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Case Report

Inability to speak, breathe, blink or eat: a case report of thyroid

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ABSTRACT

The thyroid gland, one of the main endocrine glands in our body, responsible for the production of thyroid hormones affects almost every system in the body. Not just the function but the location of the thyroid is equally important as growth or malignant infiltration can lead to the involvement of various important structures like the trachea, esophagus, major blood vessels, and nerves. This can lead to various compressive symptoms. :.Horner's syndrome is characterized by ptosis, miosis, and anhidrosis of the involved side of the face.

Background: We hereby present a case of long-standing thyroid swelling with rapid growth over the last two months which presented with features of dyspnea, dysphagia, change in voice, and unilateral Horner's syndrome.

Methods: A patient was referred to the emergency department of RIMS with complaints of difficulty in breathing and swallowing. There was a multinodular swelling present in the front of the neck. On enquiring, she complained of a change in voice. On examination discrepancy in pupillary diameter, with lid drooping and anhidrosis of the left side of the face was noted.

Results: The case was provisionally diagnosed as thyroid carcinoma due to hard palpable nodules. The patient was unwilling for surgery and was hence referred to the Department of Oncosurgery, RIMS.

Conclusions: Any swelling of the thyroid must be investigated thoroughly as there is always a risk of malignant transformation in long-standing thyroid swellings. Also de differentiation in thyroid cancers leading to anaplastic cancers which are characterized by rapid growth is a known complication.

Keywords: Horner's syndrome, thyroid swelling, compressive symptoms**.**

INTRODUCTION

The thyroglossal duct is derived from the median bud of the pharynx and its location is marked by the foramen cecum at the junction of anterior 2/3 and posterior 1/3 of the tongue. The functional unit is the lobule which consists of the follicles that store thyroglobulin. The thyroid mainly drains to the central lymph node compartment the Delphian and paratracheal groups. From there it drains to the deep cervical group(the lateral compartment) and the mediastinal group (level VII).(1)

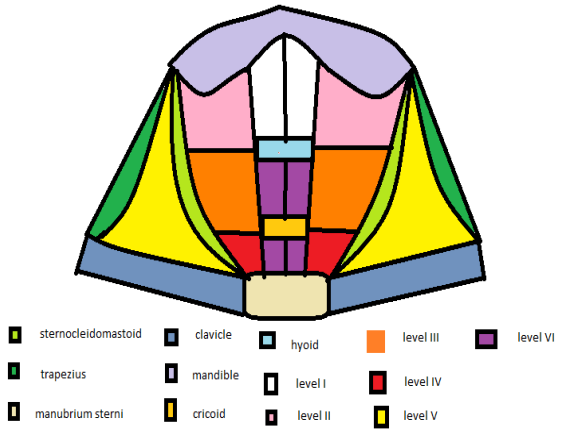
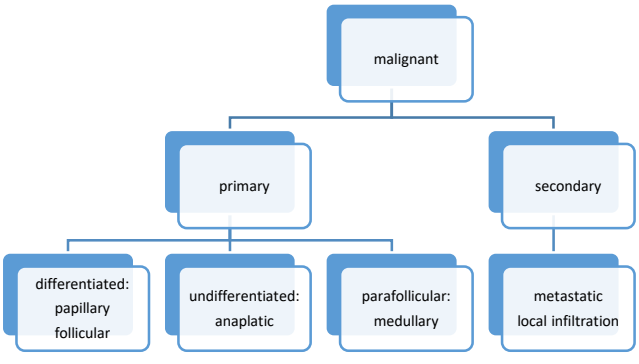


Figure 1: Various lymph node stations in the neck.

The vocal cord is supplied by the recurrent and the superior laryngeal nerves which are derived from the vagusnerve(cranial nerve X). Any damage to these nerves or infiltration of the vocal cord by the tumor can result in voice changes. The thyroid is attached to the trachea via the Berry's ligament which is a condensation of the deep cervical fascia. This attachment is responsible for the movement of the thyroid with deglutition.

The malignant disorders of the thyroid can be classified as primary or secondary.



Flow chart showing malignant neoplasms of thyroid

Malignancy	Incidence(%)	Risk factor	
Papillary	80(most common)	Irradiation	FNAC could be a diagnostic
Follicular	10	Endemic goitrous areas	Histopathological examination is needed for differentiation from benign follicular adenoma.
Anaplastic	5		Rapid growth
Medullary	2.5		Parafollicular c cells High levels of calcitonin and carcinoembryonic antigen
Lymphoma	2.5	Autoimmune thyroiditis	radiotherapy

Table 1: Incidence and risk factors for the development of different thyroid cancers.

Distant metastases, visceral invasion, and rapid growth characterize anaplastic cancer. The management is mostly palliative but in some instances, aggressive surgery with adjuvant radiotherapy or chemotherapy could be considered.(1)

Horner's syndrome is a combination of ptosis, miosis, and anhidrosis of the affected side of the face. The incidence is noted to be 2.93/lakh population.Ptosis is characterized by drooping of eyelids as compared to the other eyelid, miosis is described as the difference in pupillary diameter as compared to the normal side where the affected side has less pupillary diameter. Anhidrosis is defined as dryness on the affected side of the face. This occurs due to the inability to sweat normally

on the side of the lesion. This syndrome is usually seen in operated cases and was first described by Kaelin in 1915 but in our case, this syndrome was found pre-operatively.

