CrossFit Chest Injury

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History

A 24-year-old female with history of Crohn's disease presents to the sports medicine clinic 5 days after an Emergency Room visit for pain and swelling on the right side of the chest and the right side of the upper back. The patient reports an acute traumatic event that precipitated her symptoms, as she dropped a 100-pound barbell on her shoulders during a weight-lifting session. She felt pain in her right shoulder on the day of the injury. The next morning, she awoke with severe right-sided chest pain. Patient presented to Emergency Room with chest pain characterized as pressure and burning, along with abdominal pain and shortness of breath. She was diagnosed with gastroesophageal reflux and prescribed Pepcid. They recommended admission for observation to perform cardiac workup, at which point patient decided to leave against medical advice. She took Pepcid and a muscle relaxant with no significant relief. Her medical records from hospitalization, including CT chest and chest X-ray, were reviewed.

Physical Exam

VS: BP 115/75 HR 80, Temp 98.0, Wt 150, Ht 63.5 in
General: awake, alert, communicative, and in no acute distress
Inspection of Right Shoulder: prominence of SC joint
Palpation of Right Shoulder: tenderness over the SC joint, mild tenderness over the AC joint, otherwise non-tender to palpation
Range of Motion : internal rotation is noted to be decreased in that the patient is able to reach the lower thoracic vertebra with the thumb, ROM with abduction is to 90 degrees with shoulder hiking and significant pain, ROM with forward flexion to 90 degrees, ROM with external rotation with the arm at the side is to approximately 60 degrees, scapulothoracic motion is asynchronous with abduction and forward flexion of the upper extremity
Muscle Strength : 5/5 strength with external rotation, 5-/5 strength with internal rotation, 5-/5 strength with resisted abduction, 5-/5 strength with resisted forward flexion, 5/5 strength with resisted supraspinatus testing
Stability of Right Shoulder: no pain at AC joint with cross arm test, negative Speed's test of biceps
Skin/Tissue of Right Shoulder: swelling at SC joint without bruises or abrasions
Neuro: Intact median, radial & ulnar nerve motor function

Differential Diagnosis

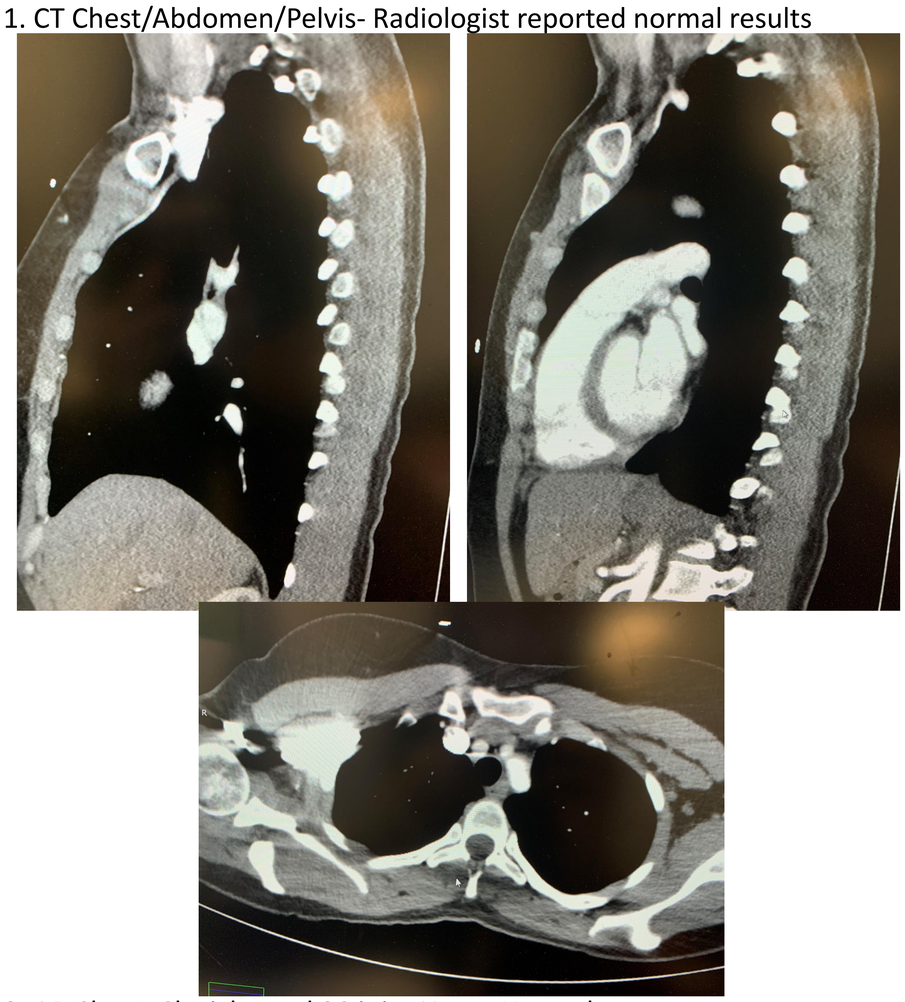
1. Acute Exacerbation of Underlying Crohn's Disease
2. Gastroesophageal Reflux Disease
3. Myocardial Infarction
4. SC Joint Injury

