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Evaluation of neck swellings in a tertiary care hospital

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Abstract---Background: Patients presenting to the outpatient department with a neck swelling is of common occurrence which can pose a diagnostic dilemma to the head and neck surgeon. Most of the patients are worried about the possibility of a cancer. Objective: to study clinical presentation of various neck swellings and their management. Methods: Our study is a prospective study conducted in the department of surgical oncology and department of ENT in Karnataka institute of medical sciences, hubballi from July 2019 to December 2021. All patients presenting with a swelling in the head and neck region were included in the study. In the study period of 30 months, a total of 135 patients were included in the study. Results: In our study, out of 135 patients, 25 had swelling in the anterior triangle of neck of which 12 had nodular goitre of thyroid, 11 had papillary carcinoma of thyroid, 1 had medullary carcinoma and 1 had follicular carcinoma of thyroid. Of the 110 patients who had swelling in the posterior triangle of the neck, 60 had reactive lymphadenitis, 24 were due to tubercular lymphadenitis and 18 patients had swelling due to metastatic neck deposits. We had 8 cases who we classified as miscellaneous and presented as follows. One patient had left sympathetic chain schwannoma, two patients had carotid body tumor, one patient had right submandibular sarcoma, one patient had right vagal schwannoma, one patient had neurofibromatosis, one patient had right submandibular neoplasm and 1 patient presented with pleomorphic adenoma of parotid gland. Conclusion: A detailed history followed by a thorough clinical examination coupled with

application of appropriate investigations helps in early diagnosis and initiation of appropriate treatment with good clinical outcomes in all patients with swellings in the neck.

Keywords---neck swelling, thyroid swelling, neck nodes.

Introduction

Patients presenting to the outpatient department with a neck swelling is of common occurrence. These neck swellings can range from a simple non-specific adenitis to something more alarming like metastasis of head and neck cancers as well as primary tumours in the neck. A detailed history, methodical clinical examination, appropriate investigations and a sound knowledge of the anatomy and the possible differential diagnosis helps in an early diagnosis which can lead to decreased morbidity and better outcome.

Materials & Methods

A prospective study was conducted in the department of surgical oncology and the department of ENT and head and neck surgery, Karnataka institute of medical sciences, hubballi from July 2019 to December 2021. All patients presenting with a swelling in the neck were included in the study. A detailed history was recorded from all the patients regarding the onset, duration, progression and associated complaints. A thorough clinical examination was followed to evaluate the swelling. All patients were then subjected to ultrasound evaluation of the neck mass. Further investigations like contrast enhanced computerised tomography(CECT) scan, MRI scan, PET scan and a fine needle aspiration cytology(FNAC) were performed in cases where it was warranted. In our study period of 30 months, a total of 135 patients were included in the study.

Results and Discussion

Out of the 135 patients who were evaluated in our study, a total of 110 presented with swellings in the posterior triangle of the neck and 25 patients presented with swelling in front of the neck.

Table 1. Location of neck swellings

Area of swelling	Number of patients
Anterior triangle of neck	25
Posterior triangle of neck	110

Out of the 25 patients presenting with thyroid swelling, 12 had multinodular goitre of which 1 had retrosternal extension. 11 had papillary carcinoma of thyroid, 1 had medullary carcinoma and 1 patient had follicular carcinoma. So in our study, a total of 18.5% patients presented with a thyroid swelling, of which 48% of thyroid swelling had a multinodular goitre. This is comparable with other studies in the south Asian region, including study conducted by Ali et al⁹.

Table 2. Results of anterior neck swelling based on histopathological report

HPE diagnosis	No. of patients
Nodular goitre of thyroid	12
Papillary carcinoma of thyroid	11
medullary carcinoma of thyroid	1
Follicular carcinoma of thyroid	1

Out of the remaining 110 patients, the most common presentation was reactive lymphadenitis secondary to inflammatory pathologies in the upper aerodigestive tract. In our study, we found 60 patients (44.5%) presenting with reactive lymphadenitis, who presented with swollen, tender mobile swellings in the region of the lymph nodes. Most of the patients were diagnosed to have an infective or inflammatory lesion in the odontogenic, salivary glands, tonsils, pharynx or larynx. These patients were treated with antibiotics and anti-inflammatory drugs and almost all of them showed complete resolution within 2-3 weeks. This is comparable to the study conducted by Al-Dajani et al¹⁰. In our study, 24 patients (17.8%) were diagnosed to have lymphadenitis secondary to tuberculosis. These patients had constitutional symptoms of tuberculosis like evening rise of temperature, cough and loss of weight. These patients don't respond to oral antibiotics and thus warrant further radiological evaluation and fine needle aspiration cytology. These patients require long term anti tubercular treatment for resolution of the disease.

