Case Report ISSN 2833-0390

International Journal of Research in Oncology

Compressive Bronchogenic Cyst: A Case Report From The Festoc Center In Bamako

Diarra BI[1]*, Doumbia M[1], Touré M[3], Keita F[6], Coulibaly B[1], Keita A[3], Touré AB[2], Daffe S[2], Sidibé A[1], Doucouré O[1], Coulibaly BM[1], Cissé M[1], Traoré K[1], Traoré S[1], Diallo B[1], Koita SS[1-3], Togola B[3], Togo S[3-4], Ouattara M A[3,4], Yena S[3,4], Fernandez G[5], Nadjeeboulah B[5], Flecher E[5], Langanay T[5], Amerin C[5], Boutin L[5] and Deloche A[5]

[1]*Thoracic and Cardio-Vascular Surgery Department (Andre Festoc center, Bamako), Mali.*

[2]*Cardiology Department of the "Luxembourg" Mother-Child Hospital in Bamako, Mali.*

[3]*Faculty of Medicine and Odontostomatology, University of Technical Sciences and Technologies of Bamako, Mali.*

[4]*Thoracic Surgery Department, Hopital in Mali.*

[5]*Non-Governmental Organization Chain of Hope (France).*

[6]*Kati Military Polyclinic, Mali.*

***Correspondence:**
Diarra BI, Thoracic and Cardio-Vascular Surgery Department (Andre Festoc center, Bamako) Mali.

Received: 24 Mar 2024; **Accepted:** 08 May 2024; **Published:** 15 May 2024

Citation: Diarra BI, Doumbia M, Touré M, et al. Compressive Bronchogenic Cyst: A Case Report From The Festoc Center In Bamako. Int J Res Oncol. 2024, 3(1): 1-5.

ABSTRACT

Introduction: *Bronchogenic cysts are congenital malformations of the homoplastic dysembryoma type, producing cavities lined with bronchial epithelium and containing air and/or mucoid material. Their location may be mediastinal (30-40% of cases) or intrapulmonary (60-70% of cases) [1]. Infection is one of the most frequent complications of these cysts. Infection may be secondary to common germs, and association with pulmonary tuberculosis is exceptional.*

Observation: *This 49-year-old patient was admitted to our department with an 08-month history of paroxysmal cough, mild dyspnoea on exertion and chest pain. Cardiovascular risk factors included smoking (45 pack-years), which had been weaned for 1 year.*

The physical examination on admission was unremarkable. Tuberculosis workup, including sputum Genexpert and tuberculin intradermal reaction, was normal. Chest X-ray revealed a well-limited, round, homogeneous hydric opacity measuring 5cm long on the left paracardiac axis. Cardiac ultrasound revealed a left retroventricular mass partially limiting ventricular contractions.

A thoracic CT scan revealed a well-limited proximal liquid mass with poly-lobed contours, hypodense and non-enhanced after intravenous injection of contrast medium. The mass was biopsied and removed by left posterolateral thoracotomy. Postoperative management was straightforward.

Anatomopathological study of the surgical specimen revealed a cystic formation lined by a respiratory-type lining in the process of necrosis. This was fibrosis with foci of cartilage and lymphoid tissue. Overall, the histological appearance was consistent with a brochogenic cyst.

Conclusion: *Bronchogenic cysts are rare congenital malformations, which can remain asymptomatic for a long time. The main complications are compression of mediastinal organs, superinfection, intracystic haemorrhage or, exceptionally, malignant degeneration. Surgery remains the best therapeutic option.*

Keywords
Bronchogenic cyst, Centre Festoc-Bamako.

Introduction
Bronchogenic cysts are homoplastic dysembryoma-like congenital malformations, creating cavities lined with bronchial epithelium and containing air and/or mucoid material. Their location may be mediastinal (30-40% of cases) or intrapulmonary (60-70% of cases) [1]. Infection is one of the most frequent complications of these cysts. Infection may be secondary to common germs, and association with pulmonary tuberculosis is exceptional.

Bronchogenic cysts and pulmonary sequestration are congenital bronchopulmonary malformations. Bronchogenic cysts are considered to be aberrant bronchial buds arising from the primitive digestive tract. Their location is most often either pulmonary, or mediastinal in the middle mediastinum, especially below the tracheal bifurcation, although other locations are also possible (pleural, diaphragmatic, retroperitoneal) [2].

Observation
This 49-year-old patient was admitted to our department with an 08-month history of paroxysmal cough, mild dyspnoea on exertion and chest pain. Cardiovascular risk factors included smoking (45 pack-years), which had been weaned for 1 year.

The physical examination on admission was unremarkable. Tuberculosis workup, including sputum Genexpert and tuberculin intradermal reaction, was normal. Chest X-ray revealed a well-limited, round, homogeneous hydric opacity measuring 5cm long on the left paracardiac axis (Figure 1).

