ORIGINAL RESEARCH PAPER

Pulmonary Medicine

MIDDLE LOBE SYNDROME: AN UNUSUAL CASE PRESENTING AS RECURRENT EXACERBATION OF BRONCHIAL ASTHMA

KEY WORDS: Middle Lobe Syndrome (MLS), Bronchiectasis, Recurrent Pneumonia

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ABSTRACT

Middle lobe syndrome is a disorder of recurrent or fixed atelectasis involving the right middle lobe and/or lingula of the lung. It can result from either extraluminal or intraluminal bronchial obstruction. Here we are presenting a case of severe recurrent pneumonia which initially presented as an infective exacerbation of bronchial asthma, and describe the diagnostic path that led to the diagnosis of non-obstructive middle lobe syndrome (MLS).

INTRODUCTION

Middle lobe syndrome is a disorder of recurrent or fixed atelectasis involving the right middle lobe and/or lingula. It can result from either extraluminal or intraluminal bronchial obstruction, but also may develop in the presence of a patent lobar bronchus without identifiable obstruction. Inflammatory processes and defects in the bronchial anatomy and collateral ventilation have been designated as the non-obstructive causes of middle lobe syndrome. (1)

It was first described in 1948, Graham et al. [2] reported 12 patients with atelectasis and non-tuberculous pneumonitis of the middle lobe of the right lung, which Effler and Ervin [3] subsequently termed the 'middle lobe syndrome' (MLS).

Here we are presenting a case of severe recurrent pneumonia which initially presented as an infective exacerbation of bronchial asthma, and describe the diagnostic path that led to the diagnosis of non-obstructive middle lobe syndrome (MLS).

CASE REPORT

27-year-old female patient who recently delivered a child through caesarean section presented to out-patient clinic with complaint of severe breathlessness, chest tightness, wheeze and cough with occasional sputum for 5 days, and low-grade intermittent fever for one week. She had previous history of childhood asthma, frequent hospitalizations in the past 10 years and history of anti-tubercular therapy eight years ago. Her recent medical records showed she was diagnosed with eclampsia and post caesarean sepsis for which she was managed in the ICU and subsequently discharged. Her oxygen saturation (SpO2) was 89% at room air, pulse rate 82bpm, respiratory rate of 20 breaths per minute. On physical examination she was poorly built and hunched back with grade 3 clubbing. Auscultation revealed bilateral rhonchi in all the lung fields.

Laboratory investigations showed leucocytosis (WBC 14,370 cells/cu mm) and anaemia (Hb 9.2 gm%). Sputum was negative for Acid-Fast bacilli and Gram- stain Culture yielded Staphylococcus Aureus. Chest x-ray showed bilateral infiltrates in lower zone predominantly in right lung [Figure 1].

Empirical antibiotics, oxygen, bronchodilators, intravenous steroids and other supportive therapy were initiated. There was significant clinical and radiological improvement after one week following therapy. Diffuse coarse crepitations were heard on auscultation in the right axillary region. HRCT of the thorax showed bronchiectatic changes with mucus plugging in the right middle lobe and narrowing of the middle lobe bronchus [Figure 2,3].

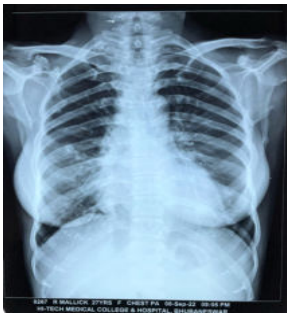

Figure 1: Chest x-ray showing bilateral lower zone infiltrates

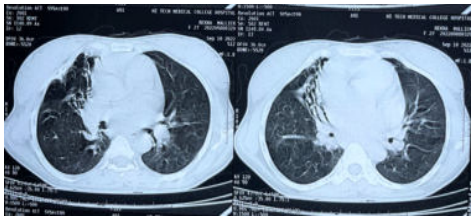

Figure 2: Axial plane of the HRCT thorax showing bronchiectatic changes and mucus plugging

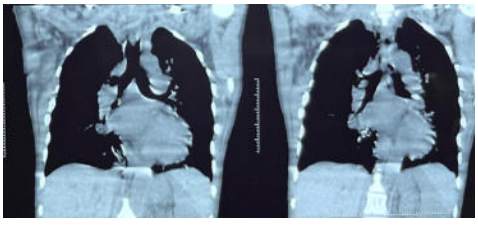

Figure 3: Coronal plane of the HRCT Thorax showing narrowed middle lobe bronchus

Appropriate medications upon discharge along with pneumococcal and influenza vaccinations were prescribed. Chest physiotherapy including breathing exercises and postural drainage were advised.

DISCUSSION

Middle lobe syndrome can present in persons of any age. The syndrome is divided into an obstructive type and a non-obstructive type (patent right middle lobe bronchus). Obstructive MLS can be caused either by endobronchial lesions or extrinsic compression of the RML bronchus.

Malignancy is the most common cause of the obstructive type followed by an infectious etiology. [4]

Certain anatomical characteristics make the right middle lobe susceptible to transient obstruction as a result of inflammation or edema. The narrow diameter of the lobar bronchus and acute take-off angle create poor conditions for drainage. Relative anatomical isolation of the middle lobe and poor collateral ventilation decrease the chance of reinflation once atelectasis occurs. Bronchial obstruction can result from extrinsic compression as in hilar lymphadenopathy or tumour of neoplastic origin.

The most common symptoms are chronic or recurrent cough (observed in 30 to 50% of patients) dyspnoea, chest pain, audible wheezing and fever and chills related to obstructive pneumonia (5). Haemoptysis, weight loss, fatigue and low-grade fever are symptoms that may indicate complications related to suppurative infections [6,7].

Right middle lobe syndrome is essentially a radiographic diagnosis, and physical findings widely vary. Auscultation of the lungs may reveal a fine wheeze, crepitations, or diffuse rhonchi, ranging from decreased aeration and dullness to percussion in the region of the right middle lobe.

Infectious agents associated with RML syndrome in children include Streptococcus pneumonia and Haemophilus influenzae; by contrast, the causes are more diverse in adults and include MAIC and other NTM, and Mycobacterium tuberculosis, as well as Histoplasma, Blastomyces, and Aspergillus species (8). Patients with nonobstructive MLS usually respond to medical therapy with bronchodilators, mucolytic agents and antibiotics [9].

Surgical removal of the middle lobe is reserved for resistant and complex cases of MLS, usually for patients with isolated MLS who do not respond to medical therapy and who have proven obstruction of the middle lobe bronchus [10].

CONCLUSION

The case that has been discussed here initially presented as bronchial asthma with infective exacerbation. Upon progression of the treatment and significant clinical improvement, the diagnosis of non-obstructive middle lobe syndrome (MLS) was done. Careful radiological examination and follow-up should be done by the physician to avoid a misleading diagnosis. Diagnostic procedures like Flexible bronchoscope and Endobronchial ultrasound (EBUS) can be employed to evaluate the patency of the lobar bronchus and enlarged lymph nodes which might lead to Obstructive type of MLS.

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