

Case Report

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Adult Benign Mature Teratoma as an Unusual Presentation in the Neck

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Abstract

Teratomas are embryonal tumours that emerge when totipotent germ cells evade the developmental control of primary organizers and give rise to tumours with tissue from all three blastodermic layers. Adult teratomas of the neck are very uncommon. It often causes a localised mass effect by extending from the neck to the thoracic cavity. However, there are just a few documented occurrences of adult-onset teratomas in the literature. Infants are far more likely than adults to have cervical teratomas, and adult teratomas have a higher malignant potential than paediatric cases. Cervical teratomas can grow to gigantic sizes and restrict airways. Surgery is the main form of treatment as malignant change takes place.

Here, we provide a case of a benign neck teratoma in an adult female patient. Even though adult cervical teratomas are incredibly uncommon, they should be taken into consideration as a key differential diagnosis in anyone experiencing midline cystic neck swelling. Radiological preoperative investigations demand a high degree of scepticism. Complete surgical resection is advised.

INTRODUCTION

Teratoma is derived from the Greek word “teras” which means monster. Virchow coined this term in 1863. Numerous locations and organs have been associated with teratomatous tumours. They occur most frequently in the ovary and testis, less frequently in the mediastinum and retroperitoneum, and infrequently in other areas such as the brain, liver, sinuses, thyroid and cervical region [1,2]. For a tumour to be classified as a teratoma, tissue must exhibit traits from each of the three germ layers. The malignant potential of the lesion depends on how immature the tissue is.

Cervical teratomas are quite uncommon. Infants are far more likely than adults to have cervical teratomas, and adult teratomas are potentially malignant than those in children.

Cervical teratomas can grow to gigantic sizes and restrict airways. The mass effect of these lesions is mostly blamed for the symptoms. Depending on the size of the tumour, respective symptoms may be present. Small tumours might not show any symptoms at all. A large teratoma, however, may cause disfigurement to the patient and pressure effect to the surrounding organs like oesophagus and trachea [3].

CASE PRESENTATION

A 20 year old female patient presented with swelling on anterior and left side of neck since 1 year which was progressively increasing in size. There was no history of pain in swelling, fever, trauma, hoarseness of voice, dysphagia, dizziness, dyspnoea, tremors and palpitations. There was no past history of thyroid disease in the patient and her family. Physical examination revealed a palpable mass of approximate 10 x 5 cm on left anterior aspect of neck [Figure 1A] extending from 1cm below the angle of mandible superiorly, 1cm medial to the right anterior border of sternomastoid crossing the midline, abutting the posterior border of left sternomastoid, inferiorly 1cm above the suprasternal notch and both sternoclavicular junction [Figure 1B]. The swelling was soft in consistency, non-tender and non-fluctuant in nature. There was evidence of movement of swelling on deglutition. Overlying skin was found to be normal. Signs of inflammation were absent. There were no palpable cervical lymph nodes. Systemic examination was within normal limits.

Patient was planned for transcervical excision of the mass. The patient underwent surgery under general anaesthesia with orotracheal intubation. Incision was made over the anterior aspect of neck extending from posterior border of one sternocleidomastoid to another. Subplatysmal flap elevated. After dissecting the fibres of strap muscles, a multilobulated mass with cystic and solid component around 10x5 cm was discovered. Mass was closely abutting left lobe of thyroid gland, after precise delineation, Left lobe of Thyroid gland was not found to be infiltrated. The mass was removed in toto as the rest of adjacent structures were not infiltrated [Figure 1C]. Left recurrent laryngeal nerve was identified and preserved. The voice of the patient was normal in post-operative day 1 and

there-on. Patient was discharged later on postoperative day 7 without any particular complaints. Uneventful recovery followed. Clinical follow up of the patient for 11 years has demonstrated no recurrence so far.

Gross Examination

The excised mass was pinkish white, 10x5 cm in size, external

surface is irregular and multilobulated. Cut surface shows multiple variable cysts at one pole and fat, hair, cartilage at other pole. The cystic area was predominantly occupying 60% of the specimen. No gross capsular breach noted [Figure 1D].

Histopathological examination [Figure 2]

Section examined from midline neck swelling shows cystic

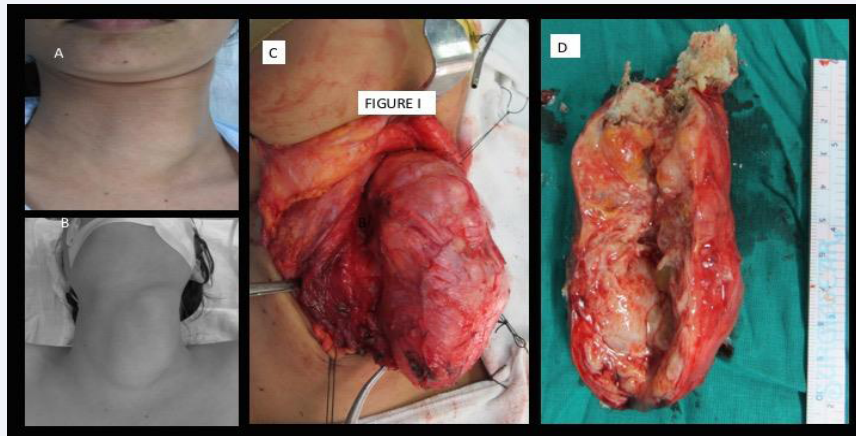


Figure 1 Swelling on anterior and left side of neck.

