

of rather costly imaging techniques and laboratory tests, a relatively inexpensive but detailed history and physical examination is often all that is required to establish a diagnosis.

When evaluating patients with cardiovascular disease, it is important to allow them to express their symptoms in their own words. For example, many patients who deny chest pain when asked specifically about this symptom, will, in their very next breath, describe the chest pressure they feel, which they do not consider to be “pain.” It is very important to delve into details regarding the setting in which the symptom occurs (e.g., at rest, with activity, with extreme emotional stress). The location, quality, intensity, and radiation of the symptom should be elicited. One should ask whether there are aggravating or alleviating factors and whether there are other symptoms that accompany the primary symptom. It is also important to note the pattern of the symptom in terms of stability or progression in intensity or frequency over time. An assessment of functional status should always be a part of the history in a patient with cardiovascular disease, because a recent decline in exercise tolerance can be very telling in regard to severity of disease.

A detailed past medical history and review of systems are necessary because cardiovascular conditions can be associated with other medical conditions; for example, patient may have arrhythmias in the setting of hyperthyroidism. A comprehensive list of medications must be reviewed, and a social history must be taken detailing alcohol use, smoking, and occupational history. Patients should also be questioned regarding major risk factors such as hypertension, hyperlipidemia, and diabetes mellitus. A thorough family history is needed, not only to identify such entities as early-onset CAD but also to assess for other potentially inherited disorders, such as familial cardiomyopathy or arrhythmic disorders (e.g., long-QT syndrome).

Chest Pain

Chest pain is one of the cardinal symptoms of cardiovascular disease, but it may also be present in many noncardiovascular

diseases (Tables 3-1 and 3-2). Chest pain may be caused by cardiac ischemia but also may be related to aortic pathology such as dissection, pulmonary disease such as pneumonia, gastrointestinal pathology such as gastroesophageal reflux, or musculoskeletal pain related to chest wall trauma. Issues with organs in the abdominal cavity such as the gallbladder or pancreas can also cause chest pain. It is therefore very important to characterize the pain in terms of location, quality, quantity, location, duration, radiation, aggravating and alleviating factors, and associated symptoms. These details will help determine the origin of the pain.

Myocardial ischemia due to obstructive CAD often leads to typical angina pectoris. Angina is often described as tightness, pressure, burning, or squeezing discomfort that patients may not identify as true pain. Patients frequently describe angina as a sensation of “bricks on the center of the chest” or an “elephant standing on the chest.” Angina is more common in the morning, and the intensity may be affected by heat or cold, emotional stress, or eating. This discomfort is typically located in the substernal region or left side of the chest. If it is reproduced by palpation, it is unlikely to be angina. Anginal pain often radiates to the left shoulder and arm, particularly the ulnar aspect. It may also radiate to the neck, jaw, or epigastrium. Pain that radiates to the back, the right or left lower anterior chest, or below the epigastric region is less likely to be anginal in etiology. Anginal chest pain is usually brought on with exertion, in particular with more intense activity or walking up inclines, in extremes of weather, or after large meals. It is typically brief in duration, lasting 2 to 10 minutes, and resolves with rest or administration of nitroglycerine within 1 to 5 minutes. Associated symptoms often include nausea, diaphoresis, dyspnea, palpitations, and dizziness. Patients typically report a stable pattern of angina that is relatively predictable and reproducible with a given amount of exertion. When this pain begins to increase in frequency and severity or occurs with lesser amounts of exertion or at rest, one must then consider unstable angina. Anginal pain that occurs at rest with increased

TABLE 3-1 CARDIOVASCULAR CAUSES OF CHEST PAIN

CONDITION	LOCATION	QUALITY	DURATION	AGGRAVATING OR ALLEVIATING FACTORS	ASSOCIATED SYMPTOMS OR SIGNS
Angina	Retrosternal region; radiates to or occasionally isolated to neck, jaw, shoulders, arms (usually left), or epigastrium	Pressure, squeezing, tightness, heaviness, burning, indigestion	<2-10 min	Precipitated by exertion, cold weather, or emotional stress; relieved by rest or nitroglycerin; variant (Prinzmetal) angina may be unrelated to exertion, often early in the morning	Dyspnea; S ₃ , S ₄ , or murmur of papillary dysfunction during pain
Myocardial infarction	Same as angina	Same as angina, although more severe	Variable; usually >30 min	Unrelieved by rest or nitroglycerin	Dyspnea, nausea, vomiting, weakness, diaphoresis
Pericarditis	Left of the sternum; may radiate to neck or left shoulder, often more localized than pain of myocardial ischemia	Sharp, stabbing, knifelike	Lasts many hours to days; may wax and wane	Aggravated by deep breathing, rotating chest, or supine position; relieved by sitting up and leaning forward	Pericardial friction rub
Aortic dissection	Anterior chest; may radiate to back, interscapular region	Excruciating, tearing, knifelike	Sudden onset, unrelenting	Usually occurs in setting of hypertension or predisposition, such as Marfan's syndrome	Murmur of aortic insufficiency; pulse or blood pressure asymmetry; neurologic deficit