Pneumothorax and Pulmonary Trauma in a Collegiate Football Player

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Background: A 20 year-old male Division III collegiate football player suffered a contusion, pulmonary laceration, and pneumothorax after being hit during a play trying to secure a catch. When evaluated on the field, athlete stated he “had the wind knocked out of him” and complained of abdominal pain. During sideline evaluation, athlete vomited and coughed up blood while also complaining of loss of breath. No loss of consciousness was observed. At that time, athlete was brought inside for further evaluation. Physical exam found point tenderness in LLQ; athlete denied shortness of breath (SOB), headache or dizziness; no deformity, swelling, discoloration, or parasthesis observed; bleeding from mouth also negative. Examination of the lungs revealed rhonchi and wheezing, but breathing was equal bilaterally. Special testing included AAOX3 (Awake, Alert, Oriented X3), EOMI (Extra Ocular Movements Intact), P.E.R.R.L.A. (Pupils Equal Round Reactive to Light Accommodation), and Cranial Nerves II-XII were grossly intact. Differential Diagnosis: Acute Respiratory Distress Syndrome, fractured rib, lung abscess, pulmonary edema, pulmonary embolism, congestive heart failure, heart attack, angina. Initial Treatment: X-Rays advised; athlete transported to the hospital via ambulance where CT scans of the abdomen/pelvis were administered with contrast. Results revealed a small focal opacity in the medial right lower lobe with air fluid measuring 2x1 cm. No focal abnormalities were discovered in the liver, spleen, pancreas, gallbladder, or adrenal glands. CT results also revealed a small bibasilar pulmonary contusion on the right which was greater than the left, with a probable laceration or early pneumatocele formation. Two days post: a follow up a CT was performed which revealed the athlete sustained a tiny right pneumothorax located medially to the presumed pneumatocele in the medial aspect of the right lower lobe. The pneumothorax did not require surgical intervention. After release from the hospital the athlete was not cleared to return to play for the remainder of the season, as recommended by the pulmonologist. Uniqueness: Pulmonary contusions/lacerations occur most frequently with motor vehicle accidents and less than ½ dozen have been reported by athletes. A pneumothorax is a condition where air is trapped in the pleural space, causing portions of the lung to collapse. A simple pneumothorax occurs idiopathically with no apparent lung trauma. Secondary pneumothorax is associated with underlying respiratory disease, where erosion of lung tissue allows inspired air into cavity. An open pneumothorax (“sucking wound”) describes a large opening in the chest wall as a result of blunt trauma. Conclusion: Immediately after the hit, athlete experienced shortness of breath and hemoptysis was present, but during examination athlete denied classic symptoms such as SOB and chest pain that typically occur with a pneumothorax. Although the initial CT scan of the pelvis/abdomen revealed a pneumatocele, the pneumothorax was discovered 2 days post-trauma. A pneumatocele occurs when a lung laceration, cut, or tear in the lung tissue fills with air; it is unclear if the athlete had lung blebs or other lung abnormality prior to the trauma which would increase his risk to a pneumothorax and lung laceration. Furthermore, without the incident of the direct trauma and resulting symptoms present to warrant further medical attention, the pneumatocele may not have had been discovered. Although no specific signs of respiratory distress were apparent, the pre-existing defect may have worsened with impact. Lastly, there is little evidence to support rapid return to play after pulmonary contusion with laceration. In this case, the recommendations of the pulmonologist were followed, which was 6 weeks to allow for proper healing of lung tissue. Word Count 600