Atypical chest pain does not exhibit the classic characteristics of cardiac chest pain, such as exertional, substernal discomfort that is relieved by rest or nitroglycerin. Instead, it may present as epigastric pain, dyspnea, or other non-cardiac symptoms. Atypical presentations are more common in women, older adults, and individuals with multiple comorbidities, such as diabetes or chronic kidney disease. These patients often experience **delays in diagnosis**, **misdiagnosis** as gastrointestinal or pulmonary conditions, and **worse outcomes**, including higher in-hospital mortality and an increased risk of complications like myocardial infarction (MI) and stroke.

## **Presentation**

Atypical angina can present with symptoms such as dyspnea, nausea, fatigue, syncope, and pain in areas outside the chest (e.g., jaw, neck, back). Patients often attribute these symptoms to anxiety or stress. Early recognition is essential for timely intervention.

## **Site and radiation**

Unlike typical anginal symptoms, discomfort may be localized to non-chest areas, including the epigastric region, jaw, neck, back, shoulder, or arms. Patients **may not report any chest pain** but describe discomfort in one of these regions.

## **Characteristics**

Patients may describe the pain as squeezing, burning, aching, pressure, or indigestion-like. **Patients often emphasize that it is a discomfort rather than a pain.**

**Key point #1**: Establish the location and sensation of discomfort.

## **Onset and Timing**

Onset: The pain associated with MI typically takes several minutes or even longer to develop to its maximal intensity; similarly, angina builds up gradually in proportion to the intensity of exertion. Unstable angina or infarction may cause pain at rest or with minimal exertion, such as after a large meal. Our patient reports that their episodes last ***5-10 minutes.***

Timing: Chest pain should be considered ***acute*** when it is new onset or involves a change in pattern, intensity, or duration compared with previous episodes in a patient with recurrent symptoms. Angina occurs during (not after) exertion and is promptly relieved by rest. Unstable angina or infarction may cause pain at rest or with minimal exertion, such as after a large meal.

**Key point #2**: Establish onset of discomfort with progression to maximal intensity over minutes and relative acute nature of symptoms (hours vs days)

**Precipitating and relieving factors**

Occurrence of pain at rest or with minimal exertion is typical of ACS. Physical exercise or stress are common triggers for anginal symptoms. Sometimes, even ***eating a heavy meal or spicy food can trigger atypical angina.***

**Associated features**

Symptoms like dyspnea, palpitations, diaphoresis, and nausea are common with myocardial ischemia. Some patients experience a sensation of impending death. Dyspnea, often due to ischemic left ventricular dysfunction, may also accompany ischemia.

**Differentiating Diagnoses**

* Pain that occurs *after, rather than during, exertion* is usually musculoskeletal or psychological in origin. Fleeting chest pain lasting ‘seconds’ is unlikely to be ischemic in nature.
* Pain that is worse with inspiration (pleuritic) or changes with position is unlikely related with ischemic heart disease. Relief with nitroglycerine is not diagnostic and should not be used as criteria.
* ***Gastrointestinal disorders, such as GERD or peptic ulceration, may present with chest pain that is hard to distinguish from myocardial ischemia;*** it may even be precipitated by exercise and be relieved by nitrates**.** However, it is usually possible to elicit a history relating chest pain to supine posture or eating, drinking or esophageal reflux. The pain of gastro-esophageal reflux often radiates to the inter-scapular region and dysphagia may be present. Severe chest pain arising after retching or vomiting, or following esophageal instrumentation, should raise the possibility of esophageal perforation.

|  |  |  |
| --- | --- | --- |
|  | **Cardiac Etiology** | **GI Etiology** |
| When does the discomfort get worse? | • During exertion (e.g., walking, climbing stairs)  • After a heavy meal or eating spicy food  • Exposure to cold (e.g., wind) or stress | • Post-prandial (within 30-60 minutes after eating)  • Lying down, in supine position  • After large meals or fatty foods |
| What relieves the discomfort? | • Resting or sitting down  • Nitroglycerine (if angina)  • Changing body position (e.g., standing or sitting upright)  • PPIs and antacids typically do not relieve cardiac pain. | • Antacids (e.g., Tums)  • Proton pump inhibitors (PPIs)  • Avoiding lying down or bending forward |
| How long does the discomfort last for? | • ~5-10 minutes (if angina)  • Short, intermittent episodes | • Longer episodes (30 minutes or more)  • Can last hours if untreated |
| Associated Symptoms | • Dyspnea, nausea, dizziness, lightheadedness, palpitations, diaphoresis. | • Dyspnea is rare  • Nausea, cough, reflux, voice change, dysphagia, heartburn  • Changes in bowel habits (diarrhea, constipation) |
| Risk Factors | • History of hypertension, coronary artery disease, smoking, diabetes  • Family history of cardiovascular disease | • History of gastrointestinal issues (e.g., GERD, peptic ulcers, gastritis) |

**A complete cardiac, pulmonary, and GI ROS should be included, as well as risk factors for venous thromboembolism.**

Risk factors for **atherosclerosis** should be established and include:

* Hypertension (HTN)
* Hyperlipidemia (HLD)
* Diabetes
* Smoking
* Positive family history
* Obesity (BMI > 30)

For our patient's history, the following would be concerning for ACS:

* “Indigestion, bloating and “pressure like burning sensation” in the middle of the chest
* Associated nausea and diaphoresis
* Short (5-10 minute) episodes
* Post-exertional (after a meal)
* Relieved by rest
* No relief from PPIs and antacids
* Cardiac Risk Factors: HTN, Diabetes, HLD (patient takes a statin), BMI

**Physical Exam**

Necessary components for this patient:

* Vital Signs: Abnormal blood pressure and pulse can indicate cardiovascular issues.
* Cardiovascular Exam: Assess for murmurs, pulses, carotid bruits, and edema.
* Lung Exam: Crackles or wheezes suggest heart failure or respiratory conditions.
* Abdominal Exam: Tenderness, masses, or bruits may indicate GI pathology.

**Plan**

1. Rule Out Life-Threatening Causes (ACS)
   1. EKG, cardiac enzymes, or evaluation of cardiac function (via stress testing or cardiac catheterization) may be indicated to detect myocardial injury.
   2. ***Patients with atypical presentations often receive EKGs and percutaneous coronary interventions (PCI) at lower rates***, so it’s crucial to stay vigilant about recognizing these cases and managing them appropriately.
2. Pulmonary Testing: Chest X-ray and CT angiography
3. GI Testing: Endoscopy or barium swallow can diagnose GI causes like GERD or ulcers.

References

Hammer Y, Eisen A, Hasdai D, Goldenberg I, Shlomo N, Cohen T, Beigel R, Kornowski R, Iakobishvili Z. Comparison of Outcomes in Patients With Acute Coronary Syndrome Presenting With Typical Versus Atypical Symptoms. Am J Cardiol. 2019 Dec 15;124(12):1851-1856. doi: 10.1016/j.amjcard.2019.09.007. Epub 2019 Sep 26. PMID: 31653357.

Shah T, Haimi I, Yang Y, Gaston S, Taoutel R, Mehta S, Lee HJ, Zambahari R, Baumbach A, Henry TD, Grines CL, Lansky A, Tirziu D. Meta-Analysis of Gender Disparities in In-hospital Care and Outcomes in Patients with ST-Segment Elevation Myocardial Infarction. Am J Cardiol. 2021 May 15;147:23-32. doi: 10.1016/j.amjcard.2021.02.015. Epub 2021 Feb 25. PMID: 33640366.