A. 10X5 cm mass in the left anterior aspect of neck.

B. Mass as seen after extension of neck prior to surgery and after intubation.

C. Appearance of mass after retraction of strap muscles and l sternocleidomastoid. L lobe of thyroid can be seen separately. C. Appearance of mass after retraction of strap muscles and l sternocleidomastoid. L lobe of thyroid can be seen separately.

D. Appearance of mass after retraction of strap muscles and l sternocleidomastoid. L lobe of thyroid can be seen separately. Cut specimen showing tuft of hair, cheesy material, solid and cystic components.

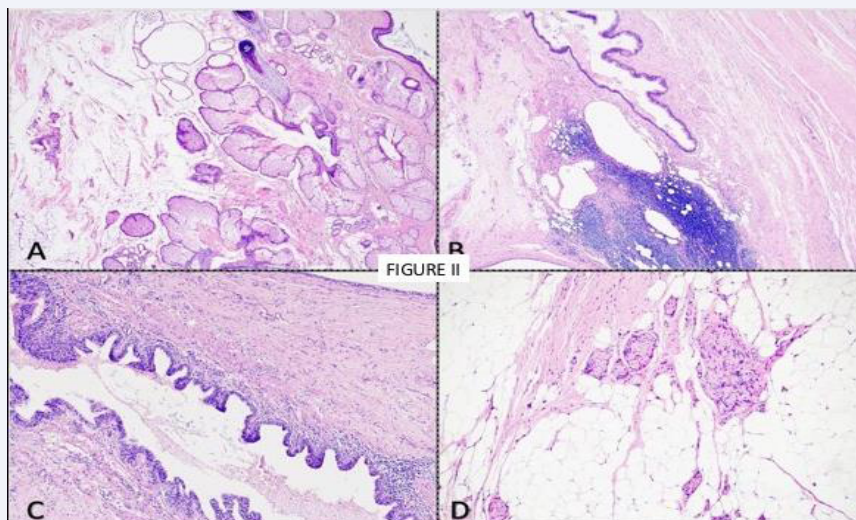


Figure 2 Histopathological examination.

A: (100x, H and E): Ectodermal component in the form of stratified squamous lining epithelium and pilosebaceous units

B and C (100x and 200x, H and E): Endodermal component in the form of respiratory lining epithelium

D: (200x, H and E): Mesodermal component composed of lobules of mature adipose tissue and bits of smooth muscle.

lesion filled with keratin and lined by stratified squamous epithelium. The cyst wall shows gut to respiratory epithelium. Adnexal structures, hair follicles, sebaceous glands are also seen. Cartilage and glial tissue is also present. Thyroid follicle filled with colloid also present. Calcifications seen, overall features are those of Benign Cystic Teratoma

DISCUSSION

Teratomas are embryonal tumours that emerge when totipotent germ cells evades the developmental control of primary organizers and give rise to tumours with tissue from all three blastodermic layers -ectoderm, endoderm, and mesoderm [4]. During the first week of intrauterine life, the germinal cells migrate from the vitelline sac and colonise the sexual cord, generating undifferentiated, rudimentary gonads they halt their migration during this time and become a germinal tumour [5]. Hess described the first instance of neck teratoma in 1854, and Wetzel reexamined it under a microscope in 1895 [6].

The frequency of cervical teratomas is one in every 4000 births. Teratomas that develop in the anterior and posterior triangles of the neck are included in cervical teratoma [1]. It only makes up 3% of all teratomas. They affect women more often than men [4] (75% of the time). Cervical teratoma was observed to occur in 75.1% of newborns, 14.3% of children aged 1 month to 18, and 10.6% of adults, respectively [1].

Cervical teratomas are divided into thyroid teratomas and extrathyroid teratomas depending on where they originated [2]. For the diagnosis of primary thyroid teratoma one of three conditions must be met, 1) a tumour must occupy a portion of the thyroid gland, 2) a direct connection must exist between the tumour and the thyroid, and 3) a teratoma is accompanied by the absence of the thyroid [6].

The clinical presentation and prognosis of these tumours are similar, and the majority of cervical teratomas have some connection to the thyroid. As a result, many researchers have given up on distinguishing between these tumours and now refer to all neck teratomas as cervical teratomas [3].

The diagnosis is corroborated radiographically by magnetic resonance imaging, computed tomography, or ultrasonography. There have been reports of cervical teratomas turning malignant. Fine needle aspiration cytology gives us a cytological picture of the lesion the elective course of action is total surgical removal [7,8]. In general, adjuvant chemotherapy or radiotherapy is thought to be unsuccessful [4].

The differential diagnosis of cervical teratoma is metastasis from thyroid carcinoma, cystic squamous cell carcinoma of cervical lymph node arising in the oro/ nasopharynx, follicular adenomas of the thyroid, lymphangiomas, and bronchial cysts [4].

A full or a portion of the thyroid gland may need to be removed during surgery to remove a cervical teratoma. In such circumstances, the affected persons must undergo hormone replacement treatment in order to acquire the hormones that the thyroid typically produces [3]. Recurrence of the tumour in infants with a benign cervical teratoma is extremely rare. Adult cases of malignant cervical teratomas tend to recur more frequently. Thyroid teratocarcinoma has also been reported in the literature [9] Periodic monitoring of affected people is necessary to look for recurrence.

CONCLUSION

Even though adult cervical teratomas are incredibly uncommon, they should be taken into consideration as a key differential diagnosis in anyone experiencing midline cystic neck swelling. Radiological preoperative investigations demand a high degree of scepticism. A complete surgical resection is advised along with regular follow up to look for recurrence.

Ethical Standards

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional guidelines on human experimentation (Indian-GCP, ICH-GCP, ICMR guidelines) and with the Helsinki Declaration of 1975, as revised in 2008.

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