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Large Cervico-Mediastinal Bronchogenic Cyst Revealed by a Cervical Mass: A Case Report

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Abstract **Case Report**

Bronchogenic cyst remains a rare etiology of cervical mediastinal masses for which imaging plays a role in lesion characterization. There are many etiologies of cervical masses, and in most cases a rigorous semiological analysis will allow us to determine the etiology and to orientate the therapeutic management. We report in this article the case of a cervico-mediastinal bronchogenic cyst in a 56 year old female patient revealed by a fairly well limited cystic cervical mass on ultrasound, the lower edge of which is embedded in the upper orifice of the thorax, with a liquid-like cervico-mediastinal opacity pushing back the trachea; represented by a mass of liquid density not enhanced after injection of the PDC on the CT scan of cervico-mediastinal location pushing back the vascular axes and the elements of the mediastinum The treatment consisted of a total exeresis of the lesion and an anatomopathological study revealed a bronchogenic cyst; The postoperative course was without particularities.

Keywords: Bronchogenic cyst, mass, cervico-mediastinal.

INTRODUCTION

Bronchogenic cyst remains a rare etiology of cervical mediastinal masses for which imaging plays a role in lesion characterization.

There are many etiologies of cervical masses, and in most cases a rigorous semiological analysis will allow us to determine the etiology and to orientate the therapeutic management.

We report in this article the case of a cervico-mediastinal bronchogenic cyst in a 56-year-old female patient revealed by a cervical mass.

PRESENTATION OF THE CASE

This is the case of a 56 year old patient, with no particular pathological history, who consulted for the discovery of a cervical mass that had been evolving for 10 years.

Examination revealed a soft medial and left para-medial cervical mass with a poorly defined inferior border, with no inflammatory signs on the skin or fistulous tracts.The infectious work-up requested was negative.

Cervical ultrasound revealed a fairly well-bounded cystic mass with the lower margin embedded in the upper thoracic outlet, anechoic with posterior enhancement containing fine echoes (Figure 1).

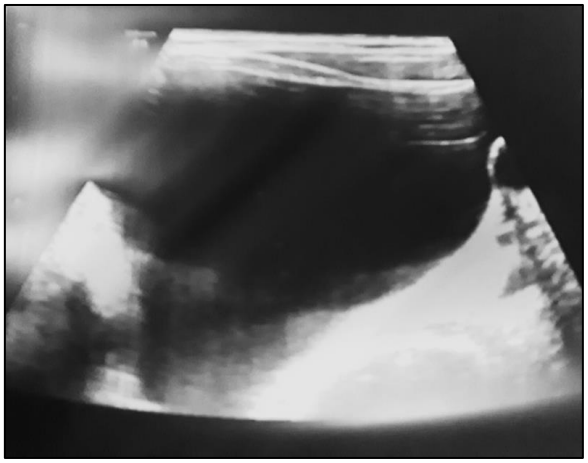


Figure 1: Ultrasound image showing a well-limited cystic formation with anechoic content, and presence of fine echoes

On chest X-ray, a right-sided liquid-like cervico-mediastinal opacity was found, pushing back the trachea (Figure 2).

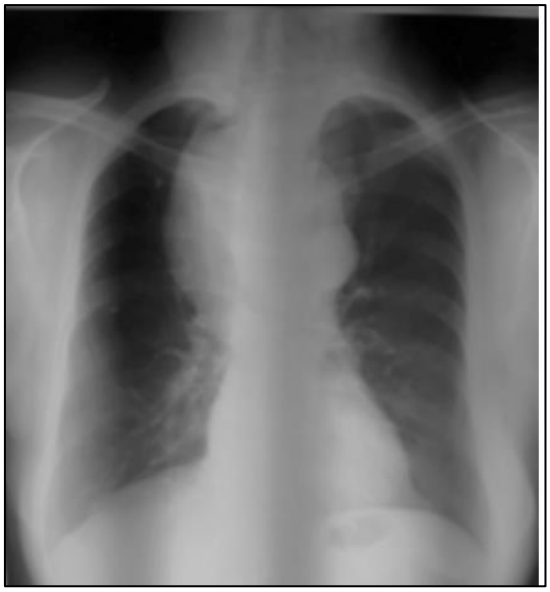
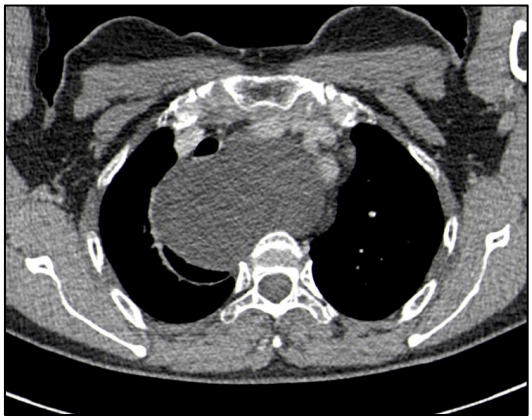
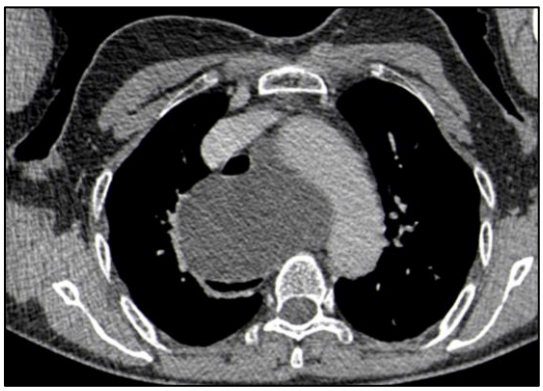