In our study, 18 patients (13.3%) presented with lymph node enlargement due to metastatic deposits from malignancies in the head and neck region. All patients underwent thorough clinical examination followed by radiological and cytological evaluation. We found in our study that 5 patients had primary malignancy in the buccal mucosa, 4 patients had primary malignancy of the lip, 3 patients had malignancy of the tongue, 3 patients had malignancy of the gingivolabial sulcus, 2 patients had malignancy of the floor of the mouth and one patient had malignancy of the mandible.

Table 3. Results of patients presenting with secondaries in the neck

Region of primary malignancy	No. of patients
Buccal mucosa	5
Lip	4
Tongue	3
Gingivolabial sulcus	3
Floor of the mouth	2
Mandible	1

In our study we had 8 cases who we classified as miscellaneous and presented as follows. One patient had left sympathetic chain schwannoma, one patient had left carotid body tumor, one patient had right submandibular sarcoma, one patient had right vagal schwannoma, one patient had neurofibromatosis, one patient had right submandibular neoplasm and 2 patients with pleomorphic adenoma of parotid gland.

Table 4. results of miscellaneous cases

Type of primary lesion	No. of patients
Left Sympathetic chain schwannoma	1
Carotid body tumour	2
Right Submandibular sarcoma	1
Right vagal schwannoma	1
Neurofibromatosis	1
Pleomorphic adenoma of parotid	1
Right submandibular neoplasm	1

We present the clinical details of some of our most interesting cases.

Case 1

A 24 year old female patient presented with complains of swelling on the left side of neck from the past one year, initially small, gradually progressive in size. She had occasional slight discomfort on swallowing and occasional dull pain over the swelling which was non-radiating. There was no history hoarseness, fever, compression symptoms, nasopharyngeal discomfort or weight loss. There was no significant past medical history or family history.

On examination

A 5*4 cm ovoid swelling noted in the left side of the neck extending from the mastoid tip above the level of the thyroid cartilage, surface was smooth, borders are well made out. Visible pulsations were noted over the swelling. Skin over the swelling was normal. On palpation- findings of inspection were confirmed. Swelling was non-tender with no local rise of temperature, swelling was firm in consistency with well-defined anterior margin and mobile in nature. No thrill on auscultation was noted. No other neck nodes were palpable. Oropharyngeal examination revealed a bulge of the left tonsil. Diagnostic nasal endoscopy (Dne) and indirect laryngoscopy were normal.

Investigations

Ultrasound neck revealed a well defined mixed echoic focal lesion on left side of neck. FNAC-spindle cells arranged in singles and small groups, possibility of benign spindle cell tumor can be considered. CT SCAN- well defined heterogeneously enhancing lesion measuring 6.7*3.9cm in left carotid space. The lesion shows small non enhancing areas/foci within representing necrosis. The carotid vessels and IJV is pushed laterally. Parapharyngeal fat is displaced anteriorly. MRI- there is a well-defined oval T1 isointense and T2 hyperintense lesion measuring 6.9* 3.9 cm in left poststyloid parapharyngeal space extending into the carotid space. Carotid and jugular vein are displaced anteriorly. Suggestive of nerve sheath tumor.

Treatment

Patient underwent complete surgical resection and adjoining nerve resection by a transcervical approach.

Histopathology

Suggestive of schwannoma

Immunohistochemistry

Positive for S-100 and vimentin
Negative for GFAP and calretinin.
Suggestive of schwannoma.

Post operatively, the patient did not have any change in voice. A video laryngoscopy was performed which demonstrated equal movements of both the vocal cords. A careful clinical examination revealed Horner's syndrome with miosis, anhidrosis, enophthalmos and ptosis.

Discussion

Schwannomas are benign nerve sheath tumors deriving from Schwann cells that occur in the head and neck region in 25–45% of cases.¹ Cervical sympathetic chain schwannomas (CSCS) are rare, benign tumours originating from the superior or middle part of the cervical chain.² In the head and neck region, schwannomas most commonly arise from the vagus nerve. Langer et al found that among 21 patients suspected to have cervical schwannomas, sympathetic chain was affected in 4 cases (19%).^{3,4} Although it is benign, it can undergo malignant transformation in some patients.^{5,6} Most common age of presentation is between 20–50 years of age with no major sex predominance. Majority are asymptomatic but may cause pain on swallowing by pressure on surrounding structures or a sensation of sore throat.⁷ Patients presenting with symptoms of nerve compression are quite rare because schwannomas are relatively slow growing tumors and the cervical sympathetic trunk lies in a relatively loose fascial area.⁸ Pre operative diagnosis is difficult as schwannomas do not present with specific symptoms or imaging signs¹. However, a CECT is a good initial diagnostic tool which helps to assess the size and the extent of the tumor as well as gives information regarding the vascularity of the tumor. Anil et al⁸ reported that the internal heterogeneity is better studied by an MRI scan as compared to a CECT scan. Schwannomas are hypointense on T1 weighted images and appear hyperintense on T2 weighted images. Vagal schwannomas displace the IJV laterally and carotid artery medially whereas schwannomas arising from the cervical sympathetic chain displace both anteriorly without separating them.^{1,8}

