Anginal chest pain is one of the most common complaints in the outpatient setting. While much of the focus has been on identifying obstructive atherosclerotic coronary artery disease (CAD) as the cause of anginal chest pain, it is clear that microvascular coronary dysfunction (MCD) can also cause anginal chest pain as a manifestation of ischemic heart disease, and carries an increased cardiovascular risk. Epicardial coronary vasospasm, aortic stenosis, left ventricular hypertrophy, congenital coronary anomalies, mitral valve prolapse, and abnormal cardiac nociception can also present as angina of cardiac origin. For nonacute coronary syndrome (ACS) stable chest pain, exercise treadmill testing (ETT) remains the primary tool for diagnosis of ischemia and cardiac risk stratification; however, in certain subsets of patients, such as women, ETT has a lower sensitivity and specificity for identifying obstructive CAD. When combined with an imaging modality, such as nuclear perfusion or echocardiography testing, the sensitivity and specificity of stress testing for detection of obstructive CAD improves significantly. Advancements in stress cardiac magnetic resonance imaging enables detection of perfusion abnormalities in a specific coronary artery territory, as well as subendocardial ischemia associated with MCD. Coronary computed tomography angiography enables visual assessment of obstructive CAD, albeit with a higher radiation dose. Invasive coronary angiography remains the gold standard for diagnosis and treatment of obstructive lesions that cause medically refractory stable angina. Furthermore, in patients with normal coronary angiograms, the addition of coronary reactivity testing can help diagnose endothelial-dependent and -independent microvascular dysfunction. Lifestyle modification and pharmacologic intervention remains the cornerstone of therapy to reduce morbidity and mortality in patients with stable angina. This review focuses on the pathophysiology, diagnosis, and treatment of stable, non-ACS anginal chest pain.

Chest pain from respiratory causes is a common complaint and may indicate the presence of a serious or even life-threatening pathologic condition. Most chest pains are the result of irritation or inflammation of the parietal pleura, as the visceral pleura is insensate, although pain may arise from direct malignant invasion or trauma to the chest wall. Rapid recognition with appropriate understanding of the anatomy and physiology of chest pain from respiratory causes is vital to ensure timely and appropriate therapy.
Noncardiac Chest Pain: Gastroesophageal Reflux Disease
Amanke C. Oranu and Michael F. Vaezi

Noncardiac chest pain (NCCP) is not only a difficult disorder to define but is also complex in characterization and treatment. Patients with NCCP are a challenge to primary care and subspecialty services such as cardiology and gastroenterology. NCCP is often a heterogeneous disorder with many potential causes including gastroenterologic diagnoses. This article presents the current evidence for gastroesophageal reflux disease as a cause of NCCP and highlights the best currently available tests for this group of patients.

Dysphagia as a Cause of Chest Pain: An Otolaryngologist’s View
Julia Vent, Simon F. Preuss, and Guy D. Eslick

Dysphagia is an important alarm symptom, commonly associated with chest pain; it is often associated with reflux disease, xerostomia, or tumors of the head and neck. However, simple diagnoses such as aspiration of a foreign body can be overseen and may result in major complications, such as perforation and mediastinitis. It is thus of crucial importance that a thorough gastrointestinal, cardiac, and radiologic examination precede a rigid esophagoscopy by an otolaryngologist. In this article the differential diagnoses of dysphagia are discussed, and the otolaryngologist’s approach to diagnosis and therapy are explained.

Chest Pain in Focal Musculoskeletal Disorders
Mette Jensen Stochkendahl and Henrik Wulff Christensen

The musculoskeletal system is a recognized source of chest pain. However, despite the apparently benign origin, patients with musculoskeletal chest pain remain under-diagnosed, untreated, and potentially continuously disabled in terms of anxiety, depression, and activities of daily living. Several overlapping conditions and syndromes of focal disorders, including Tietze syndrome, costochondritis, chest wall syndrome, muscle tenderness, slipping rib, cervical angina, and segmental dysfunction of the cervical and thoracic spine, have been reported to cause pain. For most of these syndromes, evidence arises mainly from case stories and empiric knowledge. For segmental dysfunction, clinical features of musculoskeletal chest pain have been characterized in a few clinical trials. This article summarizes the most commonly encountered syndromes of focal musculoskeletal disorders in clinical practice.

