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Schwannoma in Posterior Tibial Nerve in Popliteal Fossa

Dr. Talamarla Upendra [1], Dr. Vendra.N. V. Shridevi [2].
[1,2] Department of Orthopedic, Fathima institute of medical sciences, Cuddapha, Andhra Pradesh

Abstract:- A 42 year old male complained of persistent pain in right knee with radiating to foot and ankle and alter sensation in lateral foot and heal region since one year. A cord like structure was palpable with nodule hard in consistency with mobile painful, in the course of tibial nerve in popliteal fossa, no signs of IDK seen. Further, study with MRI and surgical exploration, HPE confirm schwannoma.

Keywords:- *Nerve sheath Tumor, Peripheral nerve Tumor, Tibia Nerve, Schwannoma, Internal Knee Deficit (IDK), Knee pain.*

I. INTRODUCTION

A schwannoma are benign isolated encapsulated tumor originate from schwann cells of peripheral nerve sheath, this tumor tend to occur in middle ages groups 40-50, and rarely initiate to malignant transformation of account 5%-10% of all soft tissue sarcoma [1]. We present a case of 42year old male patient presented with clinical symptoms pain in right knee radiating to calf and altered sensation in right lower limb.

II. CASE PRESENTATIONS

Our patient is a 42-year-old male presented to our OPD with complaints of pain in right popliteal fossa, Since two years. The pain began insidious in knee and radiating to posterior calf muscle and foot. On physical examination, a 5 x 4 cm size mobile palpable mass located in right popliteal fossa positive tinel sign present at the course of tibial nerve nerve with parathesia and burning sensation in lateral ankle and heal area with no motor deficit. The knee showed no signs of meniscal lesions, nor anteroposterior and collateral instability except the painful in stretching activity. FNAC was performed and smears prepared from the material showed moderate cellularity consisting of spindle cells of benign nature with wavy nuclei in the background of myxoid and hemorrhagic material [8]. The cut section showed gray-white and myxoid areas. Microscopically, the lesion consisted of benign spindle cells with wavy nuclei with hypercellular (Antoni A) and hypocellular (Antoni B) areas. Hypercellular areas showed nuclear palisading, while hypocellular areas showed myxoid change. Above features suggest, a pathological diagnosis of peripheral nerve sheath tumor schwannoma confirm. All laboratory studies were normal.

Surgical exploration under spinal anesthesia and tourniquet control, tumour identified deep to gastrocnemius associated with tibial nerve fibers carefully peripheral sheath dissected with nerve fibers intact and complete excision of tumour histopathological examination revealed bengin schwannoma. Post operatively paresthesia and negative Hoffmann-Tinel sign was observed with sensory deficit completely resolved [9].

III. DISCUSSION

Semimembranosus muscle superomedially, Biceps femoris muscle superolateral, and the medial and lateral heads of the gastrocnemius anteromedially and inferolateral, respectively border popliteal fossa. The tibial nerve, popliteal vein, popliteal artery, small saphenous vein, common peroneal nerve, and popliteal lymph nodes are contents of the popliteal fossa. The tibial nerve bifurcates in the popliteal fossa and continues coursing inferiorly deep to the gastrocnemius eventually uniting with a common peroneal communicating branch sural nerve. The main trunk of the tibial nerve after communicating with the sural nerve course between medial malleolus and calcaneum medial tubercle terminates deep into flexor retinaculum at the origin of abductor hallucis divides into medial and lateral plantar nerves to supply the foot.

The popliteal fossa border, Semimembranosus muscle superomedially, Biceps femoris muscle superolateral , the medial and lateral heads of the gastrocnemius anteromedially and inferolateral, respectively. Tibial nerve, popliteal vein, popliteal artery, small saphenous vein, common peroneal nerve, and the popliteal lymph nodes are contents of popliteal fossa. The tibial nerve bifurcate in popliteal fossa and continue coursing inferiorly deep to gastrocnemius eventually unite with common peroneal communicating branch sural nerve. Main trunk of tibial nerve after communicating with sural nerve course between medial malleolus and calcaneum medial tubercle terminates deep in to flexor retinaculum at origin of abductor hallucis divides in to medial and lateral plantar nerves to supply the foot.

X ray to rule out bony abnormalities and degenerative changes. On MRI, Schwannoma relative to muscle tissue visualized isointense. The borders of the mass are generally well drawn with hyposignal [7]. Neurilemmomas usually located eccentrically and do not infiltrate fascicle, unlike neurofibromatosis which require nerve resection. Positron emission tomography scan with fluorine-18 α-methyl tyrosine

may help to distinguish between a benign and malignant tumor nerve [6].

Radiographic investigations include x-rays, to rule out any bony involvement or abnormalities, On MRI, schwannoma is visualized as isointense or decreased signal relative to the skeletal muscle on T1-weighted images and heterogeneously increased signal intensity on T2-weighted images [4]. The borders of the mass are generally well drawn with a hyposignal which signs the presence of a capsule representing a target sign [5], as observed in our case. Schwannoma is usually eccentrically located and do not infiltrate fascicles, unlike neurofibromatosis which require nerve resection. Additionally, when malignancy is suspected positron emission tomography scan with fluorine-18 α-methyl tyrosine may help to distinguish between a benign and malignant tumor nerve [6].

Histologically, schwannoma is microscopically composed of higher cellular areas, Antoni type A and higher myxoid areas, Antoni type B. Degenerative changes in form of cyst, calcification, hemorrhage, hyalinization may be present. No intratumoral axons are present. Immunologically, schwannomas are reactive to S100 protein [10].

Microscopic enucleation is treatment of choice. In fact, this method has been related to good functional results in 90% of cases with no pain in 80% of cases [9]. Tumoral reoccurrence is rare if complete resection is performed. For more accurate enucleation, intraoperative nerve stimulation can be made in order to differentiate functional and nonfunctional fascicles [4]. In our case, the patient did not experience any pain after 4 years.

Neuropathic pain in the popliteal fossa can be developed by a wide spectrum of compression etiologies. The most common causes of local neurovascular compression are the presence of Baker's cysts, adventitial cysts of the popliteal artery, thrombophlebitic syndromes, synovial sarcomas, popliteal artery aneurysms and nerve entrapments[2]. Nerve sheath tumours are very rare conditions, particularly in lower limb, since they represent 5% of all soft tissue tumours, but they can similarly result in neuropathic pain, which is typically misdiagnosed as lumbosacral radiculopathy [2,3].

IV. CONCLUSION

An unusual presentation of schwannoma in the posterior tibial nerve could present as radiculopathy pain or claudication in the lower limb meticulous dissection protecting the nerve fascicles and enucleation of the tumour prevent further neurological complications. Postoperative no sensory and motor weakness in our case.

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