

## **BRONCHOGENIC CYST, CASE REPORT AND REVIEW OF LITERATURE**

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### **ABSTRACT**

Bronchogenic cyst is a benign congenital developmental abnormality of the embryonic foregut. It is usually formed as a result of an accessory lung bud becoming isolated from the rest of the trachea-bronchial tree. It is usually a solitary extra pulmonary cyst and is a benign condition found most commonly in the mediastinum with rare occurrence in the skin or subcutaneous tissues. The skin is a rare site for bronchogenic cysts where it is often a solitary lesion. It is poorly recognized by clinicians and in almost all cases the diagnosis is established by histopathology.

Key words: Bronchogenic cyst

No Conflict of interest

### **INTRODUCTION**

Endodermal cysts are presumably derived from the endoderm of the developing gastrointestinal tract or, in rare cases, the respiratory system. If the endodermal cyst is predominantly lined with respiratory epithelium it is termed as a bronchogenic cyst. Bronchogenic cysts are generally found in the mediastinum particularly posterior to the carina, but they rarely occur in such unusual sites as the skin, subcutaneous tissue, pericardium and even the retroperitoneum. Since the first report of subcutaneous bronchogenic cyst by Seybold & Clagett in 1945, only 16 cases of sub diaphragmatic bronchogenic

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cyst have been reported in English literature<sup>1</sup>. Only 65 cases of cutaneous bronchogenic cyst have been reported in the literature<sup>2</sup>.

We report a case of a cutaneous bronchogenic cyst over the left scapula in a five years old girl which was completely excised under general anesthesia. The diagnosis was made by the histopathology.

## CASE REPORT

We present a five years old girl with no history of any significant medical disease or any other congenital anomalies. She had normal developmental milestones, no allergies, and all her vaccinations were up to date at that time. Her family history was irrelevant.

She was referred to us with a swelling at the left scapular region of 3 months duration which was managed by antibiotics and resolved after bursting through the skin and discharging a green discharge. The swelling recurred again 5 days before presentation, bigger in size and progressive in course with a history of congenital sinus at this site since birth as noticed by the mother. The swelling was red and hot but it was not painful and there was no history of fever.

On examination, the girl was generally well. She had a 3x2 cm lesion which was firm, fluctuant and slightly erythematous in the left scapular lesion with a central punctum but no discharge. Next day, the swelling burst through the skin spontaneously with discharge of a purulent-like material. The swelling disappeared and the patient was discharged on antibiotics.

Plain x-ray of the left scapula showed an area of added density projected over the spine of the scapula and extending superiorly, findings suggestive of a lipoma.

Ultrasound scan showed a well defined 2.6x1 cm cystic structure seen in the left supra scapular region. Low level internal echoes were seen due to debris. It communicated to the skin via a small tract in its upper part. There was increased vascularity, possibly due to inflammatory changes, findings suggestive of subcutaneous cyst communicating with the skin through a small tract.

One month later, the lesion was excised under general anesthesia. The pus inside was aspirated and sent for culture and sensitivity. There was staphylococcus aureus growth which was sensitive to flucloxacillin. The specimen was sent for histological examination which was reported as follow: macroscopically a creamy brown cyst measuring 3x2x1 cm which on microscopy showed sections of skin including a cystic lesion composed of ciliated columnar lining with underlying well formed lymphoid follicles with no evidence of dysplasia or malignancy.

The patient was discharged from the hospital on the same day of the operation. She was reviewed in the outpatient clinic following the operation, the wound had healed up well and there were no complications. No further follow up was arranged.

## DISCUSSION

Cutaneous bronchogenic cysts are found shortly after birth or in early childhood and are rare with a prevalence of 1:42000 - 1:68000<sup>3</sup>. They usually present as an asymptomatic subcutaneous nodules, a draining sinus or as a pedunculated growth. Some of them have a fistulous opening that drains mucoid material<sup>4</sup>. They are four times more common among male population than females. The most common location of cutaneous bronchogenic cyst is the suprasternal notch, followed by the presternal area, neck and scapula<sup>5</sup>. Unusual sites of occurrence have been described in the chin, shoulder, anterior to the right lobe of thyroid and on the anterior abdominal wall. There have been reported cases of communication with deeper structures like first rib and mediastinum<sup>6</sup>. Connection of cystic mass to sub-arachnoid space at sacral region has also been reported<sup>7</sup>.

Scapular location of bronchogenic cyst is extremely rare. They result from an abnormal budding of the trachea-bronchial tree. During embryonic development, the primitive foregut arises in the third week of gestation and divides into dorsal portion, which elongates to form the esophagus and ventral portion, which differentiates into the trachea-bronchial tree. Errors in the development of the ventral foregut will give rise to bronchogenic cysts<sup>(8,9)</sup>. It is possible that accessory buds from the trachea-bronchial tree/primitive foregut may get excluded from the thorax and migrates in an unusual manner to lie in peri-scapular location. Another mechanism is the in situ development of the respiratory epithelium due to metaplasia of mature pre-existing cutaneous tissue and primary anomalous differentiation (heterotropia) in the developing skin<sup>10</sup>. Characteristically these cysts are lined by ciliated pseudo stratified columnar epithelial cells interspersed with goblet cells, typical respiratory epithelium. They often contain smooth muscle fibers, cartilages or mucus glands. Lymphoid aggregates may be, as seen in our case, found in cutaneous bronchogenic cysts<sup>11</sup>. The differential diagnosis of a dermal cyst lined by ciliated pseudo stratified columnar epithelium of respiratory type includes branchial cleft cyst, thyroglossal duct cyst, mature cystic teratoma, cutaneous ciliated cyst, epidermal inclusion cyst, dermoid cyst, and trichilemmal cyst<sup>12</sup>.

Excision is recommended for the treatment of cutaneous bronchogenic cyst and to establish the diagnosis. Mucoepidermoid carcinoma has been reported to arise from bronchogenic cyst, hence excision also avoids malignant transformation<sup>13</sup>.

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