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Title: synovial cyst compressing the common fibular nerve: investigation and treatment. about a case.

Abstract :

Synovial cyst are benign soft-tissue tumor that arise from synovial joints or tendon sheaths. Synovial cyst of proximal tibiofibular joint is a very rare condition, which is included in non-traumatic causes of peroneal nerve palsy.

This article presents clinical, and radiological, a rare case that was examined by us in the treatment of a diseased case presented to us, and it was diagnosed with the identification of patient of treatment, starting with the subjection of the pathological condition by ultrasound to the necessity of surgical intervention to remove the synovial cyst.

Keywords: Synovial cyst , proximal tibiofibular, peroneal nerve, Clinical diagnosis, ultrasonically, treatment, surgery.

الملخص :

يعتبر الكيس الزليلي ورم حميد في الأنسجة الرخوة تنشأ من المفاصل الزليلية أو أغلفة الأوتار. الكيس الزليلي لمفصل الظنوب الداني هو حالة نادرة جداً ، وهي مدرجة ضمن الأسباب المؤدية إلى شلل العصب الشظوي ولكن قد يتواجد في بعض المواقع الأكثر حدة مما يستدعي ضرورة التشخيص و العلاج ، لا سيما اذا أحدث ضغطاً على العصب الشظوي الشائع.

تقدم هذه المقالة نتائج التشخيص السريري و الإشعاعي للحالة النادرة التي تم معابنتها من قبلنا في معالجة حالة مرضية عرضت علينا فتم تشخيصها مع تحديد طرق علاجها بدءاً من إخضاع الحالة المرضية للموجات فوق الصوتية الى ضرورة التدخل الجراحي لاستئصال الكيس الزليلي .

الكلمات المفتاحية: الكيس الزليلي ، العصب الشظوي الثانوي ، المفصل الظنبوبي الداني ، التشخيص السريري ، العلاج ، الموجات فوق الصوتية ، الجراحة .

INTRODUCTION:

Synovial cyst is defined as an expansion of the synovial fluid containing a viscous liquid developed in the vicinity of the joints and tendon sheaths. The consistency is characteristic: tense, more or less mobile and sometimes painful under pressure or on certain movements. The cyst may be large or discreet, or even only visible with specialized examinations. The usually minimal symptomatology may become more severe in some locations, hence the urgency of diagnosis and treatment, they are generally observed in the popliteal and dorsal locations of the wrist. The proximal tibio-fibular joint is a common location of synovial cysts, first reported by Lenander in 1981.

We provide a very rare case of nerve compression of the common fibular nerve due to an intramuscular synovial cyst of the long fibular muscle on proximal tibio-fibular arthropathy, investigated and treated to a minimum by guided echo puncture-infiltration and operated after a local recurrence.

Patients AND METHODS :

We received the patient K.B., 55 years old, male, retired general supervisor educator, who presented with paroxysmal left leg pain radiating to the left ankle with a nocturnal recrudescence evolving for one month, accompanied by motor disorders in the territory of the common fibular nerve with deficit of dorsal flexion and extension of the toes as well as the eversion of the foot making a falling foot.

The interview revealed no personal or family history, and the patient did not

complain of any prior functional discomfort, and no notion of trauma was noted. After a thorough clinical examination, the diagnosis was confirmed by an electromyogram which showed a decrease in the amplitude of the motor potential of the common fibular nerve with a slowing of the nerve conduction velocity at the level of the fibular neck; an ultrasound of the soft parts (fi.1) was carried out in search of a mechanical origin of the compression and which showed a cystic, oval fluid formation, measuring 23*7*8mm of volume estimated at 07cc of thickened wall, projected intramuscularly; hence the interest in completing with an MRI which confirmed its nature and specified its relationship and origin.

The MRI revealed a simple cystic formation opposite the neck of the fibula on its anterolateral side with an intramuscular topography of the long fibular muscle measuring 22*25mm extended over 33mm.

This formation is T1-hyposignal with low peripheral parietal enhancement compressing the common fibular nerve. A hydatidic negative serology was made backward.

The aim of our treatment is to decompress urgently the common fibular nerve as there is no consensus on the therapeutic choice, intervention was preferred at a minimum, given the delicate situation of the cyst using interventional ultrasound. fibular nerve (Figs. 2-3-4), with no evidence of muscle wasting.

