Evaluation and Treatment of Musculoskeletal Chest Pain

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KEYWORDS

• Musculoskeletal chest pain • Costochondritis • Stretching exercises
• Pectoralis muscle pain • Fibromyalgia • Myofascial pain • Evaluation • Treatment

KEY POINTS

- Costochondritis is one of the most common causes of musculoskeletal chest pain.
- Stretching exercises have been shown to be effective in relieving the pain in costochondritis.
- Rib fractures, either traumatic or stress fractures, can be a source of chest pain.
- Slipping rib syndrome may occur in children with chronic chest and abdominal pain.
- Muscle strains may cause musculoskeletal chest pain, with intercostal muscle strains being the most common.
- Pectoralis muscle injury needs accurate and early diagnosis for optimal functional recovery in athletes.
- Myofascial pain and fibromyalgia are other causes of musculoskeletal chest pain.
- Herpes zoster should be considered in elderly patients with nonspecific musculoskeletal chest pain.
- It is important to assess all patients with chest pain for non-musculoskeletal causes of pain that could cause increased morbidity or mortality if not identified promptly.

INTRODUCTION

Chest pain is one of the most common reasons for seeking medical attention worldwide. In the United States alone, there are about 7.16 million visits annually to the emergency room with chest pain and most of these patients have noncardiac causes of chest pain.[1] Chest pain accounts for 1% to 3% of office visits to the primary care provider. Of these visits, 21% to 49% of patients are diagnosed with musculoskeletal chest pain, making it the most common cause of chest pain.[2]

Causes of chest pain include cardiovascular, pulmonary, musculoskeletal, gastroenterologic, and psychogenic. Pain can also radiate to the chest from the shoulders,

Funding Sources: None.
Conflict of Interest: None.
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Prim Care Clin Office Pract 40 (2013) 863–887
http://dx.doi.org/10.1016/j.pop.2013.08.007 **primarycare.theclinics.com**
0095-4543/13/$ – see front matter

cervical and thoracic spine, lower neck, and structures below the diaphragm (Fig. 1).[3]

An important mechanism of chest pain may be referred pain from intrathoracic structures, including the heart, lungs, and esophagus.[3] Pain occurs because free nerve endings that transmit pain from visceral thoracic structures, including the heart, synapse on the same spinal cord dorsal horn interneurons that receive afferent input from the skin, muscles, and joints. The convergence of visceral and somatic pain fibers on the same interneurons causes the referred visceral pain that is perceived in somatic areas remote from involved viscera.[2] Thus, it can sometimes be difficult to delineate the precise cause of chest pain as musculoskeletal or visceral in origin.[2]

It is important to rule out visceral causes of chest pain, including cardiac, esophageal, or pulmonary causes, such as angina, myocardial infarction, malignancies, or pulmonary embolism, before definitively diagnosing musculoskeletal chest pain.[3,4] For example, anginal pain may occur along with underlying costochondritis or subacromial bursitis, which may influence the distribution of anginal pain.[3] In middle-aged and elderly patients with strong, relevant risk factors for cardiac disease, it is recommended to order an electrocardiogram, echocardiogram, and even stress testing as necessary to definitively rule out cardiac causes of chest pain before treating for musculoskeletal chest pain.[3,4]

Musculoskeletal chest pain includes pain related to the anterior chest wall bony and cartilaginous structures, chest wall musculature, and the thoracic spine.[3] In addition, other causes of pain may include skin conditions, neoplasms, and infections of chest

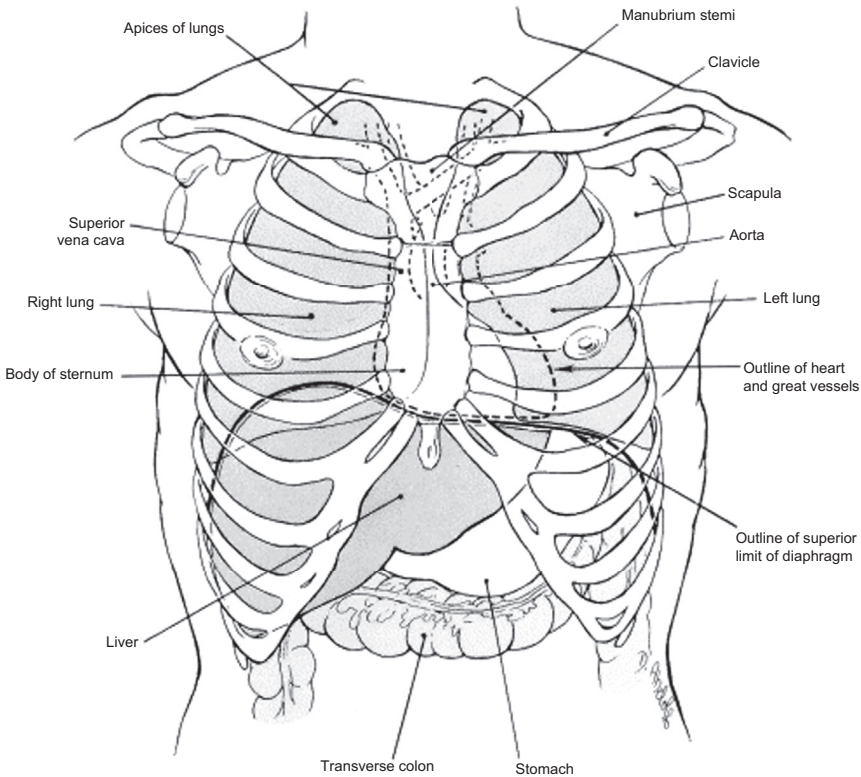

Fig. 1. Diverse origins and causes of chest pain. (*From* Cava JR, Sayger PL. Chest pain in children and adolescents. Pediatr Clin North Am 2004;51(6):1553–68. Philadelphia: Elsevier; with permission.)