Noncardiac Chest Pain and Fibromyalgia
Cristina Almansa, Benjamin Wang, and Sami R. Achem

Fibromyalgia (FM) remains an enigmatic and challenging clinical entity to manage, given its far-reaching spectrum of symptoms, chronicity, associated psychopathology, and lack of clinically available diagnostic tests. However, recent insights into the pathophysiology of FM offer hope that this condition, as with all members of the central sensitization syndromes,
can be more readily diagnosed, measured, and treated. This paper presents the epidemiology features and pathogenesis of FM in the context of evaluating NCCP as a prototype among central pain sensitization syndromes. Evidence for the multimodality approach to treatment of this condition is also presented.

Assessment and Treatment of Psychological Causes of Chest Pain 291
Kamila S. White

Chest pain prompts an estimated 4.6 million people in the United States to seek emergency medical care each year. Chest pain is common in patients with coronary artery disease (CAD). Chest pain is also common in patients without CAD or other cardiac causes for their chest pain, sometimes called non-cardiac chest pain. Psychological assessment and treatment may clinically aid patients with chest pain in ways that may influence disease onset, maintenance, and progression and may improve quality of life. This article highlights factors important for psychological assessment and treatment of patients with chest pain.

Skin and Breast Disease in the Differential Diagnosis of Chest Pain 319
Jim Muir and Michael Yelland

There are several skin and breast lesions that can cause pain or tenderness. In most cases the presence of a skin lesion, if not its definitive diagnosis, will be clinically evident. In most instances treatment of these painful skin lesions is by simple excision, which will also provide histologic confirmation of the diagnosis. It would be rare for a cutaneous cause of skin pain to be mistaken for another cause. The prodromal pain of herpes zoster is most likely to cause diagnostic confusion. The painful skin lesions are usually identified by the patient as being the source of their discomfort. The specific diagnosis may not be apparent without submission of lesional tissue for histology. Chest pain is an uncommon presenting symptom of benign and malignant breast lesions. Breast examination and investigation may be appropriate when other causes of chest pain are not evident.

Evaluation of Chest Pain in the Pediatric Patient 327
Jennifer Thull-Freedman

Chest pain is common in children seen in emergency departments, ambulatory clinics, and cardiology clinics. Although most children have a benign cause of their pain, some have serious and life-threatening conditions. The symptom must be carefully evaluated before reassurance and supportive care are offered. Because serious causes of chest pain are uncommon and not many prospective studies are available, it is difficult to develop evidence-based guidelines for evaluation. The clinician evaluating a child with chest pain should keep in mind the broad differential diagnosis and pursue further investigation when the history and physical examination suggest the possibility of serious causes.
An Algorithm for the Diagnosis and Management of Chest Pain in Primary Care  
Michael Yelland, William E. Cayley Jr, and Werner Vach

This article focuses on the key clinical and investigatory features that help differentiate the multiple causes of chest pain in adults in assessment of patients with undifferentiated chest pain in primary care using history, physical examination, and basic initial investigations. The initial treatment of many of the causes is discussed. Some treatments not only relieve symptoms but also provide further diagnostic information based on the response to treatment. Guidance for referral for specialist assessment and further investigations is provided, but the diagnostic usefulness of these measures is not discussed.

Future Developments in Chest Pain Diagnosis and Management  
Anthony F.T. Brown, Louise Cullen, and Martin Than

Much of the focus of research on patients with chest pain is directed at technological advances in the diagnosis and management of acute coronary syndrome (ACS), pulmonary embolism (PE), and acute aortic dissection (AAD), despite there being no significant difference at 4 years as regards mortality, ongoing chest pain, and quality of life between patients presenting to the emergency department with noncardiac chest pain and those with cardiac chest pain. This article examines future developments in the diagnosis and management of patients with suspected ACS, PE, AAD, gastrointestinal disease, and musculoskeletal chest pain.

Bonus Article: Preoperative Evaluation of the Oncology Patient  
Sunil K. Sahai, Ali Zalpour, and Marc A. Rozner  
Edited by Lee A. Fleisher and Stanley H. Rosenbaum

This review focuses on the unique perioperative concerns of patients with cancer undergoing surgery. Importantly, not all surgical procedures are intended as cures: some patients who have cancer also undergo surgery for noncancer issues. Also, many of these patients have undergone prior chemotherapy and/or radiation therapy that can introduce perioperative concerns. These previous treatments, unique to patients with cancer, can adversely affect their cardiovascular, pulmonary, gastrointestinal, renal, and endocrine systems. This article also summarizes many important effects of a wide variety of chemotherapy agents in use today.

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