The patient underwent an ultrasound-guided corticosteroid puncture-infiltration. Our patient was placed in the supine position with the knee slightly flexed, the puncture site was thoroughly disinfected and the catheter was applied 1 cm from the insertion point. After ultrasound identification (fig. 5-6), a green catheter was used for the suction puncture procedure while monitoring by ultrasound imaging.

The interventional imaging gesture is completed by infiltration of a cortisone derivative with success control that was considered to be fairly satisfactory (Figure 07).

Histological analysis of its cystic content confirmed the synovial origin of the cyst. The patient was put on analgesic and vitamin therapy, with an orthosis.

The post-interventional balance was spectacular with loss of pain, recovery of sensitivity as well as dorsi-flexion from the foot and the last four toes after the 7th day, though the recovery of the extension of the big toe was longer -45th day-.

At an interval of four months, a local recurrence was noted, this time with a palpable mass next to the neck of the fibula (fig.08), but without sensory-motor neurological disorders, an ultrasound was done which confirmed the recurrence (fig.09).

Surgical resection was performed in the operating room after ultrasound detection, a longitudinal incision of about 7 cm centered on the cyst which was completely removed and the pedicle was found and cut (fig.12), the procedure was performed under loco regional anesthesia. The post-operative follow-up was favorable, and the aesthetic results were satisfactory and no functional impairment was noticed. The duration of hospitalization was one day only, and the patient was discharged the next day with a medical treatment based on prophylactic antibiotic therapy, analgesics and vitamin therapy.



Fig.1

The anatomico-pathological study confirmed again the benign and synovial nature of the cyst. No recurrence was observed at 6 months backward in time

The Ultrasound of the soft tissue of the left leg, revealed a cystic, oval-shaped fluid formation, measuring 23*7*8mm, with an estimated volume of 0.7cc, thickened wall, projected intramuscularly, on the path of the common fibular nerve.

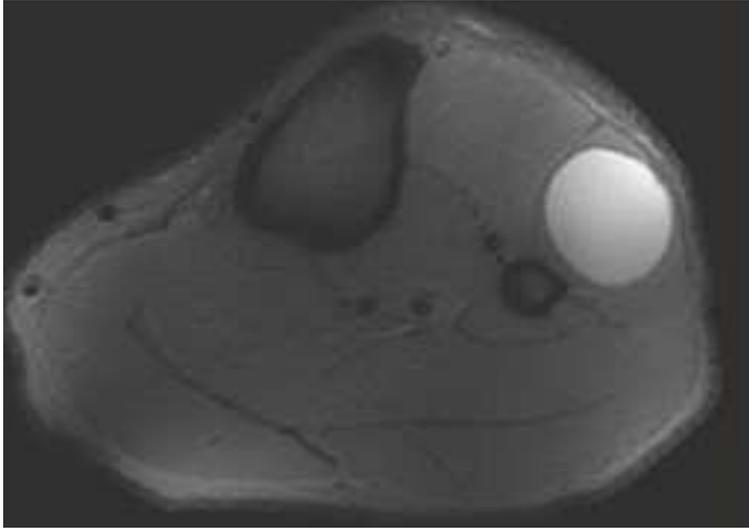


Fig.4

Fig.2.3.4 : A left knee MRI examination conducted in weighted sequences of Sagittal T1, protonic density in axial, sagittal and coronal, with and without injection. Simple cystic formation facing the fibular neck on its anterolateral side of the intramuscular topography of the long fibular muscle measuring 22*25mm extended over 33mm. This formation occurs as a T1 hyper signal T2 hypo signal with a small peripheral parietal enhancement compressing the common fibular nerve.



