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Tracheal Diverticulum With A Laterocervical Mass Of Changing Volume

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Abstract:
Tracheal diverticulum (TD) is a rare condition, a benign cyst most often found on the posterolateral right side of the trachea, of congenital or acquired origin. It is discovered incidentally by thoracic imaging in asymptomatic patients, and the clinical signs are non-specific in symptomatic patients, with cough, dyspnoea, sensation of a foreign body in the neck, and rarely a cervical mass of changing volume. Many studies have shown the association of DT with chronic lung pathologies. Most asymptomatic patients do not require treatment. And for those who are symptomatic, there is no evidence to suggest a specific therapeutic approach, as age, comorbidities and symptoms must be taken into account. In order to minimize the risk of damage to the esophagus and laryngeal nerve. We report a rare case of tracheal diverticulum with a cervical mass changing volume on breathing.

Key words:*Trachea; Diverticulum , cervical mass*

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I. Introduction

Tracheal diverticulum is a rarely described pathology, characterized by one or more invaginations of the tracheal wall (1), composed of ciliated columnar epithelium connected to the tracheal lumen. It may be congenital or acquired (2) . It is usually discovered incidentally, as most patients remain asymptomatic (2). The clinical presentation of a tracheal diverticulum in the form of a laterocervical mass of changing volume has been described in just one case to our knowledge (3). From our point of view, this radiological finding is exceptional in the exploration of a cervical mass, hence the importance of studying this case to increasingly think of a TD in front of a cervical mass.

II. Medical observation:

The patient is 66 years old, a chronic smoker (20 packs/year) who has been weaned for 30 years, has been treated for 14 years for chronic obstructive pulmonary disease (COPD), currently phenotype E, on triple therapy with a long-acting B2mimetic and an anticholinergic combined with inhaled corticosteroids, and has been hospitalized several times for infectious exacerbations of his COPD. known to have a tracheobronchomalacia diagnosed in 2019 during a bronchial fibroscopy, most likely related to his COPD, and who clinically presents with MMRC stage II dyspnea and a productive cough bringing back mucous sputum with a right basi-cervical mass and the sensation of a foreign body in the throat. clinical examination revealed a patient with eupnea at rest at 16cpm, with correct room air saturation and bilateral snoring rales on pleuropulmonary examination. neck examination showed a large right basi-cervical lateral supra-clavicular swelling that swelled and deflated with breathing.

A thoracic CT scan with axial slices (figure 1A), without injection of contrast medium, with coronal (figure 1B) and sagittal (figure 1C) reconstructions revealed an air cyst located on the posterolateral right side of the trachea, measuring 11 mm laterally, 8 mm anteroposteriorly and extending 30 mm in height, communicating with the trachea through a very fine pertus, extending 2 mm anteroposteriorly, associated with pulmonary emphysema. Bronchial fibroscopy revealed a very significant reduction in bronchial lumen on exhalation, consistent with tracheobronchomalacia, but without evidence of DT. Spirometry with a B2mimetic reversibility test revealed a mild irreversible obstructive ventilatory disorder compatible with his COPD, with post-bronchodilation tiffeneau at 68% and FEV1 at 2l75 (85%).

The indication for surgical resection was retained. Post-operative histological examination revealed tracheal mucosa tissue in the cyst wall, with no smooth muscle or cartilage. Definitive diagnosis: acquired tracheal diverticulum. The surgical procedure was complicated by dysphonia due to laryngeal nerve damage.

The evolution was marked by the disappearance of the cervical mass and improvement of dysphonia after rehabilitation sessions. Clinical follow-up at one year showed no recurrence on thoracic CT (figure 2).

III. Discussion:

Tracheal diverticula are cysts composed of ciliated columnar epithelium connected to the tracheal lumen. It may be single or multiple, ranging in size from 1 to 30 × 5 to 25 mm (4). Its prevalence is between 1% and 3.7% in the general population, according to autopsy and CT scan series. it was first described by Rokitanski in 1838 (3). It can be divided into two types: congenital and acquired (2). Congenital diverticulum results from a defect in endodermal differentiation during development of the membranous posterior part of the tracheal wall, or from a defect in tracheal cartilage development during the sixth week of fetal life (5). The congenital diverticulum has complete tracheal anatomy (respiratory epithelium, smooth muscle and cartilage) and is usually filled with mucus. It is occasionally accompanied by other congenital malformations such as tracheoesophageal fistula (6) . Acquired tracheal diverticula can appear at any level (2), but the majority are located on the right paratracheal region, as in our patient's case, and at the level of the second thoracic vertebra (T2). The predilection for the right side may be due to support of the trachea by the left-sided oesophagus, and there seems to be little resistance at T2 at the entrance to the thoracic cage, as this is the transition point between the extrathoracic and intrathoracic trachea (1), and they are larger than congenital tracheal diverticula, with a wider opening. They result from an increase in intraluminal pressure, and it is assumed that COPD and chronic coughing in our patient led to this increase in intraluminal pressure, which in turn led to the formation of a TD. The wall of acquired tracheal diverticula, unlike congenital ones, is formed solely of respiratory epithelium, with no smooth muscle or cartilage (2).

the vast majority of patients remain asymptomatic (4). Those who are symptomatic may present with a cough, haemoptysis, dyspnoea, chest pain and a sensation of a foreign body in the throat (1). In addition to recurrent infections (4), our patient had a cough, dyspnoea, a sensation of a foreign body in the throat and a large basi-cervical mass that inflated spontaneously on exhalation, to the best of our knowledge, the discovery of a tracheal diverticulum on the occasion of a cervical mass has only been described in one case, in a 55-year-old female patient who consulted us for a chronic cough with, on examination, a right basi-cervical mass swelling on the Vasalvamanoeuvre. from these cases onwards, we will increasingly think of DT as a rare etiology of a cervical mass.

