

# Chest Pain

## If It Is Not the Heart, What Is It?

Sharron Rushton, DNP, MS, RN, CCM<sup>a,\*</sup>, Margaret J. Carman, DNP, ACNP-BC, ENP-BC<sup>b</sup>

### KEYWORDS

• Noncardiac chest pain • Unexplained chest pain • Angina • Functional chest pain

### KEY POINTS

- Noncardiac chest pain can be caused by many etiologies; the priority for management rests in eliminating life-threatening sources first.
- After the differential diagnosis for acute causes of chest pain are eliminated, noncardiac chest pain is differentiated into gastroesophageal reflux disease-related versus non-gastroesophageal reflux disease-related etiologies.
- Patients with noncardiac chest pain can have more than one etiology and may also have a psychological comorbidity.
- Ongoing chest pain from noncardiac chest pain can lead to burden for patients and the health care system.
- Treatment of noncardiac chest pain should be based on management or definitive treatment of the underlying etiology.

### INTRODUCTION

A 37-year-old woman with a history of hypertension and obesity presents to her primary care provider for recurrent chest pain that began after going out for breakfast an hour ago. She had a scheduled appointment this morning for follow-up after an overnight stay in the chest pain observation unit over the weekend. An electrocardiogram revealed no acute ischemic changes; serial troponins were within normal limits; an exercise stress test with echocardiography was performed, and the results were negative.

The patient has had recurrent visits to the office and emergency department over the past 6 months. Today's visit is much the same. She describes a tight substernal pressure radiating upward into the base of the throat. She endorses "indigestion,"

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Disclosure Statement: The authors have no disclosures of conflict of interest or financial relationships.

<sup>a</sup> Duke University School of Nursing, DUMC Box 3322, Durham, NC 27710, USA; <sup>b</sup> Georgetown University School of Nursing and Health Studies, St. Mary's Hall, 3700 Reservoir Road Northwest, Washington, DC 20007, USA

\* Corresponding author.

E-mail address: [Sharron.Rushton@duke.edu](mailto:Sharron.Rushton@duke.edu)

Nurs Clin N Am ■ (2018) ■-■

<https://doi.org/10.1016/j.cnur.2018.04.009>

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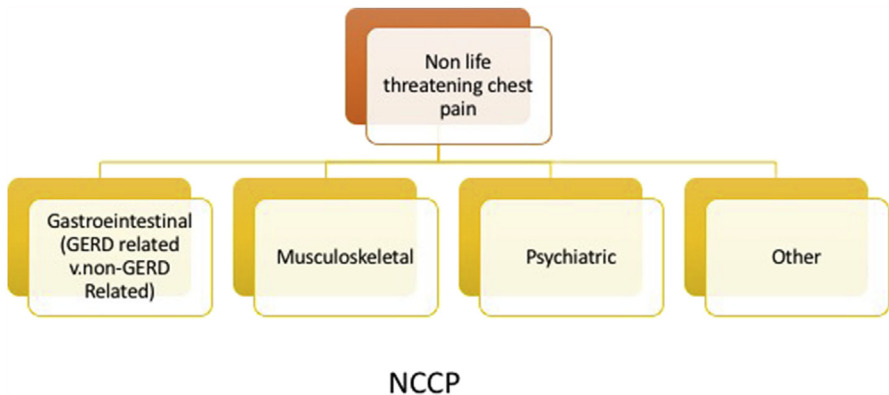
but denies nausea, vomiting, or abdominal pain. The discomfort makes her anxious, and she is unsure whether that leads to the shortness of breath she is experiencing. The review of systems is otherwise negative.

The nurse practitioner knows this patient fairly well. Given the patient's age and gender, cardiovascular disease seems unlikely. However, her father had his first myocardial infarction at 50 years of age. The patient has a history of smoking history; she quit about 2 years ago. Although it seems reasonable to conclude that a cardiac etiology has been excluded, what could be causing these recurrent episodes of chest pain?

The phenomenon of chest pain can arise from many etiologies but, given the risk of a potentially catastrophic cardiovascular event, it is of utmost importance to diagnose the source of discomfort. Many organs and structures lie within the thoracic cavity, including the cardiac system, vasculature, pulmonary structures, gastroesophageal system, lymphatics, breast, and musculoskeletal components, all of which can cause pain.<sup>1</sup> Pain can be "idiopathic, ischemic, inflammatory, malignant, or related to mechanical disruption from tumor, injury, surgery, or structural failure."<sup>1</sup> Given the numerous structures and disease processes that may manifest as chest pain, it can be difficult to discover the underlying source of the pain.

Noncardiac chest pain (NCCP) is usually described as a burning, angina-like pain located in the sternal area without evidence of ischemic disease.<sup>2-9</sup> NCCP is also known as atypical chest pain, effort syndrome, soldier's heart, irritable heart, DaCosta syndrome, chest pain of unknown origin, neurocirculatory asthenia, cardiac syndrome X, Gorlin-Likoff syndrome, unexplained chest pain, and functional chest pain.<sup>8-11</sup> There are inconsistencies in the literature, especially among various specialties, as to the underlying etiologies and how to classify them. Gastrointestinal specialties consider NCCP to be a unique diagnosis, differentiated as wither gastroesophageal reflux disease (GERD) related or non-GERD related.<sup>7,12,13</sup> Other specialties define NCCP more broadly.<sup>14-18</sup> See [Fig. 1](#) for a diagram.

The number of conditions contributing to NCCP as well as the various definitions and terms can make it challenging to understand the condition. NCCP occurs in approximately 13% to 25% of the general population and equally in men and



**Fig. 1.** Noncardiac chest pain (NCCP) is classified differently depending on the specialty. The causes are broadly classified into gastrointestinal, musculoskeletal, psychiatric, and pulmonary/other. GERD, gastroesophageal reflux disease.

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