Fig.2



Fig.3

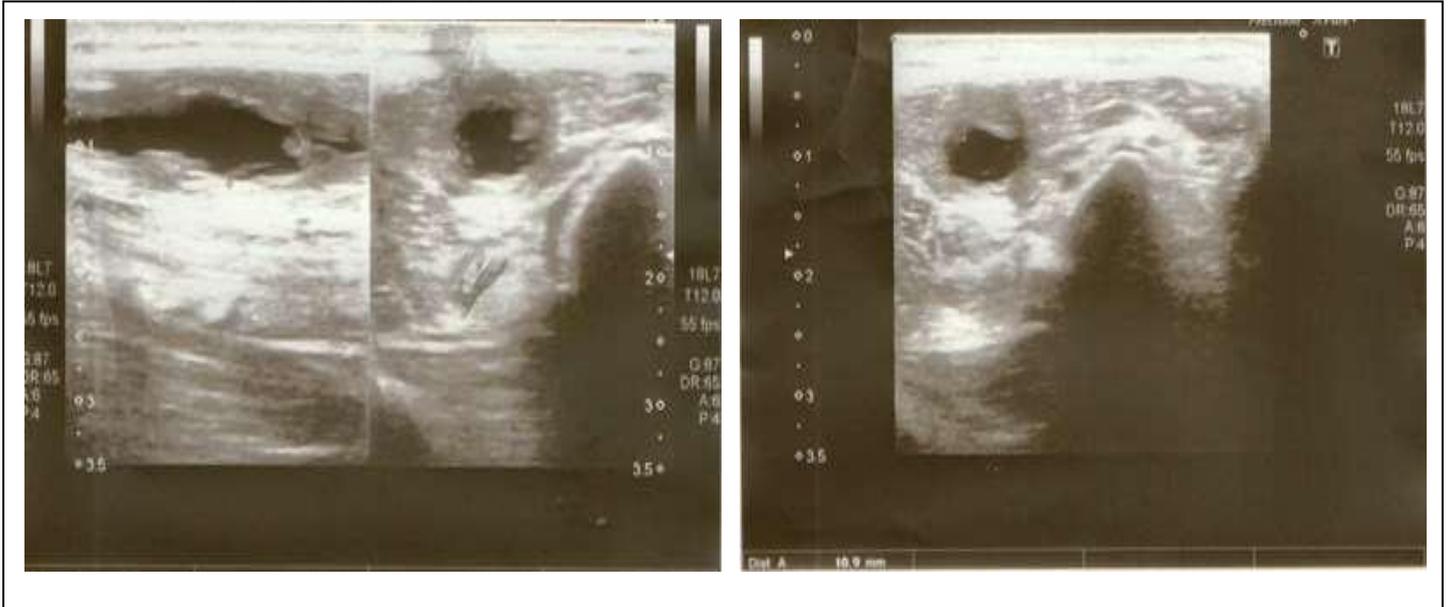


Fig.5.6 : ultrasound of the soft tissues of the left leg carried out with identification of the cyst, the realization of the aspiration of the fluid contents of the cyst.

