

Puzzling Patterns - Exploring an Unconventional Chest Pain Case in The Pain Clinic

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Introduction:

Spontaneous pneumothorax (SP) is a cardiopulmonary emergency characterized by the accumulation of the air between the pleural leaves, occurring in the absence of iatrogenic or traumatic causes. SP is classified as either primary and secondary.

Primary spontaneous pneumothorax (PSP) usually occurs in healthy young people. The most common pathology is the rupture of an apical subpleural bleb.^[1] Most pneumothoraxes resolve with conservative management and often do not require surgical intervention. SP in most patients occurs due to the rupture of bullae or blebs. ^[2,3]

Case report:

A 30 yr old male came to the emergency department with the complaints of chest pain since a day. The patient was admitted under the cardiac unit for the further evaluation and treatment. The pain was sudden in onset and gradually progressive. It was associated with difficulty in breathing. The patient had normal body temperature with pulse-84/min, BP-130/70 mm Hg, RR-16/min, Spo₂- 97% on room air. The patient was evaluated by the cardiologist, the ECG (Fig 1a) and cardiac enzymes were advised. Patient underwent 2D ECHO.

The patient's electrocardiogram showed sinus rhythm with ST elevation in lead II, III, aVF and V3-V6. Cardiac markers and other routine blood examinations were found in the normal range. 2D ECHO showed normal cardiac chamber size, good LV systolic function, EF-60%, Normal PA pressure. Since there was no underlying cardiac cause, patient was referred to the pain clinic.

The patient was reevaluated by pain physician. On examination, the patient had no dyspnoea, and but on auscultation there was a slight decrease in breath sounds over the right hemithorax. Heart sounds were normal and there was no cyanosis, clubbing or oedema. Other systemic examination was within normal limits.

We advised an arterial blood gas analysis and chest radiograph. Arterial blood gas showed mixed metabolic and respiratory acidosis while chest radiograph demonstrated the presence of a right-sided pneumothorax. (Fig 1b)

The patient was treated with immediate emergency needle decompression and an intercostal drain (ICD) was inserted. (Fig 1c) Patient developed no complications during or after the procedure. Within a few minutes after the ICD insertion the chest was reduced significantly

and patient was comfortable in breathing. Post procedure, chest X-ray and arterial blood gas analysis was repeated. Patient was referred for physiotherapy and subsequently lung expanded.

On day 3 the ICD was removed as there was no column movement was seen. The patient was discharged after 5 days as there was no chest pain or the difficulty in breathing was noticed.

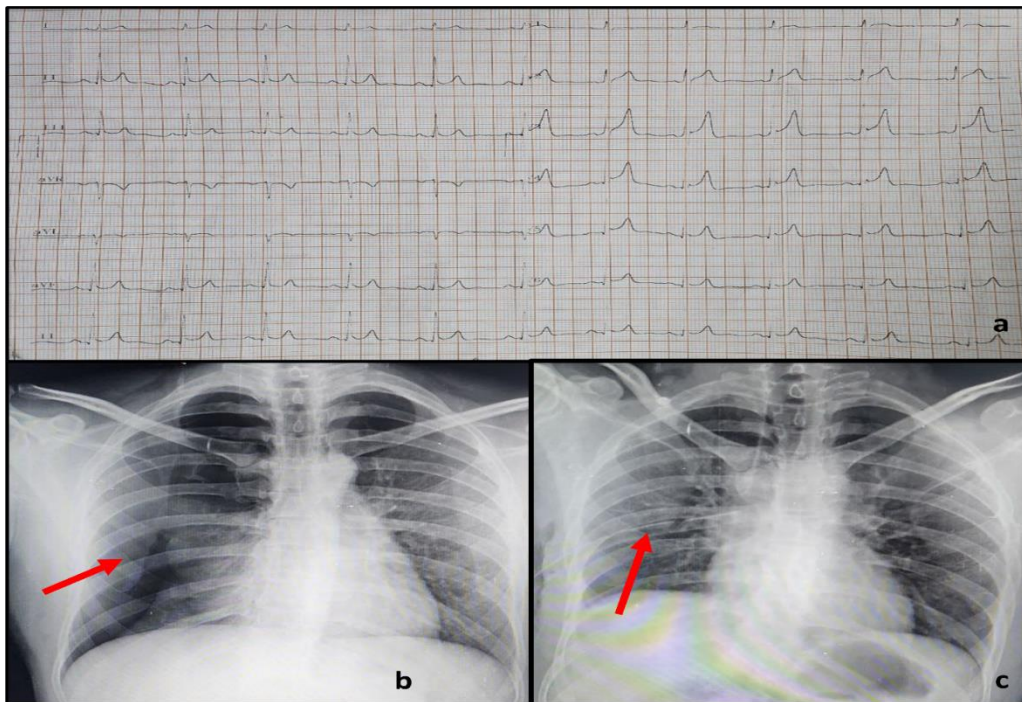


Fig 1: Shows chest x-ray, a) 12 lead ECG with ST elevation in lead II, III, aVF and V3-V6, b) CXR (Red arrow) showing right sided pneumothorax, c) CXR (Red arrow) showing ICD and right lung expansion

Discussion:

Young tall male patients may present with the spontaneous pneumothorax. Invariably these patients may present with chest pain. It has been reported that there are certain changes in the ECG. Alterations in the ECG are observed in around 25% of instances involving Pneumothorax. ECG manifestations encompass deviations in the right axis, modifications in the QRS complex, and inversions in the T-wave, extending to modifications in the ST-segment, such as elevations that may mimic symptoms of acute myocardial infarction.^[4] All these changes are noted in our patient except for the T wave inversion.

A multidisciplinary approach and high index of suspicion will help in identifying such problems. With the invent of new technology especially the ultrasound in the emergency and critical care unit the identification of the pneumothorax is very easy at bedside.^[5] The technique is radiation free and is at point of care. It only requires some training and some expertise.

Conclusion:

Incorporating thorough history taking and comprehensive investigations, coupled with a collaborative, multidisciplinary approach, is pivotal for pain physicians. This strategy ensures

timely identification of life-threatening conditions and encourages a broad diagnostic perspective for cases involving chest pain.

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