A thoracic CT scan will reveal the presence of a TD, as well as the location, size and thickness of the diverticular walls. Bronchial fibroscopy will confirm communication of the TD with the tracheal lumen, which can be difficult if the communication is narrow. In published case series, TD communication has been reported in only 33.8% to 56.1% of patients (4). In our patient, bronchial fibroscopy did not reveal a tracheal diverticulum.

Tracheal diverticula may be confused with other causes of extraluminal air collections, as in cases of apical hernia of the lung and in patients with thoracic trauma, they may be misinterpreted as pneumediastinum (7).Other differential diagnoses include laryngocele, pharyngocele and Zenker's diverticulum (8).

An association has been described with chronic lung diseases such as chronic obstructive pulmonary disease and tracheobronchomegaly, as in our patient's case, which combines all three (TD, COPD and tracheobronchomegaly). On the other hand, no conclusive evidence has been provided to support an association with pulmonary emphysema (4) which also exists in our patient requiring further studies to find a causal link between them.

Treatment options include open surgical resection via a transcervical approach, or laser endoscopy or electrocoagulation in addition to conservative medical treatment with bronchodilators, antibiotics and physiotherapy. Excellent results have generally been reported after surgical excision (1, 4). Surgery can be offered to patients who are symptomatic and motivated to undergo the procedure (3).

The laryngeal nerve and oesophagus can be damaged following surgery, as in our patient's case, which was complicated by dysphonia that improved after speech therapy. Surgery should therefore be reserved for very specific cases (4).

IV. Conclusion:

The tracheal diverticulum is a rare disease, a benign cyst developed at the expense of the tracheal wall, which may be congenital or, more frequently, acquired. In the majority of cases, they remain asymptomatic, discovered incidentally by a thoracic CT scan, although rare cases of TD have been discovered by a cervical mass changing volume. Treatment can be conservative medical or surgical.

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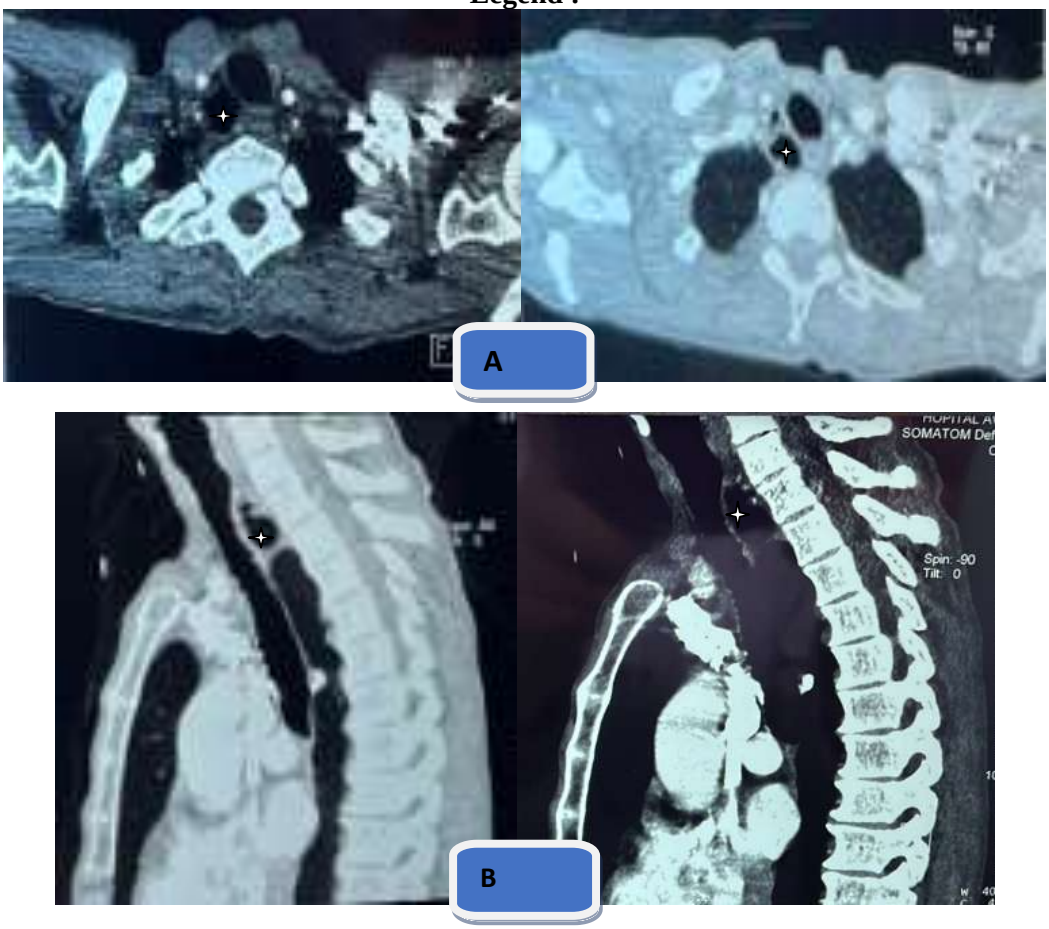
Legend :



