



Post Covid -19 Pneumonia with A Huge Schwannoma of Neck - A Surgical Emergency Airway Strategy

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Abstract

Schwannomas, also known as neurilemmomas, are benign peripheral nerve sheath tumors. They originate from any nerve covered with schwann cell sheath. Schwannomas constitute 25 - 45% of tumors of the head and neck. About 4% of head and neck schwannomas present as a sinonasal schwannoma. Brachial plexus schwannoma constitutes only about 5% of schwannomas. Cervical vagal schwannomas constitute about 2-5% of neurogenic tumors.

We would like to present a case of a young lady presented with shortness of breath and reduced effort tolerance for two days duration. She was intubated due to impending respiratory collapse. Patient was treated as post covid pneumonia and pulmonary embolism. She had recent admission for Covid-19 pneumonia with Category 3. Patient was referred to the surgical team for tracheostomy in view of prolonged intubation and challenging airway. We proceeded with an emergency tracheostomy. We used an endotracheal tube Size 7fr modification for tracheostomy to facilitate a huge anterior neck swelling.

We decided to change to a special adjustable flange tracheostomy tube size 8 Fr for her upon discharge. Patient Histopathology report was. We would like to advocate regarding a challenging situation whereby patient had a huge neck swelling with Covid-19 pneumonia, an endotracheal tube modification for tracheostomy is feasible in emergency setting. However, special adjustable flange tracheostomy tube can also be used if there is availability.

Keywords: Schwannoma, adjustable flange tracheostomy tube, thyroid swelling, Covid-19 pneumonia.

Introduction

Schwannomas are encapsulated nerve sheath tumors made up of benign neoplastic Schwann cells. They arise from the peripheral nerves, with the nerves being inside of the capsule, and grow in eccentric manner. They make up roughly 5% of benign soft tissue neoplasm which affect both males and females in equal manner. They usually present as a slow growing painless mass, commonly over the head and neck region [1]. Schwannomas may occur spontaneously or as part of the hereditary tumour disease Neurofibromatosis 2 (NF2) [2]. As for schwannoma of the neck, they may mimic benign thyroid nodule. Ultrasound imaging as well and fine needle aspiration cytology has been difficult to differentiate them [3].

Case Presentation

A 38 years old Orang Asli Lady with underlying right solitary thyroid nodule for the past 2 years under surgical

outpatient follow-up. She presented to casualty with shortness of breath and reduced effort tolerance for two days duration. She was intubated upon arrival in view of impending respiratory collapse. Patient was treated as post covid pneumonia and pulmonary embolism. She had recent admission for Covid-19 pneumonia with Category 3 requiring nasal prong oxygenation. Patient had total of 12-day hospitalization stay.

On second encounter, patient was referred to the surgical team for tracheostomy in view of prolonged intubation and challenging airway. We proceeded with an emergency tracheostomy. Intraoperative we noted a huge, matted cervical LN which adhered to underlying structure. Thyroid gland appeared normal; no nodules seen. Trachea was deviated to the left (Figure 1), biopsies was obtained. We used an endotracheal tube Size 7fr modification for tracheostomy to facilitate a huge anterior neck swelling (figure 2). Postoperatively she was able to ventilate and

maintain her saturation level. Patient had stromy recovery due to her Covid -19 pneumonia and had 20 days stay in ICU. Once patient was able to wean down, we decided to change to a special adjustable flange tracheostomy tube size 8 Fr for her (figure 3 and 4). Patient was then discharge back home well with the adjustable tracheostomy. Patient

Histopathology report showed lesional tissue composed of spindle cells arranged in short fascicles separated by blood vessels (figure 5) with elongated serpentine hyperchromatic nuclei with eosinophilic cytoplasm (figure 6). The immunohistochemistry showed Diffuse strong positivity of S100 and SOX 10 (figure 7).



Figure 1: Showed intraoperative finding of huge matted cervical LN. Adhered to underlying structure. Thyroid gland appeared normal; no nodules seen. Trachea was deviated to the left.

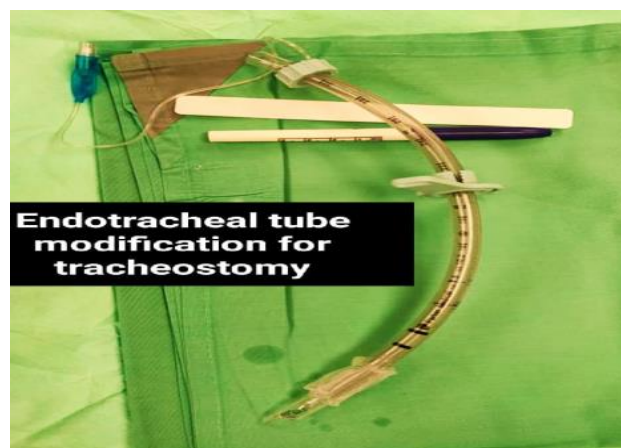


Figure 2: An endotracheal tube Size 7fr modification for tracheostomy to facilitate a huge anterior neck swelling



Figure 3 and 4: Showed special Adjustable Flange tracheostomy tube (double lumen).

