

Anterior Neck Swelling in a Healthy Young Man as the Tip of the Mature Mediastinal Cystic Teratoma

Olgun Mediastinal Kistik Teratoma Tipinde Sağlıklı Genç Bir Adamda Anterior Boyun şişmesi

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ABSTRACT

In a healthy young adult, an anterior neck mass can be derived from large variety of entity, more commonly being branchial cyst, thyroglossal duct cysts or thyroid gland in origin. Cervical extension of anterior mediastinal mass such as teratoma, thymoma or thymic cyst are uncommon but it needs to be taken into account. Differential diagnoses are narrowed down based on a comprehensive information of clinical presentations and sometimes with aids of specific imaging such as conventional chest radiography, ultrasonography and computed tomography. We report a 19-year-old man who was initially managed as an anterior neck abscess with retrosternal extension of the collection into anterior mediastinum, which was later found out to be an infected cervical cystic extension of an anterior mediastinal teratoma. Referral to cardiothoracic team was made and excision of the teratoma was made uneventfully.

Key Words: Anterior neck mass, teratoma, mediastinum, abscess

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ÖZET

Sağlıklı bir genç erişkinde, ön boyun kitlesinin çeşitli nedenleri olabilir; daha yaygın olarak orijinleri bransial kist, tiroglossal kanal kistleri veya tiroid bezi olabilir. Teratoma, timoma veya timik kist gibi anterior mediastinal kitlenin servikal ekstansiyonu nadir olmakla birlikte, göz önünde bulundurulmalıdır. Ayırıcı tanı; klinik olgulara ve bazen de akciğer grafisi, ultrasonografi ve bilgisayarlı tomografi gibi spesifik görüntüleme yöntemlerine dayalı olarak daraltılır. İlk olarak, anterior mediasten içine retrosternal uzayan anterior boyun apsesi olarak başlanan 19 yaşında bir erkek hastayı sunduk. Anterior mediastinal teratomun daha sonra enfeksiyona uğramış bir servikal kistik ekstansiyon olduğunu keşfettik. Kardiyotorasik ekibin başvurusu yapıldı ve teratomun eksizyonu sorunsuz yapıldı.

Anahtar Sözcükler: Anterior boyun kitlesi, teratom, mediasten, apse

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INTRODUCTION

The most common tumors of the anterior mediastinum include thymic malignancies and lymphoma, but the prevalence of the different abnormalities varies markedly according to age and gender.¹ Thymoma is the most common anterior mediastinal mass and primary tumor of the anterior mediastinum, with the highest incidence in middle-aged patients. Other tumors of the anterior mediastinum include benign teratomas and malignant germ cell tumors such as seminomas and non-seminomatous germ cell tumors. Thymic cysts and benign cystic lesions are among the most common non neoplastic lesions of the anterior mediastinum. Additional non-neoplastic masses include vascular abnormalities, substernal extension of thyroid goiters, other cystic lesions such as pericardial or bronchogenic cysts, and lesions related to infection such as tuberculosis(1,2). In children, lymphoma is the most common primary anterior mediastinal tumor. Germ cell neoplasms are the second most prevalent tumor, followed by thymic lesions and mesenchymal tumors(2).

CASE REPORT

An 18-year-old young and healthy gentleman presented with painless anterior neck swelling for 6 months. There were no dysphagia or shortness of breath. Clinically there was a diffuse soft anterior neck swelling measured 10 cm x 2 cm, smooth surface and non-tender, with normal underlying skin. Superiorly it started at the cricoid level however the inferior border was not palpable. There was a 6 cm well-healed horizontal incision scar (Figure 1). The trachea was not palpable. There was no palpable neck nodes or dilated tortuous neck or chest wall veins seen. Chest radiography showed a mediastinal widening.

Six months prior to this presentation, he was treated for a neck abscess, after presented to another hospital with anterior neck swelling of 4 cm x 5 cm size, for 2 weeks duration. As the inferior border of the mass was not palpable, a computed tomography (CT) imaging was performed and it confirmed the neck abscess with anterior mediastinal extension. Incision and drainage under general anesthesia was performed in which about 400 cc brown darkish fluid was drained from the anterior neck collection.

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The culture was negative, and cytology report showed no malignant cell. He completed 2 weeks intravenous antibiotic (Ceftazidime & Metronidazole) and he was well upon discharge with anterior neck swelling fully resolved.

A repeat CT scan 3 weeks after revealed a resolved collection over the neck region, however, the homogenous multi-lobulated density was found over the superior and anterior mediastinum measuring 5.4 cm x 6.8 cm x 10 cm (Figure 2). Small area within this lesion showed fat attenuation and no calcification seen. Superiorly, this collection was above the clavicle, antero-inferior to the inferior pole of right thyroid and extended inferiorly till the level of ascending aorta. Posteriorly, this collection extended till the anterior wall of the trachea. Superior vena cava is displaced laterally and right common carotid artery was displaced posteriorly. The left internal jugular vein and left brachiocephalic vein thrombosis noted.

