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Case Report
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Nodular Swelling of the Neck, Morphologically Diagnosed as a Case of Schwannoma

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ABSTRACT

Introduction: we report a rare case of schwannoma, which appeared as nodular swelling in the neck and caused us the diagnostic dilemma. The fine needle aspiration cytology of a swelling in the neck revealed features of tuberculosis. However, there were no clinical signs and symptoms of tuberculosis and the blood tests were negative for the chronic inflammatory disease. We advised excisional biopsy, the histopathology reported it as schwannoma. It is opined that, the diagnosis of schwannoma should be based on clinical suspicion and histopathological confirmation. Ultrasound and fine needle aspiration cytology may have low sensitivity, which can cause diagnostic dilemma.

Keywords: Biopsy; Fine Needle Aspiration; Schwannoma; Tumour.

Introduction

Schwannoma, which is also known as neurilemmoma, is among the truly encapsulated benign neoplasms, which have schwann cells in a collagenous matrix[1]. It is a proliferative lesion of the peripheral nerve and sometimes even arise from the cranial and autonomic nerves. It was described that, the nerve will not penetrate into the substance of the tumour[2]. Schwannoma commonly occurs at the flexor aspects of the upper and lower extremities, neck, dorsal spinal roots, mediastinum, retroperitoneum and the cerebello-pontine angle. Schwannomas can be surgically removed[3] and the nerve of its origin can be left undamaged[2].

It has been reported that, extracranial schwannomas are rare at the cervical region[4]. The pre-operative diagnosis of schwannoma is difficult, since this will not show any neurological deficits. The differential diagnoses of neck swellings may include paraganglioma, branchial cyst, malignant lymphoma, cervical lymphadenopathy and tuberculosis[5,6].

Case Report

A 55-year-old lady presented to the outpatient department with swelling in the neck, for two months' duration. This swelling was located in the supraclavicular region of the left posterior triangle of neck. It was insidious in onset and gradually progressive in nature. There was no history of pain, dysphagia, dyspnoea and hoarseness of voice. The patient gave no history of fever with chills and rigors. No previous history of tinnitus or hearing loss. The swelling was nodular with irregular surface but soft in consistency and non-tender. It measured approximately 2x1 cm. The overlying skin was pinchable and there were no sinus openings. There were no signs and symptoms, which were suggestive of Horner's syndrome.

The blood tests values were within normal limits. Since there were no motor and sensory neurological deficits, magnetic resonance imaging (MRI) scan was not advised. Ultrasound examination of the swelling was done, which was reported as enlargement of left deep cervical lymph node. Ultrasound also reported that, there was loss of fatty hilum and internal cystic areas at the lymph node. FNAC followed, which revealed spindle shaped cells in clusters and sheets having bland nuclei mimicking epithelioid histiocytic granuloma (Fig. 1a). There were few Langhans giant cell like arrangement, formed by the nuclear palisading. A diagnosis of tuberculosis was suggested, in view of cytological features (Fig. 1b).

However, the patient had no clinical signs and symptoms of tuberculosis. The blood investigations showed no signs of chronic inflammatory disease and also acid fast bacillus stain was negative, an excisional biopsy was performed. The tissue was sent for histopathological examination. The biopsy specimen was pale brown in colour with nodular morphology and measured 3x2x1.5 cms. Few areas of congestion were noted. The cut section showed solid, pale white homogenous with multiple areas showing specks of haemorrhage. Microscopically it was observed that, the capsulated tumour tissue consisted of spindle cells arranged in alternating hyper and hypocellular areas (Fig. 2a). These features

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were suggestive of cellular schwannoma (Fig. 2b) and pseudoglandular schwannoma (Fig. 2c), which are variants of schwannoma. The hypercellular areas showed spindle cells with bland nuclei and moderate cytoplasm. Nuclear palisading gave rise to verocay bodies (Fig. 2b) and hypocellular areas with inset showing pseudoglandular formation (Fig. 2c). These features were suggestive of schwannoma and the swelling was histopathologically reported as cervical schwannoma.

The patient had regular follow up in the surgical outpatient department and even after 2 years, there is no recurrence of the swelling in the neck region. Patient is absolutely fine with no history of cervical pain, weight loss and chronic cough. We report that the outcome of the patient is good.