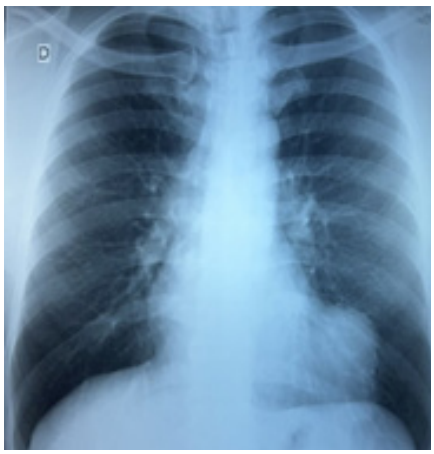

Figure 1: Front thoracic radiograph: rounded opacity 3cm with clear left paracardiac contours.

Cardiac ultrasound revealed a left retroventricular mass partially limiting ventricular contractions.

The thoracic CT scan revealed a well-limited proximal liquid mass with poly-lobed contours, hypodense and non-enhanced after intravenous injection of contrast medium (Figures 2 and 3). In view of this scannographic appearance, the indication for surgical removal by posterolateral thoracotomy was established and carried out. Anatomopathological study of the surgical specimen revealed a cystic formation lined by a respiratory-type lining in the process of necrosis. This was fibrosis with foci of cartilage and lymphoid tissue. Overall, the histological appearance was consistent with a brochogenic cyst.

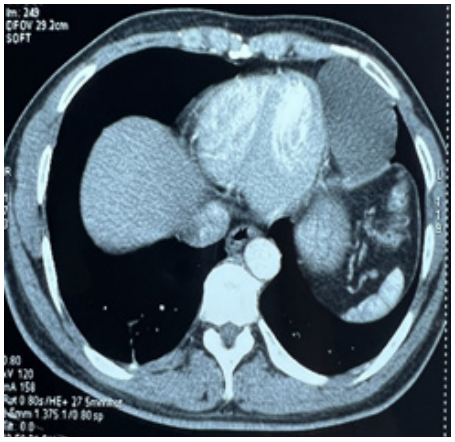

Figure 2: Chest CT scan (medial window): Well-limited proximal fluid mass of regular contour not enhanced after injection of contrast medium.

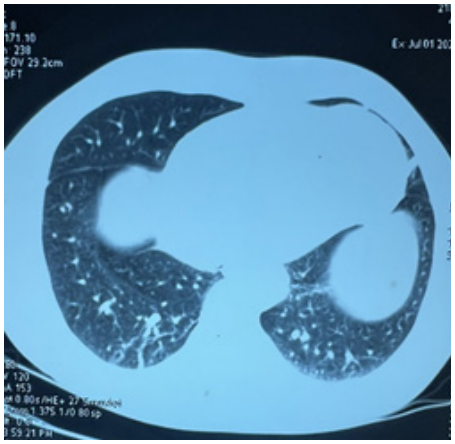

Figure 3: Chest CT scan (parenchymal window): fluid mass.

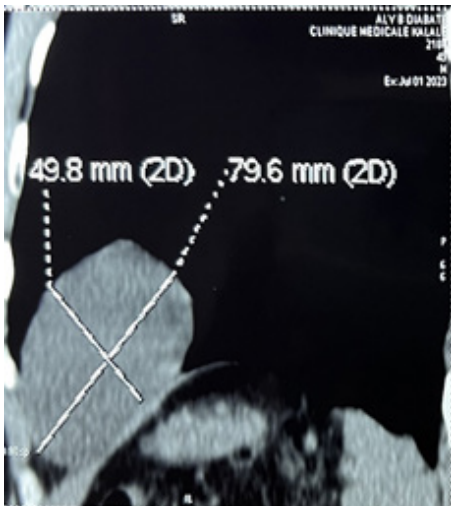

Figure 4: Chest CT scan (medial window): right basi-thoracic mass.

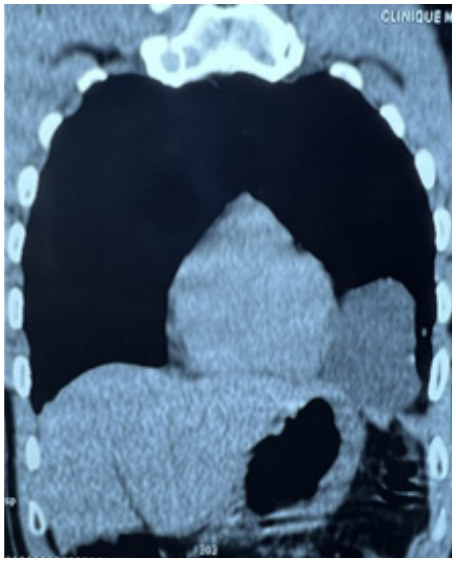

Figure 5: Chest CT scan (frontal section) Paracardiac fluid mass.