Case Conclusion

Our patient's case demonstrates that, although cervical sympathetic schwannoma is rare, it should be considered as a differential diagnosis of all neck swellings,

especially if the great vessels are pushed anteriorly. In all cases the patient should also be counselled about the possible occurrence of Horner's syndrome, for which there is no effective treatment. The rarity of this case makes it interesting to report.



Figure 1- image demonstrating the external swelling on the left side of the neck



Figure 2- intra oral image showing the left tonsil being pushed medially

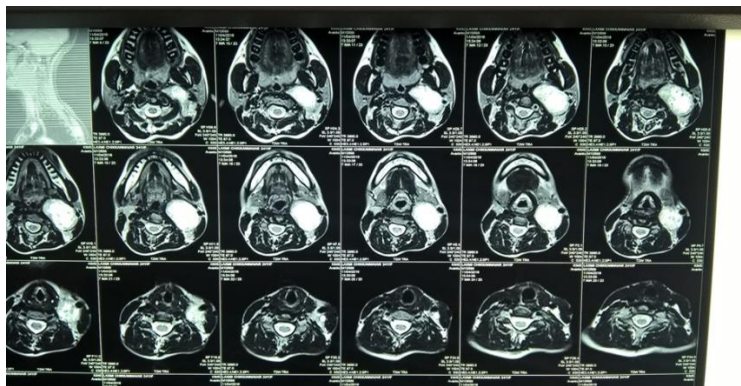


Figure 3- scan showing the location and extent of the tumour

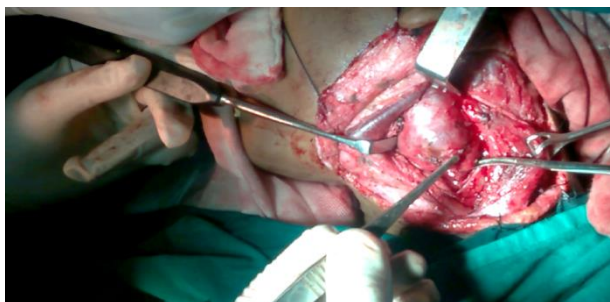


Figure 4- intra-operative exposure of the tumour



Figure 5- excised specimen of the schwannoma



Figure 6- post operative image of the patient showing features of horner's syndrome on the left side. (image used with permission)

Case 2

A 30 year old female presented with a painless pulsatile swelling on the left side of the neck since 2 years. Radiological evaluation revealed a carotid body tumor. Patient underwent transcervical excision. Histopathological evaluation revealed it as a carotid body tumor.



Figure 7- pre operative MRI scan showing location and extent of the carotid body tumour

