PNEUMOMEDIASTINUM WITH SUBCUTANEOUS EMPHYSEMA IN A 19 YEAR OLD MALE COLLEGIATE FOOTBALL PLAYER
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Background: A 19 year old male football player reported severe shortness of breath and tightness in chest and neck while walking to his car after a game. Patient reported no history of trauma. His parents took him to an urgent care facility, but did not notify the athletic trainer. Urgent care initially diagnosed him with pneumonia and discharged the patient. Shortly after discharge, urgent care called the patient with concerns of a pneumomediastinum on his chest x-ray, and instructed the patient to go to the emergency room (ER) for further evaluation. ER evaluation findings consisted of complaints of chest congestion and cough producing clear to yellow sputum present over the past 4-5 days, shortness of breath that progressed to where walking was difficult, fever of 102°F, decreased breath sounds at bases of lungs, and crepitus and crackles along upper anterior chest wall during inspiration. Patient had history of asthma and environmental allergies. No abnormalities to the trachea or esophagus were found. Patient had not been taking asthma medication within the past year. Chest x-ray showed pneumomediastinum with subcutaneous emphysema with no evidence of pneumothorax. Computed tomography (CT) scan verified these findings. Differential Diagnosis: Pneumothorax, pneumopericardium, sternal contusion, rib contusion, rib fracture. Treatment: Patient was admitted to the hospital and monitored closely since complications could be fatal. The etiology may have been either a viral upper respiratory tract infection or from complications from an underlying acute asthma exacerbation. Patient was administered steroids and antibiotics intravenously, as well as supplemental oxygen and nebulizers as needed. Serial chest x-rays were done to assist in monitoring patient. Patient was discharged after five days and instructed to return to the ER if any chest pain, palpitations, shortness of breath, or increased wheezing returned. He was prescribed Prednisone to decrease inflammation and pain, Symbicant aerosol inhaler for asthma maintenance, and Ventolin aerosol inhaler for shortness of breath. Patient was also instructed to follow up with his primary physician as soon as possible and to abstain from football for two weeks. Athletic trainer further held patient from full contact for an additional week with a gradual progression from noncontact to contact drills.

Uniqueness: Pneumomediastinums are rare complications of athletic activity and present similar to pneumothoraces. The most common causes result from non-sports related events such as vehicle and motorcycle accidents, childbirth, mechanical ventilation, and cocaine inhalation. In athletics, the most common causes are from blunt trauma and Valsalva maneuvers. This case of a pneumomediastinum did not result from a blunt trauma. Asthma exacerbations may result in Valsalva maneuvers. The incidence of a pneumomediastinum as a complication from asthma exacerbations is only 0.2%-0.3%. This exceptionally low incidence rate makes this case unique. Although pneumomediastinums are rare, they are not medical emergencies. However, a pneumothorax can result from a pneumomediastinum, which can be life threatening. Therefore, referral is necessary. Conclusion: Since asthma is common in athletes, athletic trainers should be aware that a pneumomediastinum is a possible consequence from asthma exacerbations and illnesses such as pneumonia. Athletic trainers should encourage athletes with asthma to take their asthma medications regularly to prevent exacerbations. When evaluating athletes with chest pain, pneumomediastinums should be one of the injuries considered. These are most likely managed conservatively, but athletes should be referred as quickly as possible to a physician so no further complications arise, and early treatment is possible. Relevant Evidence: A study by Caceres et al suggested CT scans should be the gold standard for diagnosis of pneumomediastinums due to diagnosis being overlooked with plain chest x-rays in 30% of subjects. This literature supports the diagnostic decisions made by physicians in this case. Word Count: 600

References