Discussion

There are cases reported in the literature, where tuberculosis was mimicking as tumour[7]. Here in the present case, tumour was mimicking the tuberculosis. Lawal *et al.*[8] had a similar experience in which cervical spinal schwannoma was mimicking as tuberculosis. In Lawal *et al.*[8] case, the accurate diagnosis was possible with the magnetic resonance imaging, since this was a spinal cord swelling. In our case, histopathology itself gave the correct diagnosis. Ryu *et al.*[9] reported a case of brachial plexus schwannoma, which mimicked as cervical lymphadenopathy. However they did not go for the surgical excision, because this brachial plexus schwannoma was very small and there was no subsequent neurological symptoms. Aota *et al.*[10] described a case of cystic schwannoma, which arose at the site of gibbus due to previous tuberculosis.

Neurofibroma and schwannoma are tumours, which originate from the perineurium. Schwann cells are considered as stem cells for both these tumours[11]. Schwannoma was identified in the year 1908 by Virchow, but reported only later in 1910 by Verocay[12]. Schwannoma of neck can arise from the cranial nerves, sympathetic chain, cervical plexus, and the brachial plexus[13, 14]. They typically present as palpable

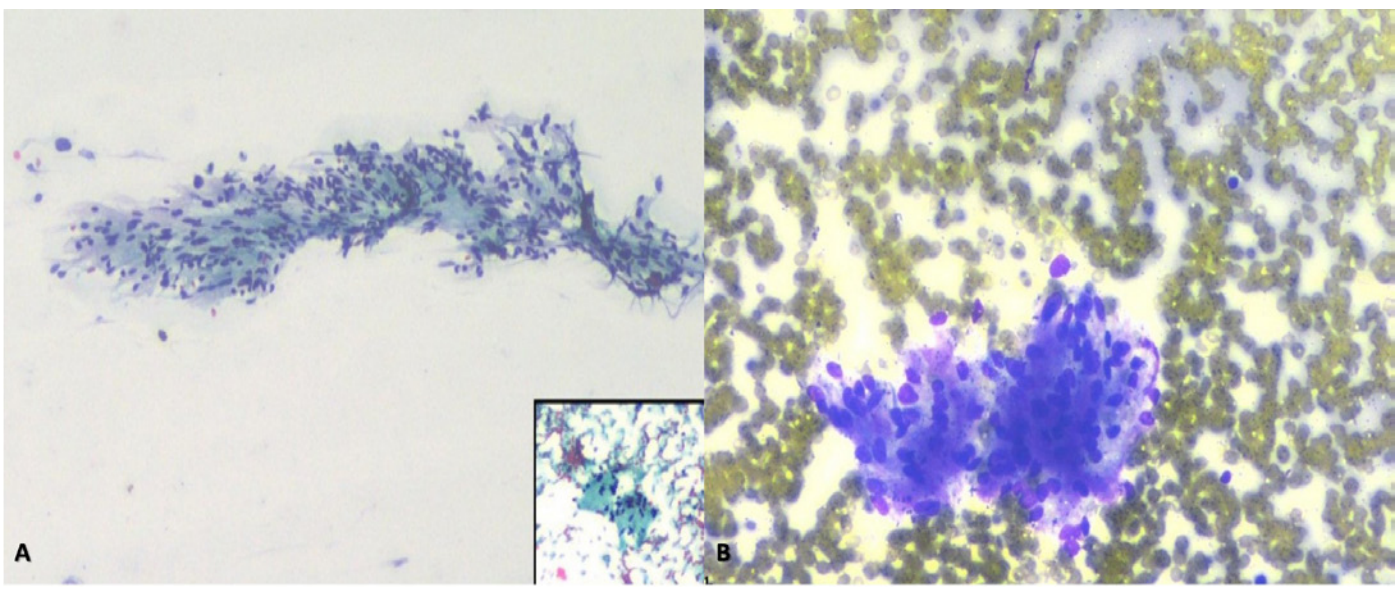

Figure1. 1a. Fine needle aspiration smear showing sheets of spindle cells with giant cell like arrangement (inset). PAP 100X; Fig 1b. High power view showing the spindle cells. MGG 400X.

