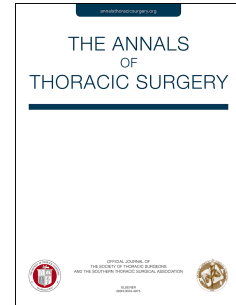


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A Rare Large Symptomatic Paratracheal Air Cyst in a 62 Years Old Woman

Running Head: Large symptomatic Paratracheal air cyst

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Abstract

Paratracheal air cysts are lesions adjacent to trachea. They are often asymptomatic and are found usually as an incidental finding in imagings. The pathology of these lesions is unclear and they can be congenital or acquired. The paratracheal air cysts rarely cause symptoms in patients. In this report we present a 62 years old woman with a large paratracheal air cyst that cause interesting rare symptoms such as dysphagia, dyspnea, hoarseness that becomes completely symptom-free after treatment.

Key words: Paratracheal air cyst, Tracheal diverticulum, Hoarseness, Dysphagia, Dyspnea

Paratracheal air cysts (PAC) are air-filled collections adjacent to trachea and commonly seen on the right side of trachea in thoracic inlet. PAC was first described by Rokitansky¹ in 1838. These lesions are often asymptomatic and usually are found as incidental findings in routine imaging such as Computed Tomography scan (CT Scan) of chest and neck for evaluating the symptoms that are not relative to PAC or as screening tests^{2,3}. These cysts communicate with trachea in less than 10%⁴. Treatment of choice in elderly patients is non-surgical and conservative by administration of antibiotics, mucolytics and bronchodilators upon the case, but in young patients or cases in which cause symptoms such as dyspnea (pressure on main airways), dysphagia (pressure on esophagus), recurrent infections, chronic cough and hoarseness (pressure on recurrent laryngeal nerve, RLN) surgical interventions are recommended^{1,6}.

Nature pathology of paratracheal air cysts are unclear so far and may be congenital or as an acquired phenomenon. Prevalence of these lesions is reported in 3-4% of normal population⁵ but it is probably underestimated because most of the patients are asymptomatic. Differential diagnosis of paratracheal air cysts are tracheal diverticulum, pneumomediastinum, zenker diverticulum, pharyngocele, laryngocele, apical lung hernia, blebs and bullae⁶.

In this report, we present a rare large symptomatic paratracheal air cyst and its successful surgical treatment in a 62 year old woman.

A 62 year old retired female teacher, presented with right sided neck mass and dull throat pain with chronic cough from one year ago. She had no past medical history. The pain was more tended to the right side of the neck. Hoarseness, exertional dyspnea and mild dysphagia to solids were added to her complaints in the last 2 months.

The patient underwent several evaluations. In physical examination there was a soft bulging in right side of the neck without tenderness or inflammation and there were no lymphadenopathies. Routine laboratory tests were normal. In upper Gastrointestinal (GI) endoscopy, esophageal pathologies such as diverticulum

were excluded. Rigid laryngostroboscopy was done and revealed laryngitis, poor arytenoid movement, insufficient closure of vocal cords, severely decreased right vibratory amplitude, irregular vibratory symmetry and moderately decreased right mucosal wave (Video.1). Thoracocervical 16Multi-Slices CT scan with Intra-venous contrast showed a paratracheal air cyst or tracheal diverticulum with 46*26*25mm in size and in the right posterior side of vertebra at the levels of C7 to T2, extending to the right carotid sheath laterally (Fig.1). Pharynx, parapharyngeal space, thyroid, parotid and sublingual and submandibular salivary glands were reported as normal structures. Sonography of the neck showed right tracheal diverticulum, posterior to the sternocleidomastoid (SCM) muscle, between thyroid gland and carotid sheath. Barium contrast esophagogram showed air-filled structure as was described in CT scan favoring a right tracheal diverticulum that caused external pressure on the esophagus and shifted it to the left side. Esophagogram does not demonstrate any restriction or hold up of contrast. Esophageal mucosal layer was normal and there were no evidences of filling defects, stricture, ulceration or esophageal fistula and no evidence of contrast aspiration in esophagogram (Fig.2). All of the imaging was performed in one center by an expert radiologist.

According to the patient symptoms, history, physical examination and radiologic findings, the patient was candidate for surgery with diagnosis of a symptomatic large right sided tracheal diverticulum that caused external pressure on the right RLN, main airway and esophagus that shifted it to the left side.