Figure 6: Intraoperative view: cyst in situ.

Figure 7: Intraoperative view of cyst after excision.

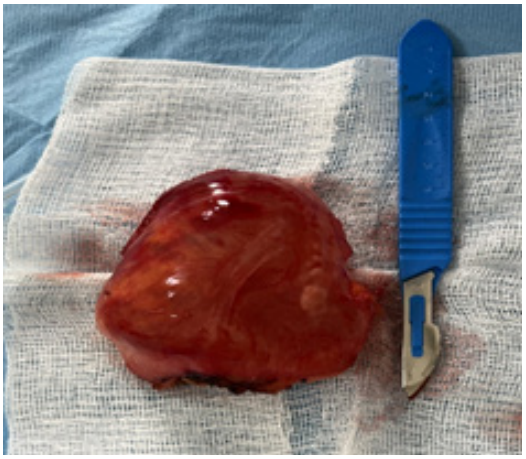

Figure 8: Surgical specimen.

Discussion

Bronchogenic cysts, which belong to the enterobronchopulmonary malformations, account for around 50-60% of all mediastinal cysts [3]. It is a benign congenital pathology, which may be asymptomatic in up to 15% of cases, and lies mainly along the tracheobronchial tree, most often in a subcarinal position [4,5].

KB accounts for almost 15% of benign mediastinal tumours [1,3] and 22% of congenital bronchopulmonary malformations in the study by Salles et al. [22]. Thoracic localization is either pulmonary in 70% of cases or mediastinal in 30% [19,20], as in our patient's case, with possible localization in one of the three mediastinal levels. In 1948, Maier described four main mediastinal sites: paratracheal, especially on the right side, carinal, subcarinal and paraesophageal [23]. Cyst size increases progressively with age.

Clinical symptoms are highly variable, depending on both the size of the cyst and its mass effect on adjacent structures. Thus, the cyst may be asymptomatic when discovered fortuitously, especially in peripheral locations, or be responsible for early respiratory distress of varying severity when medial [5].

If not, it may be responsible for early respiratory distress of varying severity when it is medial [5]. Other manifestations may be encountered: dysphagia in the case of esophageal compression, pulmonary infections in the case of airway compression. Otherwise, in some cases, rhythm disturbances have been noted in cysts compressing the heart chambers [5].

Clinical symptoms vary according to the location of the bronchogenic cyst, its size, and the occurrence of complications [6,7]. On plain radiographs, bronchogenic cysts usually appear as homogeneous round opacities in the middle or posterior mediastinum near the carina. On thoracic CT, it is typically a round or oval, homogeneous mass of variable density depending on the contents, with a thin wall that does not rise after injection of contrast medium, sometimes with parietal or intracystic calcifications. CT can also be used to study the relationship with

neighbouring mediastinal organs [8]. Anatomopathologically, it is macroscopically a cystic formation, with a fibrous wall and mucoid content. Microscopically, the wall is of bronchial type, lined on the inner side with ciliated respiratory epithelium secreting mucus, the source of the thick liquid content.

The main complications of bronchogenic cysts are compression of mediastinal organs, superinfection, intracystic haemorrhage or, exceptionally, malignant degeneration. However, in the case of sequestration, complications are most often recurrent infections, sometimes fatal hemoptysis, or rarely massive spontaneous hemothorax [10]. Surgery remains the best therapeutic option for bronchogenic cysts and pulmonary sequestration, even if asymptomatic, due to their risk of complications, which are sometimes potentially serious, and the absence of diagnostic certainty prior to pathological examination [10-12].

Once the diagnosis is suspected, surgical excision is always the treatment of choice, even in asymptomatic patients. This is justified by the possibility of serious complications and the absence of diagnostic certainty prior to pathological examination [15,16]. Possible complications of KB are tracheal compression or tracheobronchial obstruction, superinfection favoured by communication between the cyst and the tracheobronchial tree, cyst rupture [18], pneumothorax due to hyperinflation of the contralateral lung or cardiac rhythm disorders [15].

In the long term, carcinomatous or sarcomatous tumor-like degeneration may occur, although this is exceptional [6]. Bronchogenic cysts (Figures 3 and 4) can also be accessed by VT, albeit with the operative risks associated with inflammatory changes that may cause damage to neighbouring organs (tracheobronchial tree, oesophagus) during dissection [13,14]. These difficulties, or intraoperative accidents, may necessitate conversion, and the patient must be carefully informed. In our experience, the post-operative course was straightforward, with a single pneumothorax on removal of the pleural drainage. However, one lesion recurred, necessitating re-intervention. This failure underlines the importance of complete exeresis.

