



POPLITEAL CYSTIC SCHWANNOMA MIMICKING BAKER CYST – AN UNUSUAL CASE PRESENTATION – CASE REPORT

General Surgery

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ABSTRACT

Introduction: Schwannoma is the most common tumor of peripheral nerves. They are usually solitary, encapsulated, homogenous slow growing masses, sometimes associated with pain and paresthesia. We present a case of schwannoma in an unusual location.

Case presentation: A 16 year old boy presented to surgical OPD with a slow growing left popliteal swelling for 6 months and neuralgia for 1 month. The swelling decreasing on knee flexion. Based on clinical suspicion patient was operated for popliteal cyst. Intraoperatively there was close association with nerve and it was difficult to dissect from nerve. So it was thought of being a nerve tumor. Surgical excision was done. Histopathological examination revealed it to be Cystic Schwannoma.

Discussion: Schwannoma is the most common benign neoplasm of peripheral nerves. Cystic degeneration and repeated hemorrhages (10%) can occur sometimes. There are two types of tissues in Schwannoma – Antoni A and Antoni B. Schwannoma varies from 2-20 cm in diameter. It is not localized to any specific area; it can occur anywhere along peripheral nervous system in neck, mediastinum, retroperitoneum, pelvis, upper extremities. It is extremely unusual in lower limb of which tibial nerve is uncommon site.

Conclusion: Diagnosis of schwannoma originating from lower extremity peripheral nerves may be delayed because it can be misdiagnosed as Baker's Cyst or the symptoms of the patient can be thought as a result of lumbar disc herniation. Thorough clinical examination and investigations, confirms the diagnosis, as management is different for both.

KEYWORDS

Cystic Schwannoma, Neurilemmoma, Bakers Cyst, popliteal cyst, Case report

INTRODUCTION:

Schwannoma originates from Schwann cells of the nerve sheath. They are usually solitary, encapsulated, homogenous slow growing masses, sometimes associated with pain and paresthesia.^{1,2} They are usually isolated masses, size varies according to location. They may be located anywhere in the longitudinal axis of the extremity originating from nerve sheath of a peripheral nerve. Because of similar consistency, it can be misdiagnosed as ganglion.³ In popliteal region Cystic variety can be mistaken as popliteal cyst. This was an unusual case operated in Lok Nayak Hospital, Delhi.

CASE REPORT:

A 16 year old boy came walking to the surgical OPD with complaints of a slow growing swelling in his left popliteal region for 6 months, associated with continuous dull aching pain since 1 month. On physical examination, a 6x6 cm mobile soft swelling was present in left popliteal fossa, decreasing in size on knee flexion but not completely disappearing. There was no erythema, erythema, warmth or ulceration and Tinel's sign was negative. Sensory and Motor examinations of lower extremity were normal. There was no relevant drug, family or genetic history.

Ultrasound revealed it as cystic mass separate from adjacent muscles and tendons. The patient was informed of the risks of surgery and of the possible sequelae, the patient accepted to proposed surgical treatment. Surgical excision was done with a provisional diagnosis of Baker's cyst by a well experienced General Surgeon. During the procedure, the mass was found to be adherent to the nerve, which was excised.

The patient had uneventful recovery. There were no post operative complications and examination did not show any motor or sensory deficits. The patient was discharged on first post operative day. The patient is on regular 3 monthly follow up for the last 2 years in the same hospital, on clinical examination there are no sensory or motor deficits till to date.



Figure 1: Cystic Schwannoma excised with a part of Tibial nerve
Histopathological examination revealed hypocellular Antoni B and spindle shaped Schwann cells containing Antoni A areas with nuclear palisading. Immunohistochemical staining confirmed the diagnosis of Schwannoma by S100 positivity.

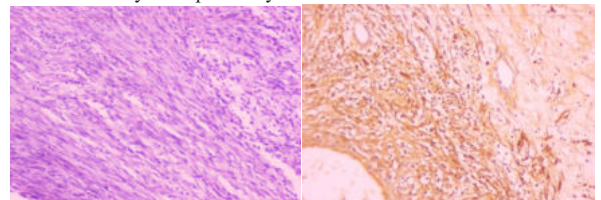


Figure 2a: Nuclear palisading arrangement of spindle shaped Schwann cells **Figure 2b: IHC – S100 positive staining**

Figure 2: Microscopic appearance of Schwannoma

DISCUSSION:

Schwannoma is the most common benign neoplasm of peripheral nerves. Cystic degeneration and repeated hemorrhages (10%) can occur sometimes. There are two types of tissues in Schwannoma – Antoni A and Antoni B. Layering with fluid levels is caused by hemorrhages. Usually, Antoni B portion undergoes cystic and hemorrhagic degeneration. Antoni A area is composed of spindle shaped cells arranged in interlacing fascicles, there may be nuclear palisading. In between two compact rows of well aligned nuclei, the

cell processes form eosinophilic Verocay bodies.⁴ Schwannoma can mimic tarsal tunnel syndrome, differentiated by the presence of Tinel's sign in Schwannoma.⁵ Sometimes it is not possible to differentiate Schwannoma from neurofibroma or malignant peripheral nerve sheath tumor, then biopsy to be done confirm diagnosis.

Although Schwannoma can occur at any age, it is commonly seen between 20- 50 years of age, with no sex or racial predilection. Most lesions are solitary unless associated with neurofibromatosis. Unlike neurofibroma, Schwannoma rarely has a malignant potential. Schwannoma varies from 2-20 cm in diameter. It is not localized to any specific area; it can occur anywhere along peripheral nervous system in neck, mediastinum, retroperitoneum, pelvis, upper extremities.⁶ It is extremely unusual in lower limb (<25% of all benign tumors) of which tibial nerve is uncommon site (approximately 5% of all benign tumors). Diagnosis of tibial nerve Neuroilemmoma is usually delayed because only 48% can be detected and can be misdiagnosed as Baker cyst.⁷ Schwannoma is usually found in anterior aspects of upper limbs, and posterior aspects of lower limbs. Imaging enhanced diagnosis of nerve sheath tumors. High resolution sonography demonstrates a round, smooth, well defined, heterogenous mass with cystic degeneration and posterior acoustic enhancement. Schwannoma is contiguous with nerve and located eccentrically.

Color Doppler sonography shows obliteration of flow with compression in Schwannoma, that differentiates it from neurofibroma.⁸ CT reveals well defined, ovoid, soft density mass. MRI – reveals a well circumscribed heterogenous mass; iso to hypo intense mass on T1, and hyper intense on T2.⁹ Surgical excision is to be done, with nerve preservation. After excision paresthesia may be seen which resolves spontaneously. Recurrence is rare.

CONCLUSION:

Baker cyst is common pathology of popliteal region, but other benign and malignant tumors should be kept in mind. MRI helps in diagnosis and excisional biopsy confirms the diagnosis. In neurofibroma complete excision always cause nerve injury, whereas in Schwannoma it is possible to enucleate tumor and preserve nerve.

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No conflicts of interest

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