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Primary Spontaneous Pneumothorax in a Young Polysubstance Abuser- A Case Report

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ABSTRACT

A primary spontaneous pneumothorax (PSP) is traditionally defined as a pneumothorax which presents without a precipitating external event in the absence of clinical lung disease Combined smoking of tobacco and cannabis (marijuana) has greater risk of having a primary spontaneous pneumothorax(PSP) in young men when compared to both never smokers and daily smokers.Cannabis due to its easy availability, has become the most widespread illegal drug abused amongst Young adults. It has been suggested that cannabis smoking may have a causative link to spontaneous pneumothorax. The valsalva manouvre during marijuana inhalation can also trigger PSP formation .

KEY WORDS: Primary spontaneous pneumothorax, cigarette smoking, cannabis, bullae, sub pleural blebs

I. CASE REPORT

A 30 year old male , illiterate, and who is a daily wage labourer presented to our ER with sudden onset chest pain and shortness of breath since an hour .

Patient was apparently aymptomatic and was doing his routine activities till he developed sudden right sided chest pain followed by shoetness of breath ,since less than an hour before presentation to our ER. Pain was sudden in onset while he was doing his routine activities, unilateral,right sided, sharp pain, non radiating . Patient then developed shortness of breath at rest. Patient was able to speak sentences with difficulty and walk with little difficulty. He had no cough or fever history. Patient gives no history of sweating and palpitations. He gives no history of any trauma or any foreign body ingestion. He is known polysubstance abuser with tobacco and cannabis. He smokes around 15 cigarettes a day along with cannabis smoking. Patient is not a known diabetic or hypertensive. Not known asthamatic , no history of any tuberculosis or no other drug history. Family history was insignificant.

On examination patient was dyspnoeic, with decreased chest excursion on right side,. He had labored breathing and was using accessory muscles of respiration. He was able to speak in whole sentences with little difficulty.

His vitals were recorded, BP 100/70mmHg, Pulse rate -110/min,.pulse oxygen saturation 91% @room air ,respiratory rate-22/min. On auscultation heart sounds were heard in all areas except aortic area. Breath sounds diminished, absent tactile or vocal fremitus, and hyperresonant percussion on right side.

Minimal oxygen support was given, bladder catheterized, and routine lab investigations were sent; an ecg was done which showed sinus tachycardia. A bed side Chest Xray was done in upright position which showed right sided pneumothorax with collapse of right lung. Trachea is central in position.

CBP showed mild leukocytosis without left shift. D dimers and troponin levels were normal. ABG showed oxygen desaturation with respiratory alkalosis .Patient was reassured, and ultrasound guided catheter thoracostomy done with a small bore catheter and connected to an underwater seal .

Daily bedside assessment done for 5 days post thoracostomy for any airleak,or surgical emphysema or any blockage , pain or bleeding. Frequent imaging done to assess the degree of lung expansion. Catheter was clamped on day 2 for 12hours once airleak has sealed and lung has fully expanded. A repeat chest xray done and tube was removed on day 4. And patient was discharged on day 5 after he was hemodynamically stable. He was counseled for any recurrent episodes and reviewed after 10 days. Patient was stable and doing well. He was counseled to abstain from cigarette and cannabis smoking..both active and passive smoking.

II. DISCUSSION

A primary spontaneous pneumothorax (PSP) is traditionally defined as a pneumothorax which presents without a precipitating external event in the absence of clinical lung disease. It is a life-threatening condition when unaddressed in time.Although PSP is not associated with known clinical lung disease (eg, chronic obstructive pulmonary disease [COPD]), most affected patients have unrecognized lung abnormalities (mostly subpleural blebs) that likely predispose to pneumothorax . PSP is more common in males than females (roughly three to six times higher).

PSP is thought to be due to small apical subpleural blebs or bullae (ie, air sacs between the lung tissue and pleura) that rupture into the pleural cavity .The mechanism of bleb/bulla formation is probably due to airway inflammation and respiratory bronchiolitis.

Smoking (cigarette, cannabis) — Cigarette smoking (current or past) is a significant risk factor for PSP, Compared with nonsmokers, the relative risk of PSP in males is approximately seven times higher in light smokers (1 to 12 cigarettes per day), 21 times higher in moderate smokers (13 to 22 cigarettes per day), and 102 times higher in heavy smokers (>22 cigarettes per day) [15]. For females, the relative risk is 4, 14, and 68 times higher in light, moderate, and heavy smokers, respectively. Similarly, patients with PSP who smoke cigarettes have more respiratory bronchiolitis and higher recurrence rates than those who don't smoke. Regularly smoking cannabis appears to increase the risk of PSP.

Combined smoking of tobacco and cannabis (marijuana) has greater risk of having a primary spontaneous pneumothorax(PSP) in young men when compared to both never smokers and daily smokers.. Cannabis due to its easy availability, has become the most widespread illegal drug abused amongst young adults with greater chances of developing PSP. Also the valsalva manoeuvre performed during marijuana inhalation can cause primary spontaneous pneumothorax due to sudden increase in intrathoraic pressure.

III. CONCLUSION

We report a case of primary spontaneous pneumothorax in a 30 year old male who is a known chronic polysubstance abuser with tobacco and cannabis. In conclusion, we observed that smoking is associated with a higher risk of having a PSP and that combined smoking of cannabis and tobacco intensifies this risk significantly, probably by accentuating the known side effects and damage caused by conventional tobacco smoking and also the valsalva manoeuvre during marijuana inhalation can cause PSP.

Abstinence from smoking can prevent recurrence and prevent lifethreatening complications.

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