

# **Costochondritis**

## **Background**

### 1. Definition

- Pain and tenderness in the costochondral/chondrosternal joints (one or more) without swelling
- Tietze's syndrome has painful, nonsuppurative swelling of anterior chest wall cartilaginous articulation<sup>1,2,7</sup>
- Benign condition

## **Pathophysiology**

### 1. Etiology

- Etiology not well understood; several causes suggested
  - Most commonly minor trauma, such as overuse and cough<sup>7</sup>
- Inflammation suggested by raised ESR and morning stiffness in some (but not all) cases<sup>2,7</sup>
  - Positive gallium scan further supports inflammatory causes<sup>3,4,7</sup>
- Degenerative causes and infections also proposed as possible etiologies
  - Little evidence to support these etiologies<sup>2,3,7</sup>

### 2. Incidence, prevalence (SOR:C)

- Disla et al<sup>2</sup> reported that 36 (30%) of 122 consecutive patients presenting to an emergency department with anterior chest wall pain had costochondritis
  - Of these 36 cases, 69% were women (versus 31% of controls); 47% were Hispanic (versus 24% of controls)

### 3. Mortality/morbidity

- Self- limited, benign condition
- Patient may have recurrent symptoms

## **Diagnostics**

### 1. History

- Insidious onset
- Chest wall pain - possibly exacerbated by:
  - Respiratory movements, cough and exertion
  - Adduction of the arm on affected side and simultaneous rotation of head to same side
- Sharp, aching pressure like pain
- Mostly localized
- Radiation in some cases
- Mild to severe (generally more severe in Tietze's Syndrome)
- Waxing and waning

### 2. Physical

- Costochondritis: swelling and/or erythema usually absent
- Tietze's syndrome: swelling and/or erythema
- Palpation
  - Pain/tenderness on palpation anteriorly
  - Mostly involves 2nd thru 5th costochondral junction<sup>1,6,7</sup>
- Tenderness may involve more than 1 joint

3. Diagnostic testing (SOR:C)
  - No labs recommended
    - Can consider ESR if suspect inflammation<sup>2,7</sup>
  - X ray
    - In work up of differential
    - Often normal in costochondritis
      - May show mild soft tissue swelling, localized peripheral cartilage calcification or chondral enlargement
  - CT scan
    - Low attenuation cartilage may be seen; usually no help
  - Gallium or technetium scan
    - May show hotspot; may also have increased uptake at asymptomatic costochondral junctions
    - Not considered diagnostic (SOR:C)<sup>5,7</sup>
  - Local anesthetic test
    - Can be done (optional) if strong clinical suspicion
  - Positive response supports clinical diagnosis
  - Negative response should spur additional dx evaluation

### **Differential Diagnosis**

1. Acute coronary syndrome
2. Pleuritis
3. Pulmonary embolism
4. Rib fracture
5. Sternal or clavicular trauma/fracture
6. Pneumothorax
7. GERD
8. Anxiety/Panic disorder
9. Lung neoplasm
10. Ankylosing spondylitis
11. Fibromyalgia

### **Therapeutics (SOR:C)**

1. Acute care
  - Follow standard protocol for chest pain plus reassurance once diagnosis confirmed clinically
2. Further management/long term care
  - Pain control
    - Acetaminophen or NSAIDs for 10-14 days
  - Local heat
  - Local infiltration with anesthetics +/- steroid, or intercostal nerve block
  - Biofeedback

### **Prognosis (SOR:C)**

1. Excellent; most patients respond to therapy
  - After one year, about half of patient may still have recurrent symptoms
    - If recurrent symptoms and repeated treatment, may require rheumatology evaluation

- Eventually, symptoms resolve spontaneously

### **Prevention**

1. Avoid repetitive activity that provokes pain and symptoms
2. Ergonomics

### **Patient Education**

1. Reassurance about benign nature of condition
2. Advise preventive measures

### **Medico-legal Issues**

1. Failure to diagnose cardiac event
2. Intrathoracic pathology or cardiac pathology may coexist with costochondritis
3. Failure to diagnose serious infective etiologies such as sternoarticular septic arthritis or osteomyelitis
4. Failure to follow routine protocol for chest pain
5. Failure to rule out other pathology by chest x ray

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