

# Spontaneous Pleuritic Chest Pain In An Otherwise Healthy 22 Year Old Collegiate Athlete

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## Background

- While spontaneous pneumothorax is a rare condition found occasionally in athletes it can be fatal if not appropriately diagnosed and managed. Primary spontaneous pneumothorax (PSP) is defined as occurring in the absence of known lung disease and occurs in tall and thin young people due to increased shear forces or more negative pressure at the apex of the lung [5].
- PSP affects one in every 3000 men aged between 20 and 29 [6], with the most common cause being subpleural bleb apical rupture [1].
- Patients are minimally symptomatic, as otherwise healthy individuals tolerate physiologic consequences well. The most common symptoms are pleuritic, sharp chest pain, and shortness of breath. Although pneumothorax in sports is uncommon, reported cases of spontaneous pneumothorax have demonstrated the need to be responsive to dyspnea and chest pain in healthy, young athletes [2].
- The risk of recurrence increases with each subsequent pneumothorax; it is 30% with the first, 40% after the second, and more than 50% after the third recurrence [5]. If there is a recurrent pneumothorax despite treatment with a thoracostomy tube, patients may need video-assisted thoracoscopic surgery (VATS) with or without pleurodesis or thoracotomy [7].
- Studies have shown that analysis of several potential risk factors revealed recurrence is more common in taller men [4].

## Case Study

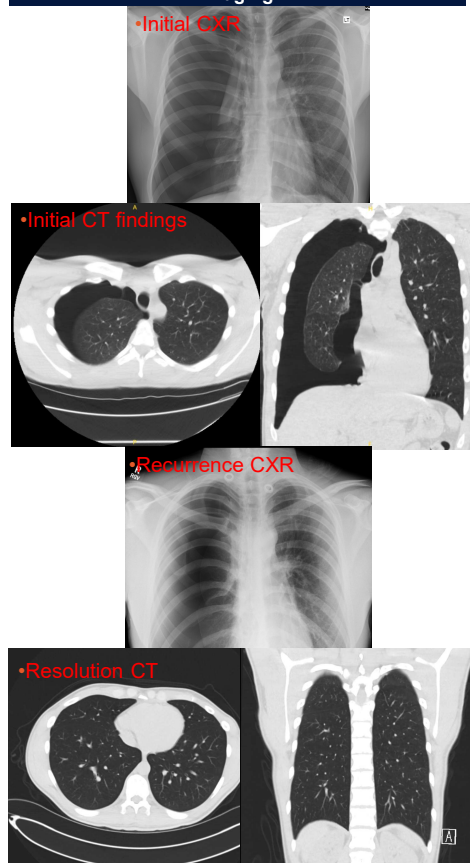
- 22 year-old Caucasian male with no significant past medical history presented to clinic with normal vital signs after failed urgent care evaluation for several weeks of right sided chest pain and intermittent shortness of breath. In urgent care, was diagnosed with intercostal muscle spasms and discharged on steroids.
- He was sent to clinic for team physician evaluation after athletic trainer expressed concern for decreased performance in basketball. He had diagnostic lung ultrasound in clinic concerning for pneumothorax so was sent to the ED for further evaluation
- In ED, patient was found to have large right sided pneumothorax and thoracent chest tube was placed and patient was admitted for further management
- Patient was followed by thoracic surgery and chest tube was ultimately removed with resolution of pneumothorax and patient was discharged home.
- Several days later, patient returned to ED with similar complaint and was found to have recurrence. He was again admitted and followed by thoracic surgery after chest tube placement
- Ultimately, decision was made that patient would undergo VATS with blebectomy and chest tube placement. He had an uneventful post-op course and was discharged home
- He underwent graded return to play and was followed as outpatient by thoracic surgery and continuity clinic
- He recently has begun full activity and is doing well

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## Vitals/notable hx

- Ht 82"/Wt 223.8 lb/ BMI 23.4/ BP112/74/ Temp 98.1 F/ HR 106/ O2 Sat 98%
- Social hx: collegiate basketball. Denies substance use
- Family hx: non-hodgkins lymphoma in mother

## Imaging



## Discussion

- Based on initial presentation, patient likely had protracted course of pneumothorax as it was likely present on initial presentation to urgent care. Patient's lung did not maintain re-inflation after first admission. This could've been secondary to length of time that lung was deflated initially.
- On second occurrence, patient underwent VATS with mechanical pleurodesis and wedge resection of right apical bleb. Guidelines suggest that surgery is indicated in repeat spontaneous pneumothorax
- The patient's body habitus and his clinical history are consistent with marfanoid attributes. However, patient did not exhibit other signs and symptoms of Marfan's syndrome. Despite this, he does have a small bleb noted on left lung during follow-up imaging.
- As a collegiate athlete, patient's main priority is returning to play. In this case, lengthy, step-wise return to activity and athletics with concurrent CT scan follow-up was paramount to ensure patient's continued success.
- There is limited evidence to link recurrence with physical exertion, so patients can be advised to return to work and resume normal physical activities once their symptoms have resolved or 3–4 weeks after complete resolution on imaging [3]. Returning to play in athletes with spontaneous pneumothorax should consider general conditions and type of treatment.
- Patient has now returned to full activity and game play. He is doing well with no significant complaints.

## Conclusion

- Patient had a successful postoperative course and successful return to play after graded return to activity.. They hope to play at the professional level and this was unlikely without successful and safe return to play after pneumothorax management.

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