Figure 2: Frontal chest X-ray showing a right lateralized cervicomediastinal opacity with a watery tone, pushing back the trachea to the left

The CT scan performed without and after injection of PDC showed a mass of liquid density not enhanced after injection of PDC; of cervico-mediastinal localization extended from the left carotid space to the middle mediastinum, pushing back the vascular axes and the elements of the mediastinum (Figure 3).





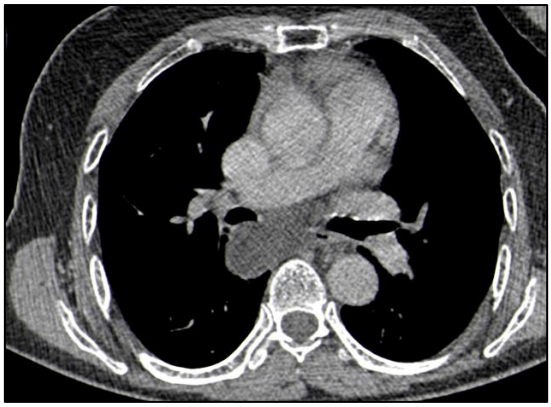


Figure 3: Cervico-thoracic CT scan in axial slices, mediastinal window, after injection of contrast medium showing the compressive cervico-mediastinal mass of liquid density, with absence of enhancement after injection of the PDC lateralised on the right with a hydric tone, pushing back the trachea on the left

The treatment consisted of a total removal of the lesion and an anatomopathological study revealed a bronchogenic cyst.

DISCUSSION

Bronchogenic cysts are rare congenital malformations of the bronchial tree, accounting for 5-10% of paediatric mediastinal masses [1, 2].

The incidence of mediastinal cysts is equal between the sexes, whereas intrapulmonary cysts are thought to be male-predominant [2]; these cysts are rarely multiple.

In terms of clinical presentation, these cysts may be asymptomatic or as part of a compression sign such as bronchial obstruction leading to air trapping and respiratory distress, an alternative presentation may occur when the cyst becomes infected.

Pathophysiologically, abnormal budding of the bronchial tree occurs during embryogenesis (between 4 and 6 weeks of gestation) [1], and as such they are lined with secretory respiratory epithelium (cuboid or columnar ciliated epithelium) [1-4], The lining is made up of tissue similar to that of the normal bronchial tree, they do not usually communicate with the bronchial tree and are therefore not usually filled with air. Instead, they contain fluid (water), varying amounts of proteinaceous material, blood products and calcium oxalate [4]. It is the last three components that lead to increased attenuation mimicking solid lesions.

In terms of location, these bronchogenic cysts may occur in the mediastinum or be intrapulmonary.

They may occur in the mediastinum or be intrapulmonary, the most common location being the middle mediastinum (65-90%). The distribution of locations can be quite varied: Mediastinal [5, 6] (in 70%

of cases) does not generally communicate with the tracheobronchial artery, with subcarinal, right paratracheal and hilar locations being the most frequent, parenchymal or intrapulmoanal location, particularly in the perihilar region with a predilection for the lower lobes, other locations, particularly the neck, cutaneous [2], pericardium [5] as well as retroperitoneal [3], are also described.

Radiologically these cysts are usually water-filled, a communication may sometimes develop after infection or surgery, resulting in an air-filled cystic structure +/- an air-liquid level [1, 5].

On standard radiography, these bronchogenic cysts present as rounded structures of soft tissue density, sometimes with compression of surrounding structures. As the cysts may contain calcium oxalate, a calcifying density stratification (milk of calcium) may sometimes be seen [5, 7].

On CT scan, these bronchogenic cysts present as well-circumscribed spherical or ovoid masses of variable attenuation [1, 4] with variable fluid composition.Approximately 50% are fluid dense (0-20 HU), however, a significant proportion are soft tissue dense (>30 HU) or even hyperattenuating to the surrounding mediastinal soft tissue [4]. The degree of CT attenuation is often dependent on the amount of internal protein content [8, 9], with no enhancement after PDC injection.