After general anesthesia, the patient underwent fiber optic bronchoscopy and it showed normal tracheobronchial tree without communicating tract between cyst and trachea. Skin was incised with 5cm collar incision, skin flaps were elevated, trachea was exposed and there was air-filled cyst to the right posterior side of trachea that had adhesions to esophagus and right RLN medially and was involving the right carotid sheath laterally (Fig.3). The cyst was extended to the mediastinal space. Right recurrent laryngeal nerve was explored. Adhesions to the carotid sheath, esophagus and right RLN were released carefully and the cyst was removed completely. There was no abnormality in the RLN and no evidence of nerve involvement was seen during exploration, but it seems there was nerve compression due to cyst.

There was no connection between cyst and trachea or esophagus. The cyst was 52*33*26mm in size, air-filled and contained thin septa and there were no solid or liquid components. The permanent Paraffin-sections pathology confirmed a benign cystic soft tissue lesion that was covered with ciliated respiratory epithelium partially.

Comment

Paratracheal air cysts are air-filled lesions usually on right posterior side of trachea at the level of thoracic inlet. These lesions most often are found as an incidental finding in neck and chest imagings^{2,3}.

They may accompany with some respiratory diseases such as chronic obstructive pulmonary disease (COPD) and lung emphysema, or rarely the cyst itself can cause some problems such as chronic cough, recurrent infections, dyspnea, dysphagia and hoarseness due to external pressure on main airways, esophagus and right recurrent laryngeal nerve^{6,7}.

Almost all paratracheal air cysts are located on the right side of trachea⁴. In the study by GOO et al. on 65 patients, in 64 patients (98%), PAC was on right posterior side of the trachea. In our case, PAC was also on right posterior side of trachea at thoracic inlet level. To explain why it is almost on the right posterior side, it is because the esophagus lies to the left side of trachea. Also because of C-shaped tracheal cartilage rings, the posterior gap is a suitable weak portion to originate these lesions^{4,6}.

Most of the reported paratracheal air cysts were asymptomatic¹⁻⁶, but our case was a woman with a symptomatic cyst. Her symptoms include pain on the right side of her neck. Although pain was not the main complaint of the patient but it seems to be due to her pharyngitis or sensation of a mass like lesion on her neck. Exertional dyspnea due to pressure of the cyst on the main airways, chronic cough, dysphagia and hoarseness. The most important symptoms in this case was dysphagia and hoarseness that

was due to the external pressure of the cyst on esophagus and the right RLN, that was reported in rare cases⁷⁻⁸.

The other interesting feature was size of the cyst. Most of the paratracheal air cysts are less than 10mm in size. In the study by GOO et al. the mean diameter of PAC was 14*10mm. in our study, the patient had a large cyst with 52*33*26mm in size.

The patient was on oral diet on the first post operation day and surprisingly had no dysphagia but hoarseness and pain still persist, although the pain seems to be due to her neck incision and dissection. She was discharged on the second post operation day with analgesics for her pain and antibiotic for her laryngitis. In one month follow up, she had no complaint of dyspnea, dysphagia, hoarseness and she did not have cough any more. In the visit of 7 month after surgery, she was very well with any complaint of dyspnea, dysphagia, cough and neck pain. She did not need any analgesic for her pain any more. After the surgery, the patient did not undergo laryngoscopy again, But there is no hoarseness in her voice anymore and the patient confirms this.

According to this study, in symptomatic paratracheal air cysts and in cases that do not respond to medical conservative therapy, after ruling out other pathologies of neck and chest, the best definitive treatment of symptomatic paratracheal air cysts is surgical excision of the cyst.