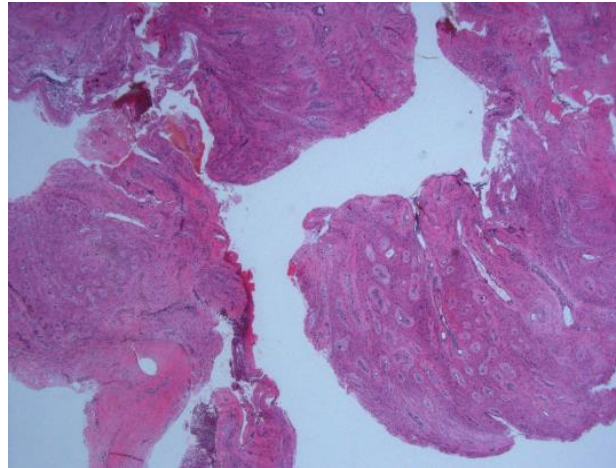


Figure 5: Lesional tissue composed of spindle cells arranged in short fascicles separated by blood vessels. (H&E x2).

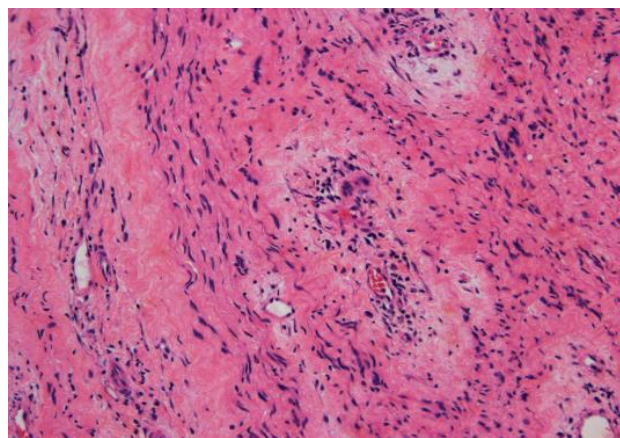


Figure 6: Showed Lesional spindle cells have elongated serpentine hyperchromatic nuclei with eosinophilic cytoplasm. (H&E x20).

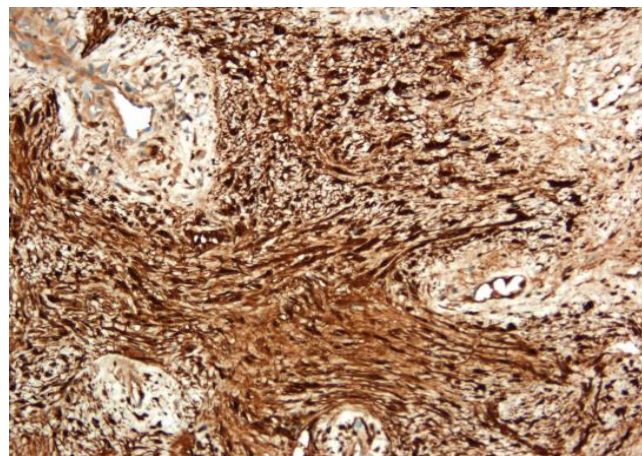


Figure 7: Diffuse strong positivity of S100 immunostaining.

Discussion

Stout first coined the term “schwannoma,” also known as neurilemmoma or neuroma in 1935. Schwannomas are slow-growing, encapsulated, benign tumors that can originate from any nerve covered with a sheath of Schwann cells. 25%–45% of schwannomas originate in the head and neck region, of which about 10% originate from either the vagal or sympathetic nervous system [4,5]. Schwannomas may be associated with Von Recklinghausen’s disease. They

are rare tumors and are often asymptomatic, but depending on the location, they may produce secondary symptoms, such as swelling in the neck, dysphagia, and hoarseness of voice. As in our case the patient was asymptomatic and did not have any compressive symptoms.

The preoperative diagnosis of schwannomas is usually difficult because they often do not present with associated neurological deficits and can be misdiagnosed as other pathological conditions. Ahad et al, suggested that a fine-

needle aspiration biopsy (FNAB) could help in the diagnosis of schwannomas. FNAB can diagnose soft tissue tumors, both malignant and benign, but according to Zbaren and Becker [6], and Liu et al. [7], the results of FNAC were inconclusive in 50 % of cases and less accurate in diagnosing neural tumors [8]. However, in our case the FNAB was inconclusive.

Radiological imaging such as Computerized tomography scanning is optimal at revealing osseous erosion around the spine or changes in neural foramina. A newer modality, MR neurography (MRmagnetic resonance), has the potential to demonstrate the entire course of visualized peripheral nerves [9].

The gold standard of diagnosing a schwannoma is histopathologically and immunohistochemistry. Microscopically (Figure 5), spindle-shaped cells in Antoni A and Antoni-B arrangement interspersed with Verocay bodies are the characteristic features. Tumor cells typically show a diffuse positive immunoreactivity for S-100 protein (figure 7) and are negative for neurofilament protein. S-100 protein demonstrates a neuroectodermal origin of the tumor.

Management of schwannoma arising in the head and neck region, surgical resection may cause fatal nerve damage unlike other tumours. Therefore, treatments assuring the preservation of neurological functions are needed. According to Ishtyaque et al. the neurological origins of schwannomas were predicted through preoperative imaging studies, an intracapsular enucleation was performed in all their cases. They concluded that the intracapsular enucleation was effective for preserving the neurological functions [10].

Schwannoma are resistant to radiotherapy [11], and as they are well encapsulated, the treatment of choice is surgical enucleation with periodic follow-up. The choice of operation is mainly determined by the relationship between the tumor and the nerve of origin.

Long-term surveillance is not recommended, even though these tumors are benign and mostly asymptomatic. Recurrence is rare.

Conclusion

We would like to advocate regarding a challenging situation whereby patient had a huge neck swelling which was Schwannoma with Covid-19 pneumonia, an endotracheal

tube modification for tracheostomy is feasible in emergency setting. However, special adjustable flange tracheostomy tube can also be used if there is availability. Surgical resection is still the gold standard of management.

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