



# Cystic Neck Mass in an Adult: Unusual Manifestation of a Mediastinal Mature Teratoma

## 성인에서 경부 낭성 종괴로 나타난 전종격동 기형종의 증례 보고

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Anterior mediastinal teratomas are congenital tumors containing derivatives of all three germ layers. They usually grow slowly and are often detected incidentally by imaging studies. We describe the case of a 38-year-old man with an anterior mediastinal teratoma extending to the anterior neck, which resulted in a cystic neck mass.

### Index terms

Teratoma

Mediastinal Neoplasms

Neck

Tomography

Computed Tomography, X-Ray

Received May 4, 2018

Revised June 15, 2018

Accepted June 16, 2018

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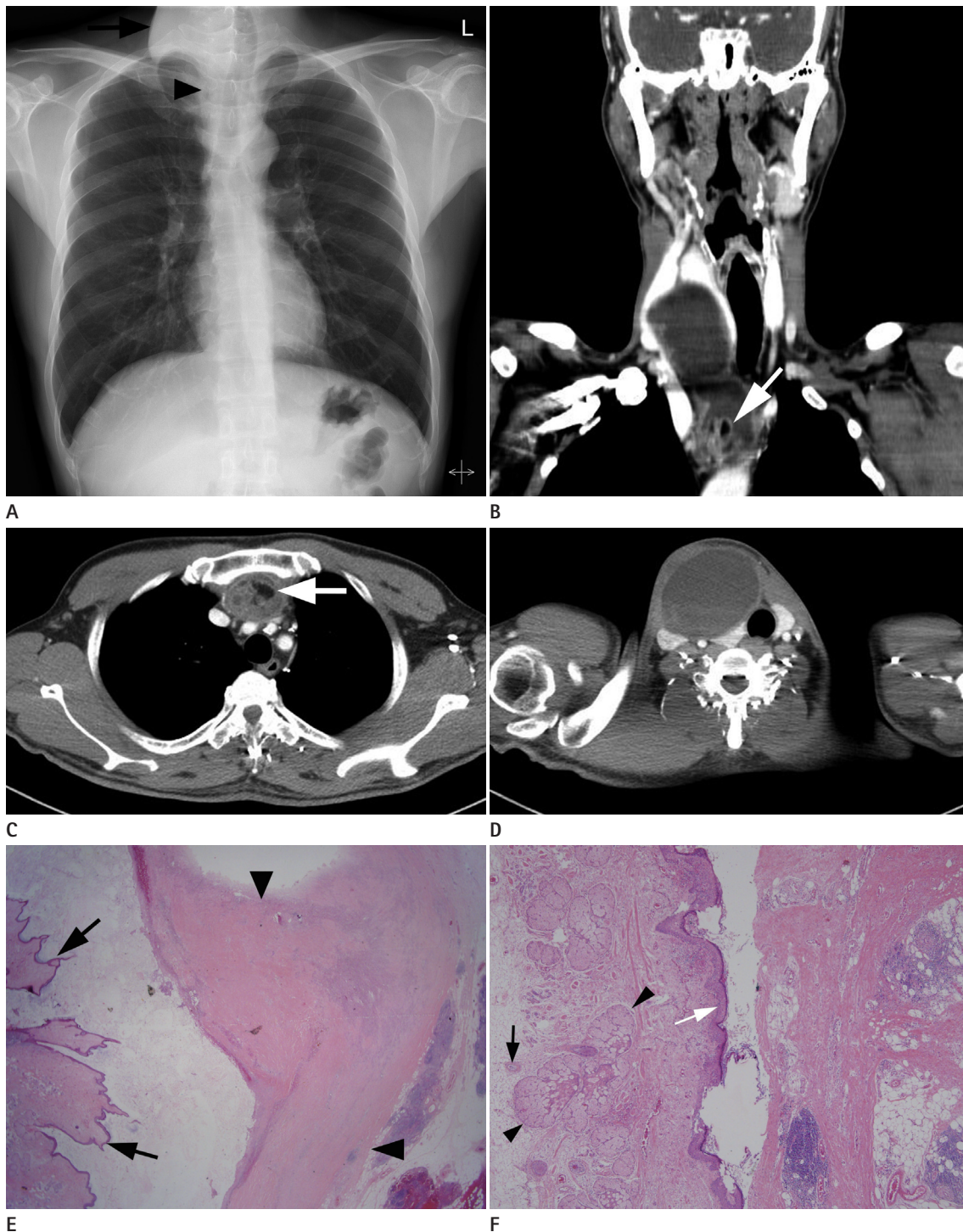
## INTRODUCTION

Teratomas are germ cell tumors that originate from totipotent cells and are composed of tissues arising from more than one germ cell layer (1). Teratomas are usually located in the sacrococcygeal region, though they also occur in descending order in ovaries, testes, anterior mediastinum, retroperitoneum, and finally the head and neck, which in total account for less than 5% of cases (2-5). Although mediastinal teratomas are the most common extragonadal germ cell tumors (4), they rarely extend to the head and neck regions. To the best of our knowledge, only one case of mediastinal teratoma presenting as a cystic neck mass has been reported (6). Here, we report a rare case of anterior mediastinal teratoma extending to the anterior neck that resulted in a cystic neck mass.