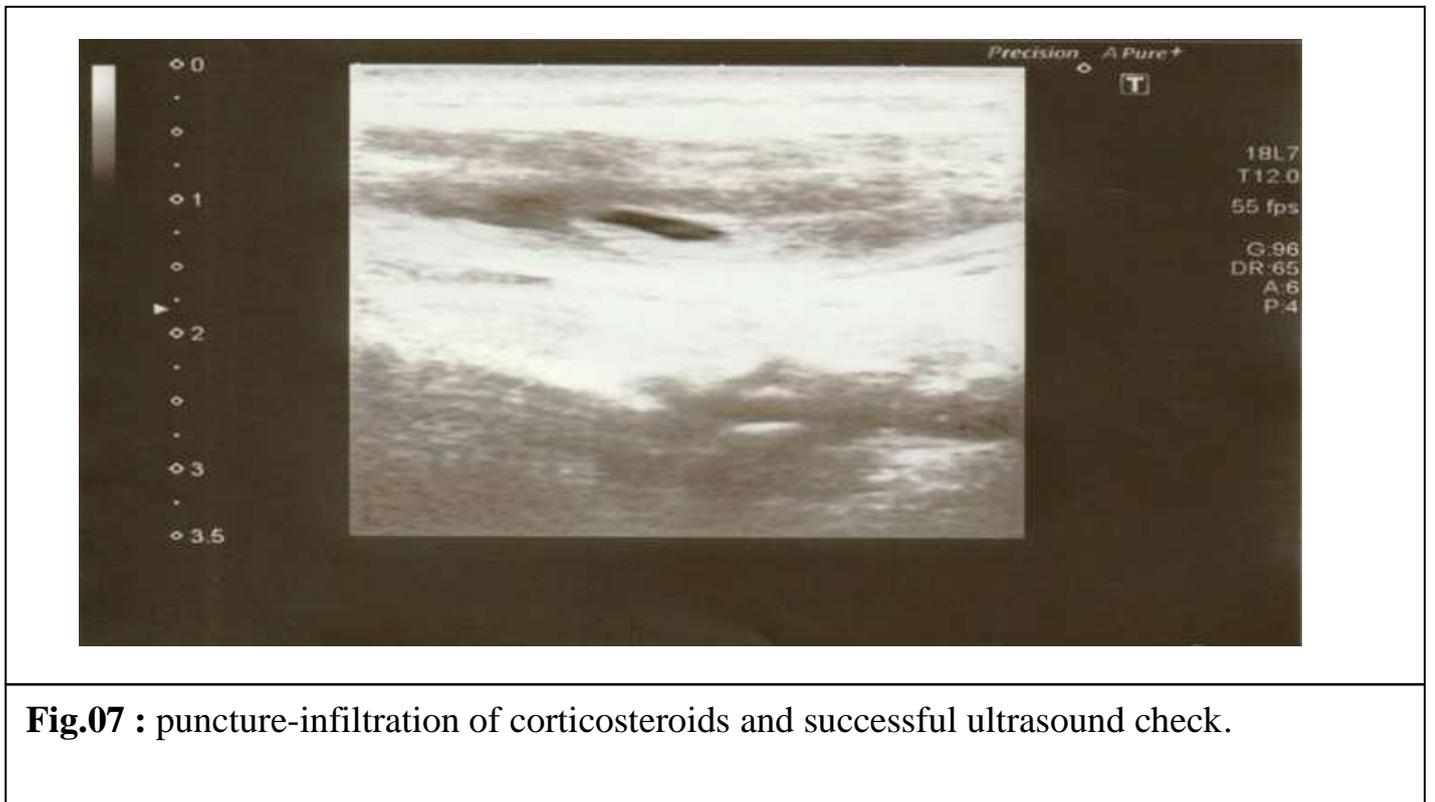


Fig.07 : puncture-infiltration of corticosteroids and successful ultrasound check.



Fig.08

It shows a visible mass on the anterolateral side of the left leg near the palpable fibula neck without local inflammatory signs.



Fig.09

A follow-up ultrasound scan showed local recurrence of the synovial cyst: anfluid, cystic, oval formation measuring 14.69mm by 21.89mm.



Fig.10-11 : Afterultrasound identification, a longitudinal incision of about 7 cm was made, carefully opening the aponeurosis in the same direction as the skin incision, and identifying the cyst intramuscularly.

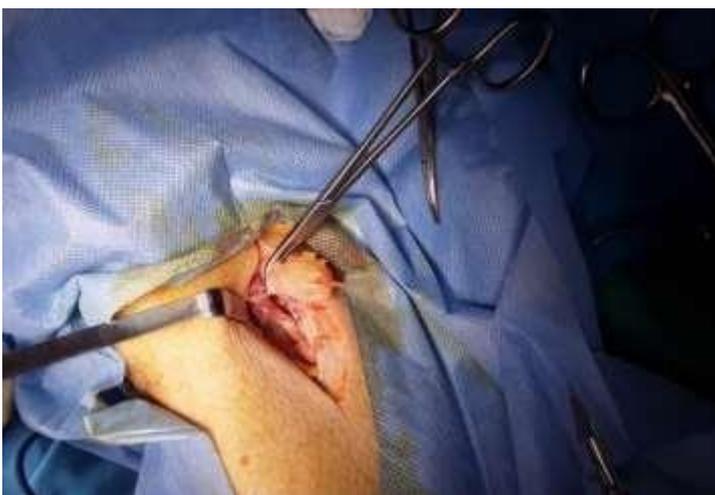


Fig12-13: Careful dissection in a cleavage plan and removal of the cyst. The surgically removed specimen was sent for anatomical-pathological study.

DISCUSSION :

The fibular nerve is a lateral branch of division of the sciatic nerve. It bypasses the fibular neck by going under the proximal part of the long lateral peroneal muscle, ending up in an anatomical tunnel situation where it is vulnerable.

It may be caused by traumatic causes of fracture of the fibula neck or by compression due to synovial cysts of the popliteal pit, or even by a mucous membrane cyst intra or extra neural.

Clinically, motor symptomatology predominates or is almost pure, where there can be a deficiency of the lifting muscles of the foot, the extensors of the toes as well as the lateral peroneal muscles or even an appearance of a falling foot ; one can note a sensitive type of pain such as ache and paresthesia on the lateral side of the leg up to the dorsal side of the foot, but is less frequent.