Conclusion

Bronchogenic cysts are rare congenital malformations that can remain asymptomatic for a long time. The main complications of bronchogenic cysts are compression of mediastinal organs, superinfection, intracystic hemorrhage or, exceptionally, malignant degeneration. Surgery remains the best therapeutic option.

References

1. Le Guen Y, Hureau J, Gaynaloux F, et al. Traitement d'un kyste bronchogénique compressif par ponction sous tomodensitométrie. Rev Mal Resp. 2005; 2: 481-484.
2. Hadchouel A, Delacourt C. Physiopathologie diagnostic et prise encharge des malformations pulmonaires de l'enfant. La Lettre du Pneumologue. 2012; 126-131.
3. El Madi A, Oukhounya A, Nhamoucha Y, et al. Kyste bronchogénique du médiastin traité par thoracoscopie. Chirurgie Thoracique Cardio Vasculaire. 2014; 18: 240-241.
4. Le Pimpec Barthes F, Cazes A, Bagan P, et al. Les kystes du médiastin: approche diagnostique et traitement Mediastinal cysts: Clinical approach and treatment. Revue de Pneumologie Clinique. 2010; 66: 52-62.
5. Houser WC, Dorff GJ, Rosenzweig DY, et al. Mycobacterial infection of a congenital bronchogenic cyst. Thorax. 1980; 35: 312-313.
6. Lemarié E, Diot P, Magro P, et al. Tumeurs médiastinales d'origine embryonnaire. EMC-Pneumologie. 2005; 2: 105-115.
7. Le Floch H, Niang A, Rivière F, et al. Une péricardite atypique. Rev Mal Respir. 2007; 24: 1147-1150.
8. Ropion Michaux H, Noel JB, Besnard M, et al. Séquestration extra-lobaire associée à un kyste bronchogénique : à propos d'une observation. Journal de radiologie. 2010; 91: 1164-1167.
9. Ramey L Wilsona, Christopher J Lettierib, Thomas M Fitzpatrickb, et al. Intralobular bronchopulmonary sequestrations associated with bronchogenic cysts. Respir Med. 2005; 99: 508-510.
10. Li Kuo Huang, Ming Ji Tsai, Heng Sheng Chao, et al. Role of Doppler Sonography in the Diagnosis of Pulmonary Sequestration in an Elderly Patient: A Case Report. Journal of Clinical Ultrasound. 2010; 296-300.
11. Lemarié E, Diot P, Magro P, et al. Tumeurs médiastinales d'origine embryonnaire. EMC-Pneumologie. 2005; 2: 105-125.
12. Le Floch H, Niang A, Rivière F, et al. Une péricardite atypique. Rev Ma l Respir. 2007; 24: 1147-1150.
13. Martinod E, Pons F, Azorin J, et al. Thoracoscopic excision of mediastinal bronchogenic cysts: results of 20 cases. Ann Thorac Surg. 2000; 69: 1525-1528.
14. Weber T, Roth TC, Beshay M, et al. Video-assisted thoracoscopic surgery of mediastinal bronchogenic cysts in adults: A single-center experience. Ann Thorac Surg. 2004; 78: 987-991.
15. Lemarié E, Diot P, Magro P, et al. Tumeurs médiastinales d'origine embryonnaire. EMC-Pneumologie 2005; 2: 105-125.
16. Le Floch H, Niang A, Rivière F, et al. Une péricardite atypique. Rev Mal Respir. 2007; 24: 1147-1150.
17. Nouri Merchaoui S, Mahdhaoui N, Methlouthi J, et al. Kyste bronchogénique médiastinal: cause rare de wheezing chezle nouveau-né. J Pediatr Pueric. 2012; 25: 102-105.
18. Sundaramoorthi Y, Mahadevan R, Nedumaran K, et al. Intrabronchial rupture of bronchogenic cyst. Ann Thorac Surg. 2009; 87: 1919-1920.
19. Lemarié E, Diot P, Magro P, et al. Tumeurs médiatisnales d'origine embryonnaire. EMC-Pneumologie. 2005; 2: 105-125.
20. Min H, Danilenko DM, Scully SA, et al. FGF10 is required for both limb and lung development and exhibits striking functional similarity to Drosophila branchless. Genes Dev. 1998; 12: 3156-3161.

21. Le Floch H, Niang A, Rivière F, et al. Une péricardite atypique. Rev Mal Respir. 2007; 24: 1147-1150.

22. Salles M, Deschildre A, Bonnel C, et al. Diagnostic et traitement des malformations bronchopulmonaires congénitales: analyse de 32 observations. Arch Pediatr. 2005; 12: 1703-1708.

23. Maier HC. Bronchiogenic cysts of the mediastinum. Ann Surg. 1948; 127: 476-502.