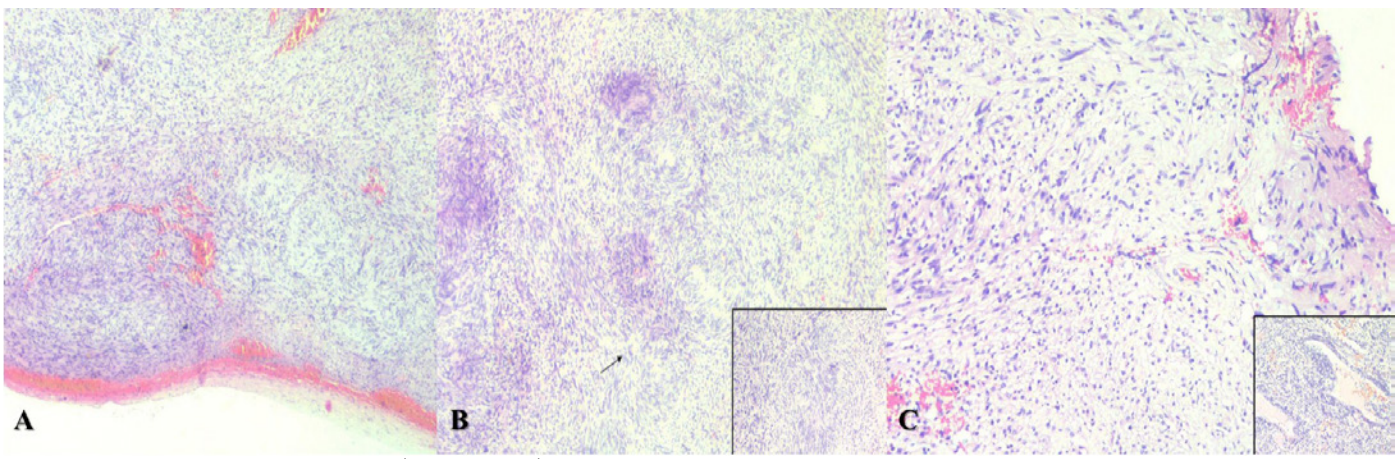

Figure 2. 2a. Photomicrograph of schwannoma (low power view), showing bland spindle cells in a loose connective tissue stroma, H&E 100X; Fig 2b. High power view showing the nuclear palisading/ verrocay bodies (arrow) in a hypercellular area. H&E 400X; Fig 2c. Hypocellular area with inset showing pseudoglandular formation. H&E 400X

masses of varying size and usually have nonspecific symptoms. Preoperative diagnosis may be difficult, however preoperative imaging studies may help in the diagnosis of tumour. But this requires a higher degree of clinical suspicion. Computed tomography and MRI will help in determining the nerve of origin and reduce the postoperative neurological deficits. It is important to find the origin of tumour, to preserve the nerve function. In our case, schwannoma was not initially suspected because of the paucity of the neurological deficits, hence imaging was not done. However ultrasound and FNAC were performed.

Schwannomas are hard to be characterized with FNAC and the accuracy of FNAC is not great[15]. Liu *et al.*[16] reported that the results of FNAC are conclusive only in 50% of cases. In the present case, FNAC misdiagnosed it as tuberculosis. The pitfall of it is as described in the present case, wherein the spindle shaped cells of schwannoma mimicked epithelioid histiocytic granuloma and caused the diagnostic dilemma. It was reported that schwannomas are always a diagnostic dilemma, since they remain asymptomatic for longer duration. Their history and clinical examination are reported to be deceptive and nonspecific[17]. Histopathology is considered to be the gold standard for its diagnosis[18], since it can differentiate a schwannoma from the neurofibroma[19].

Liu *et al.*[16] reported that 60% of schwannomas are usually asymptomatic palpable masses. They grow longitudinally along the nerve and are fusiform in appearance. The morphological and functional integrity of the nerve is not affected and it can be easily excised[18]. MRI may have most sensitivity and specificity in diagnosing the schwannomas and identification of their nerve of origin. MRI may also help in evaluating the extent of it and its relation with the surrounding structures like internal jugular vein and carotid arteries[20]. Surgical excision is the treatment of choice for schwannomas. Intracapsular enucleation can also be considered in order to preserve the nerve function.

Conclusion

In the present case, there was diagnostic dilemma and the schwannoma was initially misdiagnosed as tuberculosis based on the fine needle aspiration cytology (FNAC). However, histopathology helped us in the final diagnosis and the patient recovered well.

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