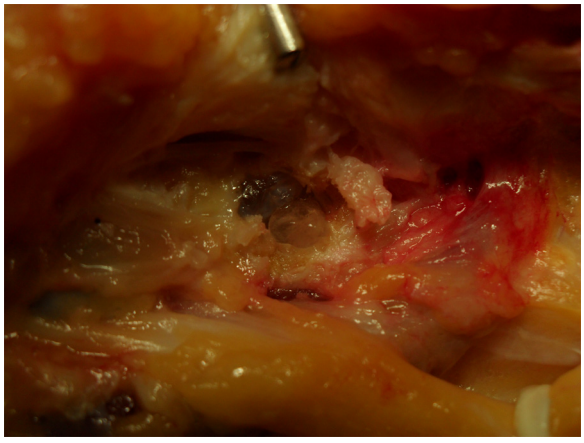

Fig. 4. Intramedullary ganglion cyst.

Fig. 5. View of the ganglion cyst after removal.

severity of a lesion, which is particularly important in the presence of a non-palpable mass. Plain radiographs are of little value although they may rule out a bony abnormality or fracture at the neck of the fibula of this case which caused suspicion of a soft tissue mass [7]. Ultrasonography has been successfully used to demonstrate occult ganglia at the wrist. It may confirm cystic nature of

the mass and therefore distinguish it from solid tumors [13]. In doubtful cases, a combination of MRI and ultrasonography would improve diagnostic accuracy.

4. Conclusion

Compression neuropathy of the common peroneal nerve caused by an intraosseous Ganglion cyst of fibula is a rare entity. We believe that this case report would contribute to the literature by presenting this rare entity.

Conflict of interest

I, on behalf of all authors, confirm that there is no conflict of interest.

Funding

There is no funding source.

Ethical approval

Since it was a case report there was no need to obrain ethics committee approval.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Adnan Kara: Surgery, Photographing, Writing.
Sercan Yalym: Collection of information and Writing.
Ersin Kuyucu: Review of the manuscript Ali eker: Writing.
Haluk Çelik: Writing.

Guarantor

Adnan Kara, am the guarantor of this case report.

Acknowledgement

We obtained consent from this patient in terms of publishing of photos and information.

References

[1] M. Gül, U. Özkaya, A. Parmaksızoğlu, S. Sökücü ve, Y. Kabukçuoğlu, Drop foot case caused by a ganglion cyst, Fieh Tıp Bülten 42 (4) (2008).
[2] M. Erdil, K. Özkan, F. Ü. Özkan, K. Bilsel, İ. Türkmen, S. Şenol ve, S. Sarar, A rare cause of deep peroneal nerve palsy due to compression of synovial cyst -case report, Int. J. Surg. Case Rep. 4 (2013).
[3] C. Sultan, Ganglion der Nervenscheide des Nervus Peroneus, Zentralblatt fur Chirurgie 48 (1921) 963–965.
[4] Lawrence Wayne Bassett, Richard H. Gold, Leanne L. Seeger, MRI: Atlas of the Musculoskeletal System, 1989, pp. 319.
[5] M.S. Mahaley, Ganglion of the posterior tibial nerve: case report, J. Neurosurg. 40 (1974) 120–124.
[6] R.A. Agha, A.J. Fowler, A. Saeta, I. Barai, S. Rajmohan, D.P. Orgill, The SCARE statement: consensus-based surgical case report guidelines, Int. J. Surg. (2016).
[7] J.D. Evans M.B., B.S., L. Neumann M.D., Simon P. Frostick D.M., F.R.C.S., Compression neuropathy of common peroneal nevre caused by a ganglion, » Microsurgery, cilt 15, pp. 193–195, 1994.
[8] K. F. K. Ü. Ö. I., Y. Kabukçuoğlu, Compression neuropathy of the peroneal nerve caused by a ganglion, Am J Orthop, cilt 26, pp. 700–701, 1997.
[9] H.J. Spjut, Fasc. 5., Tumors of bone and cartilage. Atlas of tumor pathology, 2nd series, Washington, DC, Armed Forces Institute of Pathology, 1971.
[10] D. Resnick, G. Niwayama, R.D. Coutts, Subchondral cysts (geodes) in arthritic disorders: pathologic and radiographic appearance of the hip joint, AJR 128 (1977) 799–806.
[11] W.E. Barnes, R.D. Larsen, J.L. Posch, Review of ganglia of the hand and wrist with analysis of surgical treatment, Plast. Reconstr. Surg. 34 (1964) 570–578.
[12] R.F. Santore, F.R. DiMaio, A large ganglion cyst in a patient with hip dysplasia, Orthopedics 20 (1997) 650–652.
[13] K. Fukada, T. Sakuma, H. Kato, T. Ogino, A. Mirani, The dorsal occult ganglion of the wrist and ultrasonography, J. Hand Surg. 13B (1988) 181–183.