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PNEUMOTHORAX DUE TO BLUNT CHEST TRAUMA IN A SOCCER MATCH: A CASE REPORT

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SUMMARY

Pneumothorax is defined as the presence of air within the pleural cavity, and is a condition that may be life threatening. Although blunt chest trauma is the primary cause of pneumothorax, sports-related blunt chest trauma causing pneumothorax is infrequent, especially in soccer. A 20 years old soccer player experiencing severe pain following blunt chest trauma during the game was transferred to the hospital by ambulance. His chest X-ray was normal. He did not incur any pain the next morning. A computerized tomography (CT) scan of the chest revealed 15% hemothorax. He was conservatively treated and played a league game three weeks later. Possibility of pneumothorax should be kept in mind in athletes with chest trauma even with mild or atypical symptoms. A CT scan can be helpful for differential diagnosis.

Key words: Traumatic pneumothorax, blunt trauma, soccer, CT scan, exercise

ÖZET

FUTBOL MAÇINDA KÜNT GÖĞÜS TRAVMASINA BAĞLI PNÖMOTORAKS: OLGU SUNUMU

Pnömotoraks plevral kavitede hava bulunması olarak tanımlanır ve hayatı tehdit edici olabilir. Pnömotoraksın primer nedeni künt toraks travmasıdır, ancak özellikle futbolda olmak üzere sporda künt travmaya bağlı pnömotoraksa çok seyrek rastlanır. Olgu 20 yaşında bir futbolcu olup, künt toraks travması sonrası şiddetli göğüs ağrısı nedeniyle maç sırasında ambülansla hastaneye sevk edilmişti. Göğüs röntgeni normaldi. Ertesi gün ağrısı tamamen geçmesine karşın, hastanın toraks bilgisayarlı tomografisinde %15 oranında hemitoraks saptandı. Konservatif olarak

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tedavi edilen sporcu üç hafta sonra bir lig maçında oynadı. Künt göğüs travması sonrası hafif ya da atipik semptomları bulunan sporcularda pnömotoraks olasılığı akılda tutulmalıdır. Ayırıcı tanıda bilgisayarlı tomografi yardımcı nitelikte olabilir.

Anahtar sözcükler: *Travmatik pnömotoraks, künt travma, futbol, bilgisayarlı tomografi, egzersiz*

INTRODUCTION

Pneumothorax, defined as presence of air within the pleural cavity can occur spontaneously or following trauma. It is theorized that spontaneous pneumothorax results from the rupture of subpleural blebs or bullae. It may be caused by an underlying lung disease and then is called secondary spontaneous pneumothorax. In the absence of known lung disease, it is called primary spontaneous pneumothorax (10). Traumatic pneumothorax can occur either with penetrating or blunt trauma. Blunt trauma can cause pneumothorax by direct impact or lacerating the lung by fracturing a rib.

Pneumothorax following blunt chest trauma is not common in sports (4). Cases reported in the literature mainly include athletes participating in sports activities such as ice hockey, snowboarding, skiing, cycling and football (4,6,7). It is rarely reported in soccer (9). This case report is about pneumothorax due to blunt trauma that occurred during a soccer game.

CASE PRESENTATION

A 20 years old Turkish first league professional soccer player received a blunt chest trauma at the 45th minute of a league game just before the half-time whistle. His major complaint was right-sided anterior chest pain. The pain was increasing with inspiration. Dressing room examination revealed tenderness over the right 5th and 6th costae and costosternal joints. There was no deformity, crepitation or swelling in the area. Breath sounds were found to be bilaterally equal upon auscultation. His pain decreased following 10 min of rest. He stated that he would be able to resume playing in the second half. The pain was considered of musculoskeletal origin, and so he was allowed to return to play. As he proceeded, the player stopped with severe chest pain after the very first sprint. He was then immediately transferred to the hospital by ambulance.

Chest radiography (Figure 1) and electrocardiography were obtained at the hospital. Both were found to be normal. The patient did not complain of any pain the next morning. His blood pressure was 109/72 mm Hg, pulse rate 66 bpm and respiration rate 14 breaths per minute. There was no tenderness over the costae and costosternal joints. Computed tomography (CT) scan of the chest was ordered for further investigation. Upon inspection, the CT scan revealed a pneumothorax encompassing approximately 15% of the right hemithorax (Figure 2).