Magnetic resonance imaging is sometimes performed for confirmation, especially in atypical cases, these cysts are usually homogeneous [10], on the T1 sequence signal intensity is variable according to the protein content, one can witness fluid-fluid level attracted to the superposition of variable fluid content [4, 5].

The choice of treatment is somewhat controversial. Some authors advocate surgical removal of all cysts because of their tendency to become infected or, rarely, malignant [5]. Increasingly, these lesions are treated by transbronchial or percutaneous aspiration under CT scan to both confirm the diagnosis and treat them. Small lesions can be followed, however, they tend to enlarge over time, sometimes rapidly [7].

Complications include: fistula formation with the bronchial tree, ulceration of the cyst wall, secondary bronchial atresia, superimposed infection, haemorrhage and malignant transformation is very rare (0.7% risk [11] with primaries including [5]: rhabdomyosarcoma, pleuro-pulmonary blastoma, anaplastic carcinoma, leimyosarcoma and adenocarcinoma.

Differential diagnoses for uncomplicated cysts are congenital malformations such as pericardial cysts, cystic hygroma and lymphangioma, oesophageal duplication cyst, thyroid colloid cyst, thymic cyst as well as intra-thoracic pancreatic pseudocysts.

CONCLUSION

Bronchogenic cysts are rare congenital malformations of the bronchial tree that can present with different clinical pictures, especially mediastinal compression if their size is large as in our patient's case.

PATIENT CONSENTS

The authors confirm that a written informed consent in the local language was obtained from the patient for publication of the case report, on the conditions of maintaining anonymity of identity.

Conflicts of Interest: None.

REFERENCES

1. Yoon, Y. C., Lee, K. S., Kim, T. S., Kim, J., Shim, Y. M., & Han, J. (2002). Intrapulmonary bronchogenic cyst: CT and pathologic findings in five adult patients. *American Journal of Roentgenology*, *179*(1), 167-170. AJR Am J Roentgenol (full text) - Pubmed citation
2. Staatz, G., Honnef, D., & Piroth, W. (2007). Paediatric imaging. George Thieme Verlag. ISBN: 1604060832. Read it on Google Books
3. Pradeep, K. E. (2009). Cutaneous bronchogenic cyst: a poorly understood clinicopathological entity. *J.Clin. Pathol.*, 62(4), 384. doi: 10.1136/jcp.2008.057695 - Citation published in Pubmed
4. Önol, F. F., Baytekin, F., Dikbaş, O., Ergönenç, T., & Tanidir, Y. I. L. Ö. R. E. N. (2009). A retroperitoneal bronchogenic cyst mimicking adrenal tumour in an adult: is differential diagnosis truly possible?. *Journal of clinical pathology*, *62*(2), 187-189. doi:10.1136/jcp.2008.061077 - Pubmed citation
5. Lyon, R. D., & Mcadams, H. P. (1993). Mediastinal bronchogenic cyst: demonstration of a fluid-fluid level on MRI. *Radiology,* 186(2), 427-8. Radiology (abstract) - Pubmed citation
6. Zylak, C. J., Eyler, W. R., Spizarny, D. L., & Stone, C. H. (2002). Developmental lung anomalies in the adult: radiologic-pathologic correlation. *Radiographics*, *22*(suppl_1), S25-S43. doi:10.1148/radiographics.22.suppl_1.g02oc26s25 - Pubmed citation
7. The essentials of diagnostic radiology by Grainger & Allison. Churchill Livingstone. ISBN:0702034487. Read it on Google Books - Find it on Amazon
8. Ödev, K., Arıbaş, B. K., Nayman, A., Arıbaş, O. K., Altınok, T., & Küçükapan, A. (2012). Imaging of cystic and cyst-like lesions of the mediastinum with pathologic correlation. *Journal of clinical imaging science*, *2*(1), 33. doi:10.4103/2156-

7514.97750 - Free text on pubmed - Pubmed citation.

9. Lee, E. Y., Boiselle, P. M., & Cleveland, R. H. (2008). Multidetector CT evaluation of congenital lung anomalies. *Radiology*, *247*(3), 632-648. Radiology (full text) - doi:10.1148/radiol.2473062124 - Pubmed citation
10. Nakata, H., Egashira, K., Watanabe, H., Nakamura, K., Onitsuka, H., Murayama, S., ... & Masuda, K. (1993). MRI of bronchogenic cysts. *Journal of computer assisted tomography*, *17*(2), 267-270. Pubmed citation
11. Lucaya, J., Baert, A. L., & Strife, J. L. (2007). Pediatric chest imaging, chest imaging in infants and children. Springer edition. ISBN: 3540326758. Read it on Google Books - Find it on Amazon