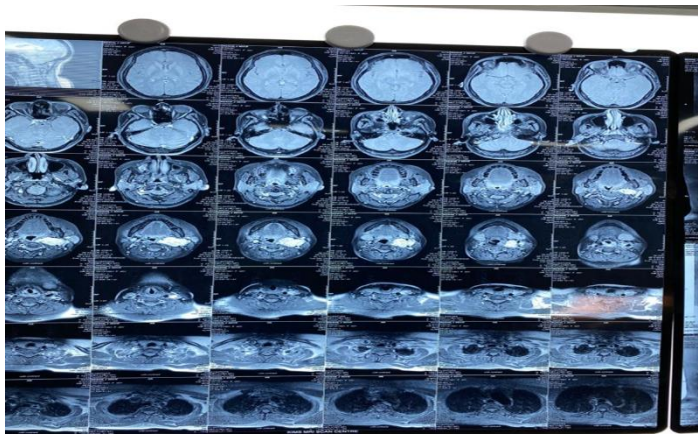


Figure 8- axial view images of MRI scan showing carotid body tumour

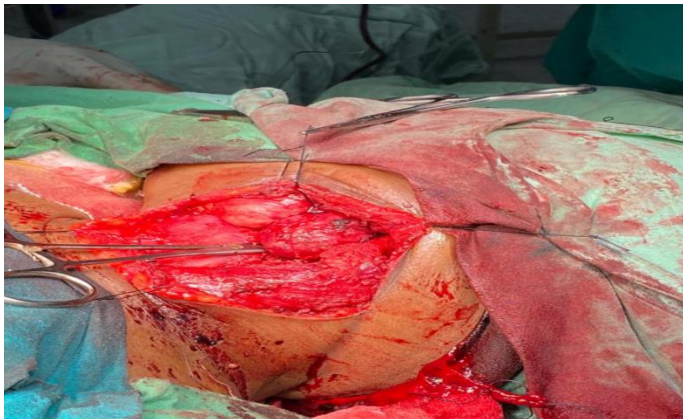


Figure 9- intraoperative exposure of the carotid body tumour

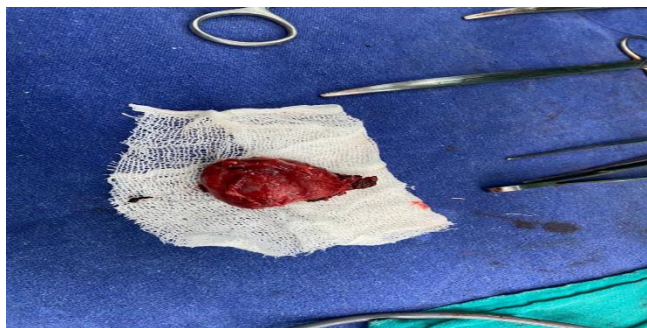


Figure 10- excised specimen of the carotid body tumour

Case 3

A 55 year old male presented with a painless swelling on the left side of the neck which was insidious in onset, gradually progressive. On examination the swelling was firm to hard in consistency. Dne and video laryngoscopy were remarkably normal. Contrast enhanced CT scan revealed a tumor arising from soft tissue. Patient underwent neck exploration and removal of the tumor with PMMC flap reconstruction. Histopathological analysis of the specimen revealed a soft tissue sarcoma



Figure 11- pre operative image of the patient presenting with a huge swelling (image used with permission)

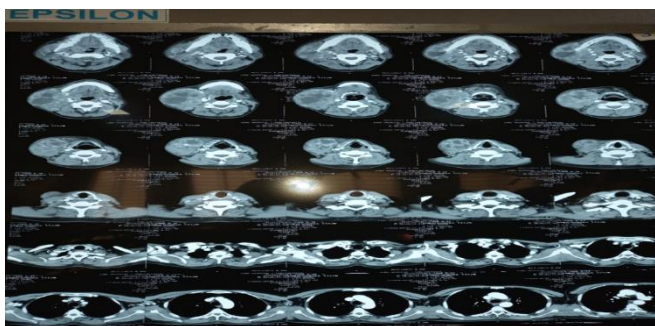


Figure 12- contrast enhanced CT scan showing the lesion

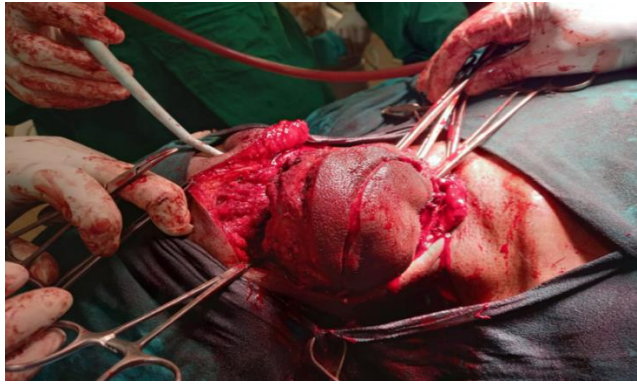


Figure 13- intra operative exposure of the tumour

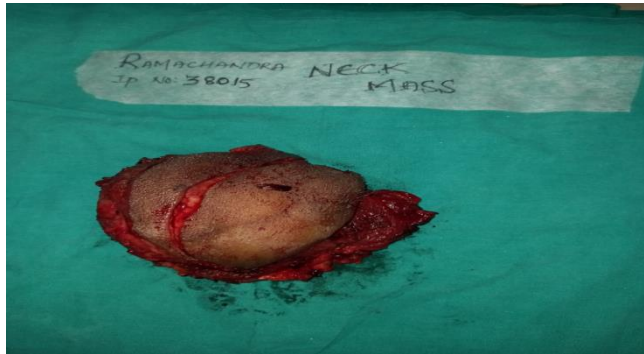


Figure 14- excised tumour specimen



Figure 15- reconstruction using PMMC flap

Conclusion

A swelling of the neck although of common occurrence, can present with variable morbidity and fear of cancer to the patient. A thorough clinical examination coupled with application of appropriate investigations helps in early diagnosis and initiation of appropriate treatment with good clinical outcomes.

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