There are three types of Horner's syndrome based on the oculosympathetic pathway.

Type of Horner's syndrome	origin	pathway	synapse	Lesion responsible
Type I	hypothalamus	Brainstem and spinal cord	Lower cervical or upper thoracic spinal cord	Brainstem and spinal cord
Type II	Spinal nucleus	Upper chest cavity	Superior cervical ganglion	Lesions in the upper chest cavity, pancreatic tumors, iatrogenic lesions including thyroidectomy and neck dissection
Type III	superior cervical ganglion	Carotid artery	Orbit and eye	Lesions in the neck, skull base, orbit, carotid diseases.

Table 2: Different types of Horner's syndrome

The causes of Horner's syndrome are mostly iatrogenic followed by direct invasion by tumor, trauma, and stroke. Horner's syndrome is described as a sympathetic nerve disruption and the resulting clinical features occur as a complication secondary to this. The occurrence of facial symptoms depends on the location of damage whereas the severity depends on the degree of impairment. The involvement of the superior tarsal muscle is responsible for ptosis and anhidrosis though rare is more manifested after exercise or fever. The miosis occurs due to a parasympathetic pupillary constrictor in the background of damaged sympathetic fibers which are responsible for dilating the pupil.(2)

CASE REPORT:

We hereby report a case of a 60-year-old female who presented to the emergency department of RIMS, with a complaint of difficulty breathing for the last 7 days. She had dyspnea for the last 2 months, difficulty in deglutition for the last 2 months, and a change in voice for two months. She had a history of a swelling in the front of the neck for the last 1 year which increased in size progressively but there was a rapid increase in the size of the swelling in the last two months. There was no associated history of fever. The patient complained of weight loss due to difficulty in swallowing, there was no history of hair loss. The patient had attained menopause 12 years back. She was P2L2A0. She underwent BLTL 36 years back.

On examination, the patient was conscious and cooperative. The pulse rate was 120 beats per minute and saturation was 88% on room air. Blood pressure was 120/70 mm Hg in the right arm supine position. There was mild pallor, no icterus, jaundice, cyanosis, or clubbing. The cervical lymph nodes could not be appreciated separately from the swelling on palpation. There were no other lymph nodes palpable in other areas of the body. The patient had a nasogastric tube in situ through which she had been receiving feeds for the last 7 days. There was no loss of hair or loss on the lateral side of the eyebrows. No history of diarrhea or constipation. On inspection, there were no tremors in the tips of the fingers or tongue tremors.

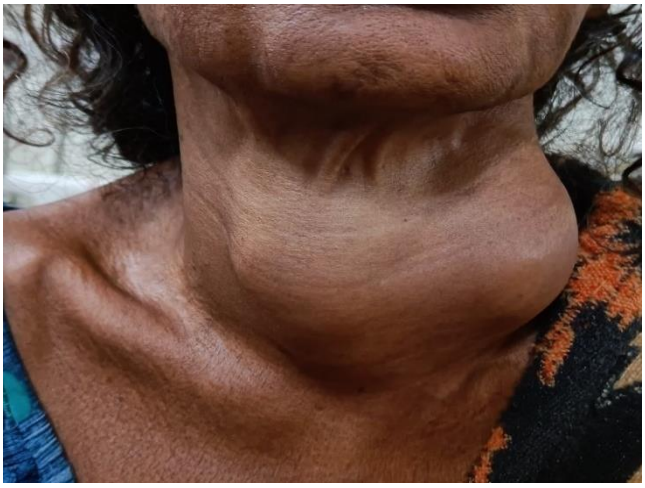


Figure 2 -Multiple nodules in the front of the neck

On inspection, a multinodular swelling was noted in the front of the neck which was not moving with protrusion of the tongue and had limited mobility on deglutition. There was a disparity in the level of the eyelids and the size of the pupil with the left eyelid being 5 mm lower than the right eyelid and the diameter of the right pupil being 5 mm compared to the diameter of the left pupil being 3mm.

Figure 3: Signs of Horner's syndrome like drooping left eyelid and ptosis of the left pupil.

	Right side	Left side
Distance of eyelid from glabella	12mm	17mm
Diameter of pupil	5mm	3mm
Moisture of the side of the face	normal	decreased

Table 3: symptoms in the patient suggestive of Horner's syndrome.

The nodules were found to be non-tender and there was no local rise in the temperature over the swelling. There was no discoloration or venous prominence noted over the swelling. The Pemberton sign could not be assessed as the patient did not maintain saturation on room air and was dyspneic. The size of the nodules was described as 6.2x4.7 cm and 3.9x3.5 cm in craniocaudal and horizontal directions respectively. They were hard in consistency. The swelling had restricted mobility on deglutition and the side-to-side mobility was restricted as well. The selling was found to be fixed to the sternocleidomastoid. The skin over the selling was stretched and shiny but no involvement of skin was noted on percussion. Dullness was noted over the manubrium sterni.