References

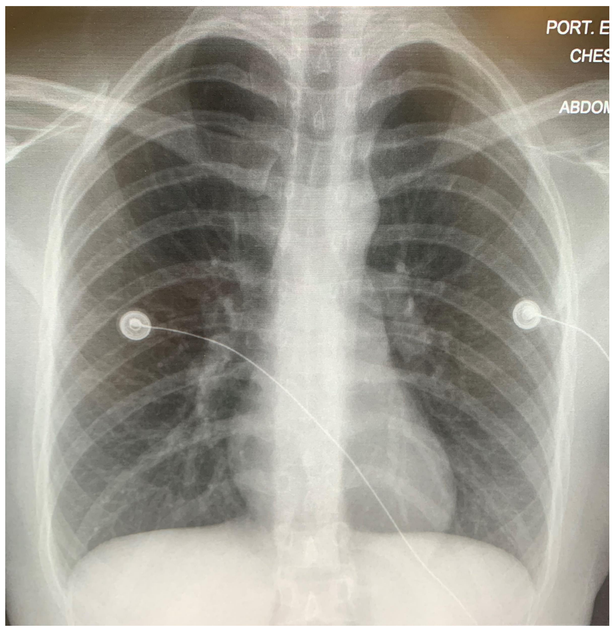
Kiel J, Kaiser K. Sternoclavicular Joint Injury. [Updated 2019 Mar 26]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2019 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK507894/

Test Results

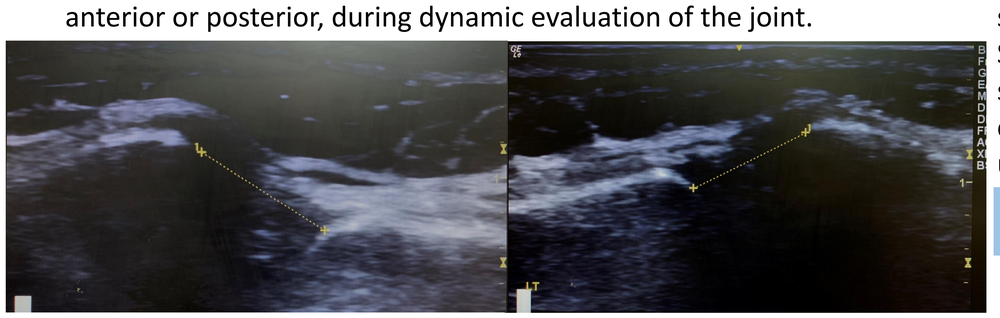
1. CT Chest/Abdomen/Pelvis- Radiologist reported normal results



2. AP Chest, Clavicle, and SC joint X-ray- Normal



3. Ultrasound Imaging- Small fluid collection present at right SC joint which is not seen in contralateral SC joint. No significant subluxation, anterior or posterior, during dynamic evaluation of the joint.



Diagnosis

SC Joint Ligament Sprain

Treatment and Outcomes

1. Utilization of ice, anti-inflammatories, and immobilization with figure 8 brace.
2. Meloxicam was prescribed.
3. Relative rest was recommended with no upper extremity exercises for two weeks.
4. A referral for physical therapy was provided.
5. Two-week follow up: patient is improving and transitioned out of figure 8 brace.
6. Patient did not follow up with physical therapy.

Discussion

This clinical case presented an interesting diagnosis to add to a differential diagnosis for chest pain, particularly those participating in significant weight training or CrossFit related activities. In this circumstance, the patient's history of Crohn's disease was a red herring. Her cardiovascular risk stratification would put her in a low risk category, making a cardiac workup after a normal CT chest and chest x-ray less cost-efficient and unnecessary. Given her acute injury followed by chest pain and swelling made a musculoskeletal injury diagnosis much more likely.

Sternoclavicular joint injuries are rare, and they usually require a substantial force to disrupt the joint space. The patient dropped a 100-pound barbell on her shoulder, which was a significant blunt trauma event that provided enough force to injure the joint. The sternoclavicular joint is in a subcutaneous location, which makes swelling an early exam finding. The patient was significantly swollen and tender over the SC joint, and her decreased internal range of motion was also typical of an SC joint sprain. The small effusion around the SC joint that was visible upon ultrasound imaging confirmed that there was an injury to the joint, and the patient was recommended to utilize ice, anti-inflammatories, compression, and rest to treat the injury. Physical therapy was recommended to progress her through range of motion passively until pain free, then full range of motion and strengtehning.

Another consideration in this case would be to rule out a medial clavicle physis injury. The medial clavicle physis is the last growth plate to close in the body at approximately age 20-25 years old. A torus fracture or Salter-Harris type of fracture at the medial physis was ruled out with the serendipity views of the clavicle. Many medial clavicle and SC joint related injuries are best assessed with the serendipity view of the clavicle. If an AP view or a standard chest x-ray are performed, then many injuries may go undiagnosed.

Return to Activity

The patient was able to return to all activities.