He underwent the excision of the mass via median sternotomy. Intra-operatively there was a lobulated soft tissue tumour with small part of calcification, located in the anterior and superior mediastinum. Superiorly the mass extended to lower neck just anterior to cervical tracheal wall without trachea involvement. The tumour was well-encapsulated and completely removed (Figure 3). Histopathology of the resected specimen confirmed the diagnosis of mature cystic teratoma. The microscopic examination of anterior mediastinal mass specimen exhibited composition of ectoderm, mesoderm and endoderm germ cells components. No immature component is identified and no malignant transformation noted. Cut section of the mass showed mixture of solid and cystic components. The beta-HCG and alfa-fetoprotein tumor markers remained within normal range. The patient made an uneventful post-operative recovery and under follow up by cardiothoracic team.



Figure 1: Neck examination prior to mediastinal mass excision. A well-healed horizontal scar over lower neck was noted with bulging of a smooth and diffused anterior neck mass from lower neck till suprasternal level.



Figure 2: CT imaging of the mediastinal mass. 2a. Axial view: Multiseptated cystic collection noted at anterior mediastinum. 2b. Sagittal view



Figure 3: Gross specimen of anterior mediastinal soft tissue mass measured 78 mm x 108 mm x 42mm.

DISCUSSION

Teratoma is a type of germ cell tumor, which consists of several different types of tissue, such as hair, muscle, or bone. They typically form in the ovaries, testicles, or tailbone and less commonly in other areas(3). They are divided into two types mature and immature. Mature teratomas include dermoid cysts and are generally benign. Immature teratomas may be cancerous(4). Definitive diagnosis requires a confirmatory tissue biopsy.

Teratomas account for 8–13% of tumors in this region(5). Most of them were found in the anterior mediastinum while only 3–8% arising from the posterior compartment(6-8). The patients are usually asymptomatic because of the slow-growing nature of the mass, and are often incidentally picked up on chest radiographs. Complications such as atelectasis, adhesion to, or compression of, adjacent structures, or malignant transformation are occasionally encountered(8).

These tumors have in fact excellent prognosis when resection is complete(9). Alpha fetoprotein is a good tumor marker since it is usually elevated in yolk sac tumor and immature tumors and only very seldom in mature ones(10). Surgical excision is the treatment of choice for mediastinal teratomas. Median sternotomy provides excellent exposure, but when the tumor involves either hemithorax lateral thoracotomies may be preferred(11).

This case was initially managed with the impression of a neck primary disease, treated as anterior neck abscess with inferior extension into superior and anterior mediastinum. The points that suggestive of neck abscess included the history of rapidly increasing neck swelling within 2 weeks short duration with pain and skin erythematous changes and low grade fever at presentation with no prior history of underlying neck swelling. Furthermore, CT scan of neck and thorax also provide features suggestive of abscess collection in neck and mediastinum rather than infected cystic lesion or mass in mediastinum. The high index of suspicion raised in this case should be the consideration of why did this healthy young gentleman acquired a neck abscess that advanced so extensively in such a short duration and he was clinically relatively well except some mild local tenderness in neck region and low grade fever at presentation without chest pain or shortness of breath. We do expect this rapid deterioration of neck abscess in a patient with debilitating condition such as immune-compromised or diabetic patient, or those on immune-suppression therapy.

The doubt of diagnosis raised after the intraoperative finding showed no pus collection, but aspiration of 400cc dark brownish fluid which suggested an infected cystic lesion of neck and mediastinum rather than the neck abscess. In consideration retrospectively, a suggestion step of large bore needle aspiration over the neck mass might aid to differentiate a cystic lesion from pus collection. Fortunately, patient was doing well with completion of 2 weeks intravenous antibiotic with neck swelling fully resolved and no chest compression symptoms.

In this case, the lower border of the neck mass was not reachable on palpation. This finding might have given a clue of possibility of cervical extension of a primary mediastinal lesion, though neck primary with substernal extension are both possible. Chest radiography can be helpful in showing mediastinal mass shadow in such suspicion, but CT thorax is more superior as it gives more detailed information about the extension of the mass, and aids in differentiating the possible content of the mass and help in surgical planning later. Recent literature reviews showed surgical excision has proven excellent outcome in the management of mediastinum mature teratoma. At last, our patient had undergone an uneventful excision of mediastinal teratoma via median sternotomy approach.

Certain anterior mediastinal tumors can be reliably identified by imaging alone, including substernal goiters, benign teratoma, and benign cysts. However, many anterior mediastinal tumors exhibit suggestive but inconclusive imaging features; when the imaging correlates with the typical clinical features a presumptive diagnosis can be quite reliable. Multidiscipline team approach between the clinician and the radiologist is crucial when evaluating most anterior mediastinal tumors. Less conclusive imaging features should be correlated with specific clinical features; in many cases this will strongly suggest a particular diagnosis and a further evaluative or treatment strategy.

CONCLUSION

In dealing with anterior neck swelling pathology, the possibility of cervical extension of anterior mediastinum lesion as one of the possible entity should be taken into consideration when the clinical evidence demonstrated continuity of the neck mass with substernum region.

Conflict of interest

No conflict of interest was declared by the authors.

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