The patient had undergone an X-ray of the neck which showed deviation of the trachea and the compression of the trachea by the swelling. The trachea is found to be deviated to the right. Figure 2 shows the marked trachea and the described deviation.

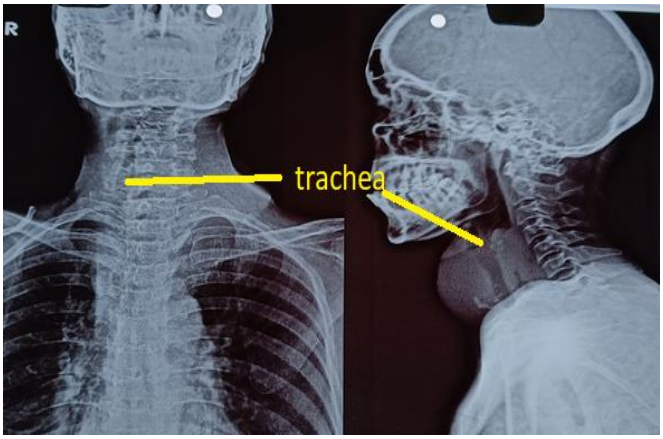


Figure 4: showing X-ray neck of the patient with the trachea marked. The trachea is seen to be deviated towards the right side and is compressed.

The patient was also subjected to computed tomography which showed multiple nodules causing significant mass effects on the surrounding structures like the trachea and the proximal esophagus, compressing them towards the right side. The largest nodule was 6x4.8cm. The nasopharynx, submandibular, and parotid glands were found to be normal. There were enlarged paratracheal and mediastinal lymph nodes. Multiple enlarged lymph nodes were noted at levels II, III, and IV. The largest lymph node showed central hypodensity suggestive of necrotic changes.

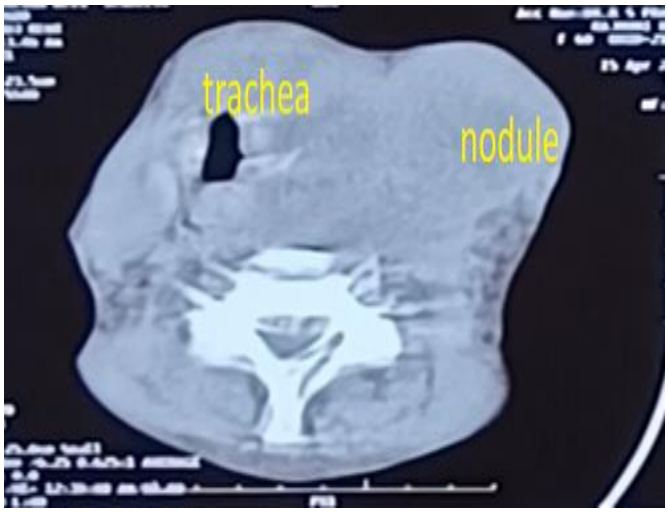


Figure 5 The cut section of the CT film showing the trachea deviated towards the right and nodules can be appreciated

The rapid increase in the size of the swelling and its involvement with the surrounding structures raised the suspicion of anaplastic carcinoma of the thyroid. The patient was referred to the Department of Oncosurgery for further management.

DISCUSSION

Horner's syndrome is characterized by ptosis, miosis, anhidrosis, and enophthalmos and could be associated with vascular dilation of the affected side of the face. The sympathetic nerve due to its close and variable anatomy near the thyroid gland is prone to damage during the surgeries of the thyroid. Various theories have been described for the involvement of this nerve.

Cause	Effect
Lateral traction	Stretching of the nerve
hematoma	Compression over the cervical sympathetic chain
Ligature on inferior thyroid artery trunk	ischemia
Variable anatomy in relation to inferior thyroid artery	Difficulty in identification

Table 4: Reasons for the development of Horner's syndrome

The concept of vascular supply to the sympathetic chain via the inferior thyroid artery was proposed by Solomon et al, the ligation of which is responsible for ischemic changes and subsequent Horner's syndrome. The incidence of Horner's syndrome increases with more extensive thyroid surgery either for malignant tumors or large goiters and also when level III lymph node dissection is carried out. (3)

Horner's syndrome can result from disruption of ipsilateral sympathetic nerves at central preganglionic and postganglionic levels. (4)

level	cause
Central	Stroke
Preganglionic	Trauma tumors
Postganglionic	Cluster migraine Carotid dissection

Table 5: location of various lesions for Horner's syndrome.

CONCLUSIONS

The delay in presentations due to lack of awareness is responsible for the major part of morbidity and mortality in thyroid disorders. The importance of iodine substitution and early presentation to the surgery department needs to be emphasized and communities need to be taught regarding this.

DECLARATIONS

Funding: none

Conflict of interest: none

Archive:

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