## CASE REPORT

A 38-year-old man presented with right anterior neck swelling of five months duration. He had complained of a palpable lower cervical neck mass a few months previously, but at the time a thyroid mass was suspected. Fine needle aspiration was performed, but revealed only a colloid nodule. Subsequently, the mass, which was located in right paratracheal area, increased in size without associated focal or systemic inflammatory manifestations. The patient remained asymptomatic with no dysphagia, aspiration symptoms, or breathing difficulty.

Physical examination revealed a right-sided anterior cervical mass which crossed midline. The mass was soft and non-tender to palpation, there was no discoloration or sinus/fistula opening of the overlying skin, and there was no significant medical his-



**Fig. 1.** A 38-year-old man with an anterior mediastinal teratoma extending to the anterior neck.

**A.** Chest radiograph shows right neck swelling (arrow) with widening of the right paratracheal stripe (arrowhead) and left tracheal deviation.

**B–D.** Contrast-enhanced coronal (**B**) and axial (**C, D**) CT images show a well-defined, cystic and solid mass in upper mediastinum extending to the anterior neck. The solid component in upper mediastinum shows heterogeneous enhancement and fat component (arrows in **B, C**) and connects with a multi-septated cystic component in the anterior neck without fluid-fluid level (**B**). The cystic component compressed the right thyroid lobe without evidence of invasion (**D**). Trachea was deviated to the left side but without airway narrowing.

**E.** Histological examination reveals a mass with normal skin tissue (arrows) in fibrous thymic capsule (arrowheads) (hematoxylin and eosin stain,  $\times 12.5$ ).

**F.** Histological examination reveals normal skin adnexa, such as epidermis (white arrow), sebaceous gland and duct (arrowheads), hair follicles (black arrow), suggestive of normal skin tissue (hematoxylin and eosin stain,  $\times 40$ ).

tory of trauma, fever or congenital anomaly. Laboratory results were of no diagnostic importance and there was no sign of infection.

Chest radiograph showed right neck swelling with widening of the right paratracheal stripe and left tracheal deviation (Fig. 1A). Neck ultrasonography images obtained in an outside clinic revealed a huge cystic mass lying superficial to thyroid lobes. Contrast-enhanced computed tomography (CT) images demonstrated a well-defined, cystic and solid mass in upper mediastinum extending to the anterior neck (Fig. 1B). The mass ranged from the aortic arch to the thyroid cartilage level (C5–T4 level) and its longest diameter was 13 cm in the craniocaudal direction. The solid component in upper mediastinum exhibited heterogeneous enhancement and fat component (-85 Hounsfield units) (Fig. 1B, C) and connected with a multi-septated cystic component in the anterior neck without fluid-fluid level (Fig. 1B). The mass in the mediastinum abutted great vessels without vascular compromise, and no lymphadenopathy was noted. The cystic component compressed the right thyroid lobe without evidence of invasion (Fig. 1D). Trachea was deviated to the left side but without airway narrowing.

The patient was planned for complete resection. He underwent resection of the tumor via neck crease incision and median sternotomy under general anesthesia. The tumor was observed in the anterior neck. Adhesion between the capsule of the anterior neck mass and surrounding tissues was severe, and the capsule was ruptured during dissection. The yellowish fluid came out of the ruptured capsule and was removed. There was no apparent invasion into major blood vessels or adherent structures. The intrathoracic mass was then removed.

Grossly the mass had a pinkish yellow color, weighed 52.4 g and was of dimension  $6.7 \times 5.2 \times 2.2$  cm. The cyst was filled with the yellowish fluid and hemorrhage. Pathologic examination revealed a mature cystic teratoma in thymus (Fig. 1E) with acute and chronic inflammation. Its mature tissue components included epidermis, sebaceous glands and ducts, connective tissue, smooth and skeletal muscle, hair follicles, and adipose tissue (Fig. 1F). No immature components were observed.

The patient remained asymptomatic over 5 years of follow-up, and follow-up imaging studies showed no evidence of any residual or recurrent mass.

