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Solitary Pulmonary Nodules : A Case Study

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A B S T R A C T

A Coin Lesion or solitary pulmonary nodule (SPN) is a lung mass with a diameter of less than three millimeters. The diameter of a pulmonary micro nodule is less than three mm. There could be several nodules. A solitary pulmonary nodule (SPN) is a single lung abnormality with a diameter of less than 3 cm. Before a pulmonary nodule can be noticed on a chest X-ray, it must grow to a diameter of at least 1 cm. An incidental finding in up to 0.2 percent of chest X-rays and around 1% of CT scans can be one or more lung nodule. The nodule is most usually a benign tumors such as a granuloma or hamartoma, but it can also be a malignant cancer in about 20% of instances, especially in older persons and smokers. In contrast, 10 to 20% of lung cancer patients are diagnosed in this manner. If the patient has a history of smoking or the nodule is developing, further radiological examinations and procedures, including surgical excision, may be required to rule out malignancy. The prognosis is determined by the underlying illness.[1]

Keywords: Coin lesion, Solitary pulmonary nodules (SPN), Granuloma, Hemartoma , Malignancy

INTRODUCTION

A solitary pulmonary nodule (SPN) is a single lung opacity that is smaller than 3 cm in diameter. It is normally undetectable and does not connect to the pleura or lung border. Associated lymphadenopathy is almost never present. Solitary lung opacities are caused by granulomatous illnesses such as tuberculosis, fungal infections such as Histoplasmosis and Cocciodiomycosis, parasites which causes pulmonary hydatid cysts, and Paragonimus westermani, popularly known as Chinese lung fluke.

Solitary lung opacities can be caused by bacterial pneumonia, which might be mistaken for an abscess. SPNs can be caused by scars that form as a result of earlier infections. Inflammatory etiologies for SPN include noninfectious granulomas such as sarcoidosis, various inflammatory illnesses such as rheumatoid arthritis, and granulomatosis with polyangiitis (GPA).[2]SPNs are a common chest X-ray anomaly that requires additional investigation. Every year, around 150,000 instances are discovered as a result of incidental observations on X-rays or CT scans.[3]

Symptoms from small lung nodules are uncommon. If the growth presses against the airway, symptoms such as coughing, wheezing, or difficulty breathing may occur, which could suggest early stage lung cancer (cancer that hasn't spread outside the lung). Chest pain, chronic cough, hoarseness, dyspnea, wheezing, loss of appetite, and unexplained weight loss are all indicators to be aware of. Granulomas may develop at a later period.[4]

A diagnostic evaluation is based on size of the lesions A chest CT scan is the most likely imaging modality to detect a single pulmonary nodule (SPN) in size of 1 to 2 mm. A Positron emission tomography scan may be utilized for further investigation if the SPN is bigger (>8 mm. Biopsies of the tumor or enlarged lymph nodes can be collected via CT-guided transthoracic needle aspiration or bronchoscopy, although chest x-rays are not the best imaging modality for detecting an SPN. Radial probe endobronchial ultrasound (RP-EBUS), thin/ultrathin bronchoscopes, virtual navigation bronchoscopy (VBN), robotic bronchoscopy, and electromagnetic navigation are all examples of bronchoscopy procedures.[2]

People with solitary pulmonary nodules respond to antibiotics and antifungal such as terbinafin.patient who does not respond to antibiotics and antifungal may require Video-assisted thoracic surgery (VATS and thoracotomy.

CASE PRESENTATION

In April 2022, A 50 year old female house wife visited IGMC, Shimla in Pulmonary unit with the complaints of shortness of breath ,cough , chest pain moderate to severe intensity, she was experiencing these symptoms from last 2 months.On physical examining the patient it was found wheezing sounds and decrease activity pattern with breathlessness, spo2 was 84% and Blood pressure measured that is (122/82mmHg).

Past Medical History

She had been suffering from hypertension for the past three years. as well as She is also on medication that has been prescribed to her.

Past Medication history

She had been taking prescribed medication (tablet amlodipine to reduce high blood pressure) for three years because she had hypertension. She was getting regular check-ups.

General Examination

- Weight: 65
- Height: 155cm
- BMI: 27.1Kg/m2

Physical activity: Because of her dyspnea and weakness, she is unable to engage in proper physical activity and carry out her daily work routine at home.

SPECIAL INVESTIGATIONS

CBC-5 Whole Blood, LFT, RFT,Glucose Random Plasma, X-ray, Bronchoscopy.

In investigations patient was diagnosed with SPN in left lateral upper lobe (Infilteration with edematous mucosa).

TREATMENT

Tab.TRD-Contin 100mg BD, Tab.Mucinac 600mg BD, Tab.Azithromycin 500mg OD, Inj.Xone 0.9ml BD, Nebulization with Ipravent every 2 hourly.

CARE PLAN

Eat a healthy diet- take green leafy vegetables and fresh fruits, whole grains and vitamins, while limiting oily food.

Deep breathing exercises should be done on a regular basis to help raise oxygen levels and lower blood pressure. Additionally, it aids in the creation of a positive feeling.

Avoid smoking and all tobacco products, to reduce the risk of Lung Cancer.

OUTCOME

- After the bronchoscopy procedure, patient diagnosed with solitary pulmonary nodule in left upper lobe (infiltration with edematous mucosa).
- Patient was advised to take the prescribed medications and nebulization every 2 hourly.
- Patient was advised to visit hospital after 15 days for follow up.

DISCUSSION

Patient is suffering from Solitary pulmonary nodules also called coin Lesion. It is commonly affect men more frequently than women.it is an majority of lung nodules are benign. Infections and scarring are two common causes of benign lung nodules. When lung tissue is inflamed by an infection or sickness, a tiny clump of cells called a granuloma can form. A granuloma in the lung can calcify or harden over time, resulting in a noncancerous lung nodule.clinical features include-chest pain,chronic cough , fatigue, hoarseness, loss of appetite and shortness of breath.Absence of normal sounds heard over the chest wall, if we talk about pathophysiology it is based on risk factor , age of the people and about past history. Physician finds SPN on Bronchoscopy and other investigations include CBC-5 whole blood, X-ray. Treatment of SPN almost always include related to size of the nodules for small nodule firstly provide Antibiotics and antifungal medications helps to reduce infection and inflammation. For large nodules greater than 8mm diameter thoracotomy preferred.[5]

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