In view of the appearance of clinical signs of compression of the common fibular nerve, and electrical confirmation of nerve suffering by carrying out an electroneuromyogram of the lower left limb which revealed a rather severe attack. The paraclinic investigation must be completed in order to detect the etiology whose eviction must not be delayed and it constitutes a diagnostic and therapeutic emergency to hope for recovery. A total functional recovery which was in favour of an intramuscular cystic formation of the long peroneal muscle opposite the neck of the fibula on proximal tibio-fibular arthropathy.

Due to the delicate situation of the cyst, we preferred to be as non-aggressive as possible, and an ultrasound-guided puncture-aspiration with corticosteroid infiltration was performed after having eliminated a hydatid cyst by negative serology.

As with any interventional procedure, there is always a risk of recurrence, hence the necessity of periodic clinical and ultrasound monitoring.

After a local recurrence of the cyst, not complicated by neurological disorders, surgical removal was decided.

CONCLUSION :

Nerve compression of the common fibular nerve originating from a synovial cyst and remains a very rare affection.

Treatment is based on decompression of the common fibular nerve; spontaneous regression should not be expected due to the mechanical nature of the compression and so should be carried out at a minimum due to its delicacy.

Interventional ultrasound is a therapeutic choice in the treatment of synovial cysts located close to the vascular-nervous elements by allowing doctors to better control their action. And surgical intervention would only be decided in case of recurrence, hence the interest of periodic control.

References:

- 1/ C. Amri¹, M. A, Henchi¹, I. Bajia² T. Khalfallah¹, M. Akrouf, Paralysis of external sciatic poplite of professional origin: concerning one case,-.Laboratory of Occupational Medicine, Faculty of Medicine of Monastir, University Hospital Center of Monastir, Avenue du 1st June, Monastir, Tunisia,. Department of Rheumatology, University Hospital of Monastir, Tunisia.
- 2/ S. Baccari, M. Turki, M. Zinelabidine, K.H. Ennouri, L. Terhouni, H. Bahri ,A rare etiology of paralysis of the external popliteal sciatic nerve: ankle sprain - 02/19/2008 . Restorative surgery department – MT KASSAB Institute of Orthopedics Tunis.
- 3/ Mehmet Erdil, Korhan Ozkan, Feyza Unlu Ozkan, Kerem Bilsel, Ismail Turkmen, Serkan Senol, and Serhan Sarar , A rare cause of deep peroneal nerve palsy due to compression of synovial cyst – case report.
- 4/ N. Yamamoto and K. Koyano , Neurovascular compression of the peroneal nerve by Varicose Veins, Department of Surgery ,Hamaoka Municipal Hospital ,2060 Ikesinnden, Hamaoka, Shizuoka, Japan 437-1696.
- 5/ Dr Cottias , External popliteal sciatic compression syndrome (or peroneal nerve) restless .
- 6/ Abrar Adil Clint Basener and Jake Cheketts, Intra-neural Synovial Cyst of the common peroneal nerve : an unusual cause of foot drop with four –year follow up, Department of Orthopaedic Surgery, Oklahoma State University Medical Center,

USA, Center for Health Sciences, Oklahoma State University, USA.

7/ Adnan Kara, SercaYelçin, HalukCelik, ErsinKuyucu, Ali Seker, Compression neuropathy of the common peroneal nerve caused by an intraosseous ganglion cyst of the fibula, Istanbul Medipol University, Department of orthopaedics and traumatology, Istanbul, Turkey, Zonguldak Atatürk State Hospital, Department of orthopaedics and traumatology, Zonguldak, Turkey.

8/ N. Khernane. C. Derdous. H. Makhoulfi, Compression of the common fibular nerve by a synovial cyst of the proximal tibiofibular joint. About a case,. University Hospital of Batna Algeria.

9/ Pathways to the nerves of the lower limb – EM consults.

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10/ IsilKarastas Berkit, YaseminTuran, Kevser Bayraktat, Peroneal Nerve Palsy due to synovial Cyst of Proximal Tibiofibular Joint, Aydin State Hospital, Clinic Of Physical Medicine and Rehabilitation, Aydin, Turkey, Adnan Menderes University of Medicine, Department of Physical Medicine and rehabilitation, Aydin, Turkey.



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