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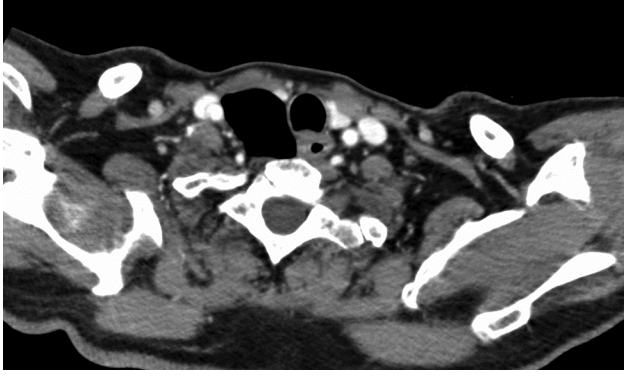
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Figure Legends

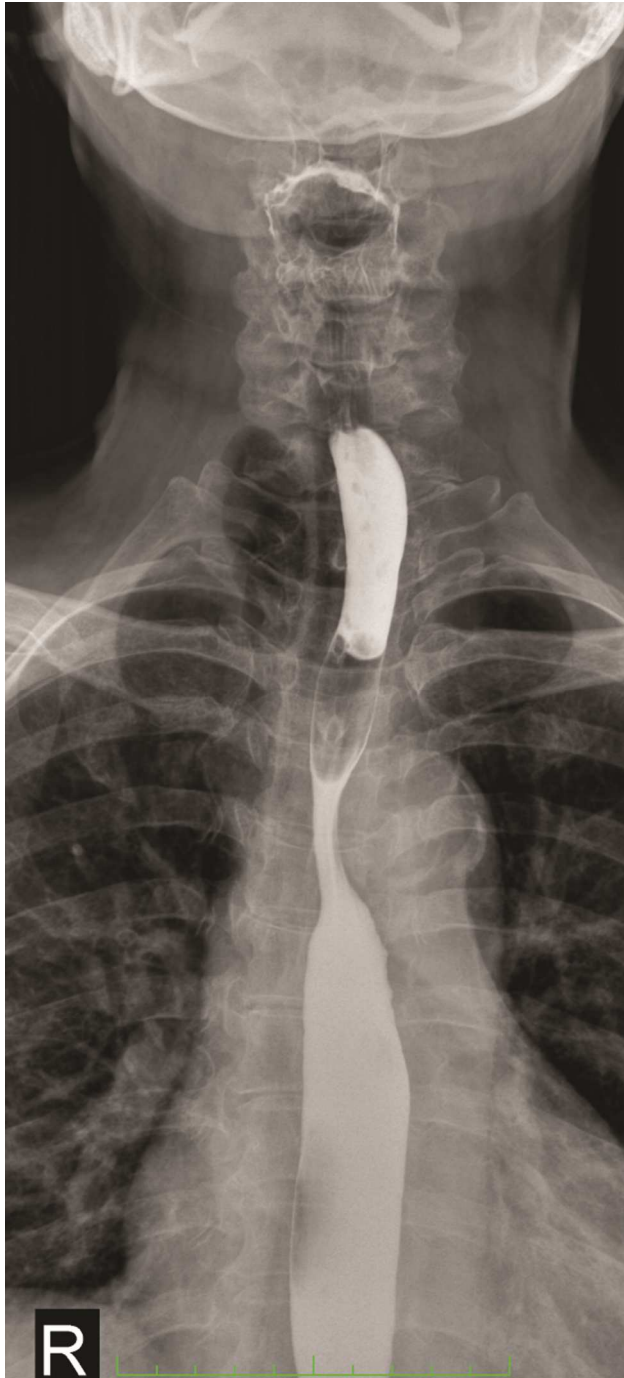
Fig.1. Neck CT scan, Paratracheal air cyst.

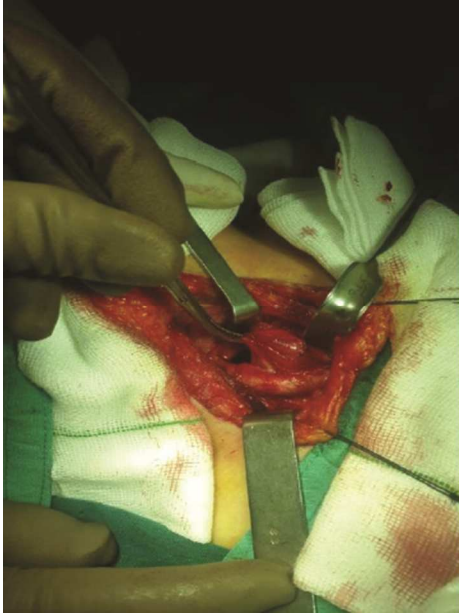
Fig.2. Esophagogram. External pressure of paratracheal air cyst on esophagus.

Fig.3. Paratracheal air cyst.



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