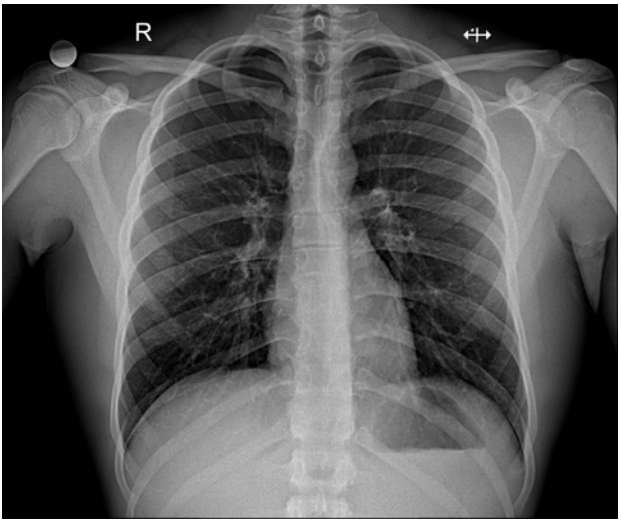

Fig. 1. Chest X-ray of the soccer player

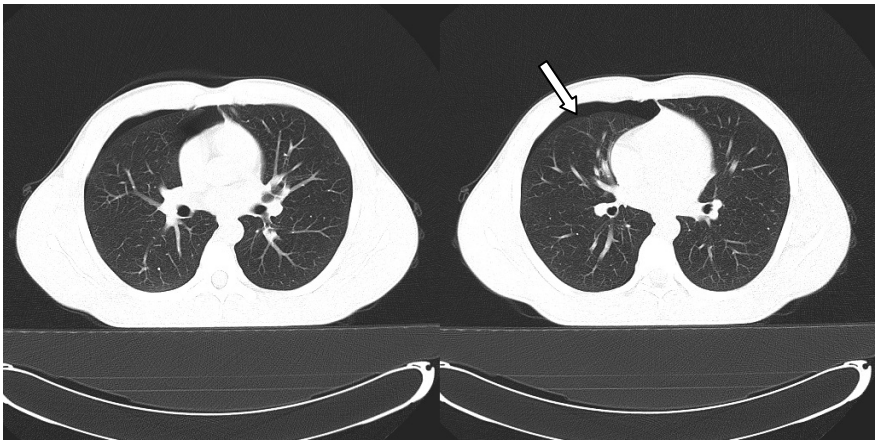

Fig. 2. Chest CT scan of the soccer player displaying pneumothorax

As the rate of pneumothorax was less than 20% in the case, conservative treatment was chosen, which consisted of hospitalization, bed rest, and oxygen administration. Radiographic evaluation revealed complete resolution of the air space on the fifth day. The patient started jogging a week after the injury. Running speed was increased gradually. At the 15th day of the injury, the player resumed training with the team. He missed two games and played a league game three weeks following the injury. No recurrence was present in the two year follow-up period.

DISCUSSION

Sports-related pneumothorax is not common (7,12). There are rare case reports of spontaneous pneumothorax related to jogging, running, tennis, golf, cycling, wrestling, weight lifting and rowing (4,8). Although blunt chest trauma is the primary cause of pneumothorax (11), sports-related blunt chest trauma causing pneumothorax is infrequent. Martial arts, cycling, skiing, snowboarding and equestrian sports are the most reported sport disciplines related to traumatic pneumothorax (4). Reports of traumatic pneumothorax occurring in soccer are very rare (9).

Main symptoms of pneumothorax are chest pain and dyspnea. Physical findings are tachycardia, tachypnea and diminished breath sounds. The present case had severe chest pain with trauma, and the pain increased upon physical exertion. Although he had pneumothorax, he had no symptoms a few hours later, and his physical findings were normal. Radiographic evaluation was also normal, but the clinical aspect changed so rapidly that a CT scan was ordered upon suspicion. In fact, the scan revealed 15% pneumothorax. The case confirmed previous case reports' conclusions that pneumothorax in athletes may present with atypical complaints and physical findings (7,12).

In soccer leagues, as in many high level team sports, about half of the games are played out of town, and players return back to their homes mostly by flight. Air travel is an absolute contraindication in pneumothorax, which may progress to tension pneumothorax (1). In athletes with blunt chest trauma, with an immediate flight, a CT scan can be performed to eliminate pneumothorax. The present case did not have a scheduled flight, so chest radiography was thought to be sufficient till the atypical and rapidly changing clinical aspect became evident.

It is also important to consider spontaneous pneumomediastinum in young individuals complaining of sudden chest pain without evidence of pneumothorax in chest X-ray (5). When chest radiography is

inconclusive, a CT scan may be necessary (3). Thoracic ultrasonography is also an accurate method that can be used in patients for the detection of pneumothorax following trauma (2).

Although sports-related chest trauma is infrequent, team doctors and emergency physicians should keep in mind the possibility of pneumothorax in athletes with chest trauma, especially for those who plan a nearby flight journey, even if the athlete displays mild or atypical symptoms. A CT scan can be helpful for differential diagnosis.

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