## DISCUSSION

Benign cervical cysts are common during childhood and adolescence, and usually presents as progressively enlarging masses in the neck or as symptoms related to compression of surrounding tissues, such as, dysphagia, dyspnea, or recurrent episodes of infection (7). The differential diagnosis of cystic neck mass in an adult includes branchial cleft cyst, thyroglossal duct cyst, lymphatic malformation, neurenteric cyst, esophageal duplication cyst, and mature cystic teratoma. Cystic lesions of the neck are usually benign, but occult thyroid carcinoma presenting as a cervical cyst has occasionally been reported (8).

Mediastinal teratomas are usually asymptomatic and are often discovered incidentally by chest radiograph. Teratomas are generally slow-growing benign tumors and asymptomatic gradual enlargement is not uncommon. However, our patient showed a relatively rapid increase in the growth of the cystic component over a few months. The mechanism underlying the rapid growth of mature teratoma is unknown, though it has been reported that rapid enlargement is often associated with secondary infection or inflammation (9). In our case, the presence of yellowish fluid in the tumor and acute and chronic inflammation on pathology suggest that the cystic component of the tumor may have rapidly grown in size due to inflammation or infection and may have escaped into the neck. In addition, the patient had received needle aspiration for the cystic neck mass before admission, and bleeding after aspiration may have increased the size of the cyst. Fluid in cystic teratoma originates from secretions by intestinal epithelium, pancreatic tissue, structural degeneration (autolysis), and hemorrhage after needle aspiration (10).

In our patient, a mediastinal CT scan demonstrated the extent of the mass, but it can also detect fat, calcification or cystic components of mediastinal tumors and enable assessments of degrees of adjacent tissue invasion. Patients with a neck mass usually undergo ultrasonography, and ultrasonography well demonstrates relationships between masses and surrounding structures, especially with the thyroid gland and great vessels, although evaluation of mediastinum is difficult. Therefore, if intrathoracic extension of the neck mass is suspected on ultrasonography, neck CT with sufficient coverage of mediastinum should be performed to evaluate the mediastinal extension.

In conclusion, a cystic neck mass may rarely be caused by extension of mediastinal teratoma. Therefore, imaging studies including mediastinum are needed to investigate the cause of cystic neck mass and to confirm mass extent before treatment.

## REFERENCES

1. Stricker TP, Kumar V. *Neoplasia*. In Abbas AK, Fausto N, Ster JC, eds. *Robbins and Cotran pathologic basis of disease*, 8th ed. Philadelphia, PA: Elsevier Saunders 2010:295-296
2. Gnepp DR. *Teratoid neoplasms of the head and neck*. In Barnes L, eds. *Surgical pathology of the head and neck*. New York, NY: Marcel Dekker 1985;1411-1433
3. Shah FA, Raghuram K, Suriyakumar G, Dave AN, Patel VB. Congenital teratoma of nasopharynx. *Ind J Radiol Imag* 2002;12:201-202
4. Wychulis AR, Payne WS, Clagett OT, Woolner LB. Surgical treatment of mediastinal tumors: a 40 year experience. *J Thorac Cardiovasc Surg* 1971;62:379-392
5. Barksdale EM Jr, Obokhare I. Teratomas in infants and children. *Curr Opin Pediatr* 2009;21:344-349
6. Agarwal G, Kar DK. Teratoma of the anterior mediastinum presenting as a cystic neck mass: a case report. *J Med Case Rep* 2008;2:23
7. Rosa PA, Hirsch DL, Dierks EJ. Congenital neck masses. *Oral Maxillofac Surg Clin North Am* 2008;20:339-352
8. Seven H, Gurkan A, Cinar U, Vural C, Turgut S. Incidence of occult thyroid carcinoma metastases in lateral cervical cysts. *Am J Otolaryngol* 2004;25:11-17
9. Hartog H, Dikkers FG, Veldhuizen AG, Coppes MH, Sleeboom C, de Langen ZJ. Cervical cystic swelling in an adolescent: unusual association of a cervical mature teratoma with vertebral anomalies and a history of gastric duplication cyst. *J Pediatr Surg* 2011;46:e15-e18
10. Duwe BV, Sterman DH, Musani AI. Tumors of the mediastinum. *Chest* 2005;128:2893-2909

## 성인에서 경부 낭성 종괴로 나타난 전종격동 기형종의 증례 보고

이유진<sup>1</sup> · 정연주<sup>1</sup> · 서희봄<sup>1</sup> · 김학진<sup>1</sup> · 이병주<sup>2</sup> · 이호석<sup>3</sup> · 노지은<sup>4</sup> · 염정아<sup>4\*</sup>

전종격동 기형종은 선천성 종양으로, 외배엽, 중배엽, 내배엽의 3배엽의 조직으로 구성되어 있다. 기형종은 대부분 증상이 없이 천천히 자라는 종양으로, 우연히 발견된다. 저자들은 38세 남성에서 경부 낭성 종괴로 나타난 전종격동 기형종의 드문 증례를 보고하고자 한다.

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