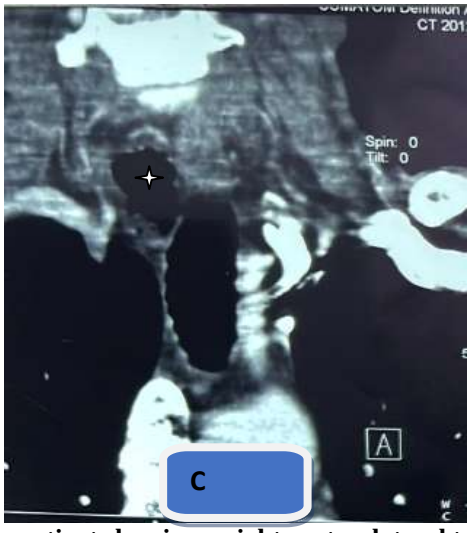


Figure 1: Chest CT scan of the patient showing a right posterolateral tracheal diverticulum (✦) with axial (A), sagittal (B) and coronal (C) sections.

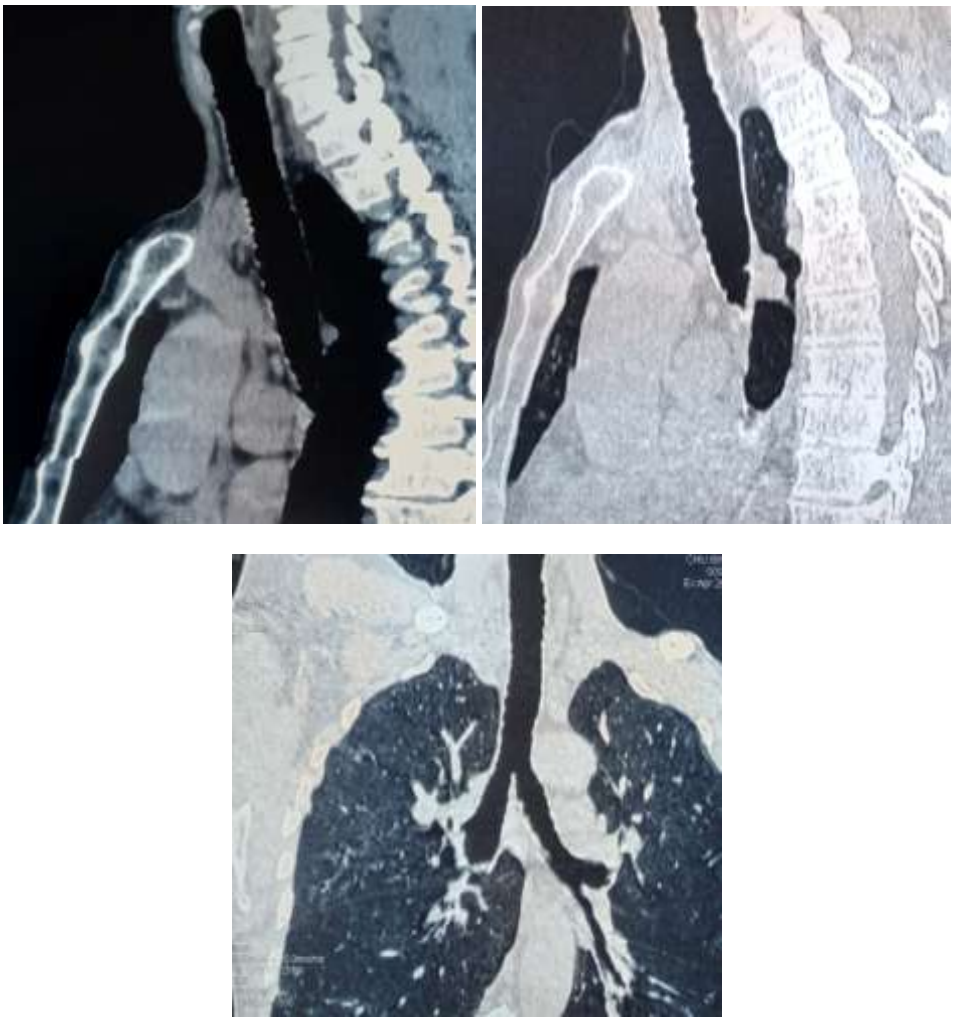


Figure 2: Patient's chest CT scan showing no recurrence of tracheal diverticulum after surgical resection.