

CASE REPORT

The Silent Gallbladder, The Slowing Heart: Cope's Sign in Acute Calculous Cholecystitis

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ABSTRACT

Cholelithiasis typically presents with right upper quadrant abdominal pain, nausea, and vomiting. However, atypical presentations may occur due to autonomic reflexes. One such rare manifestation is bradycardia resulting from the **cardio-biliary reflex**, also known as Cope's sign.

We report the case of a 45-year-old male presenting with acute right hypochondrial and epigastric pain associated with marked sinus bradycardia (heart rate 42/min). Initial cardiac evaluation was unremarkable. Further abdominal imaging revealed cholelithiasis with features of acute cholecystitis. Following definitive management, the patient's heart rate normalized.

This case highlights the importance of recognizing extra-cardiac causes of bradycardia and underscores the clinical relevance of the cardio-biliary reflex in gallbladder pathology.

KEYWORDS

• Calculous Cholecystitis • Cope's Sign • Gall Bladder Stone • Bradycardia

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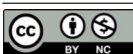
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INTRODUCTION

Cholelithiasis is a common gastrointestinal condition often presenting with biliary colic or complications such as acute cholecystitis. While gastrointestinal symptoms predominate, **cardiac manifestations are rare but clinically significant**.

The **cardio-biliary reflex (Cope's sign)** describes vagally mediated bradycardia triggered by gallbladder inflammation or distension. This reflex can mimic primary cardiac pathology, leading to diagnostic confusion and potential delays in treatment.

We present a case of symptomatic bradycardia in a patient with cholelithiasis, emphasizing the importance of recognizing this rare clinical entity.

CASE PRESENTATION

A 45-year-old male presented to the Emergency Department with **acute onset right upper quadrant abdominal pain** for 4 hours, radiating to the back and associated with nausea.

On examination:

- Pulse: **42/min (bradycardia)**
- BP: 110/70 mmHg
- Temperature: 37.8°C

Cardiovascular examination revealed regular bradycardia without murmurs. The patient denied chest pain, syncope, or prior cardiac illness.

Abdominal examination showed:

- Tenderness in the right hypochondrium
- Positive Murphy's sign

ECG demonstrated **sinus bradycardia** without ischemic changes. Cardiac enzymes were within normal limits.

Given the discordance between abdominal pain and bradycardia, an abdominal cause was suspected. Ultrasound abdomen revealed:

- Multiple gallstones
- Gallbladder wall thickening
- Pericholecystic fluid

A diagnosis of **acute calculous cholecystitis with cardio-biliary reflex-induced bradycardia** was made.

The patient was managed initially with IV fluids, analgesics, and antibiotics. Continuous cardiac monitoring was instituted. Subsequently, he underwent **laparoscopic cholecystectomy**.

Postoperatively, the patient's heart rate gradually normalized to 72/min without any cardiac intervention.

DISCUSSION

Bradycardia in the setting of abdominal pathology is uncommon and may lead clinicians to prioritize cardiac causes. However, the **cardio-biliary reflex** provides an important explanation in gallbladder disease.

This reflex is mediated via **vagal stimulation**, where inflammation or distension of the gallbladder activates afferent pathways, leading to increased parasympathetic tone and resultant bradycardia.

Key clinical implications include:

- Misdiagnosis as primary cardiac pathology
- Unnecessary cardiac interventions
- Delay in surgical management

Recognition of this reflex is crucial, especially when:

- ECG shows isolated sinus bradycardia
- Cardiac biomarkers are normal
- Abdominal signs are present

Resolution of bradycardia after cholecystectomy further supports the diagnosis.

CONCLUSION

Cholelithiasis can rarely present with **bradycardia due to the cardio-biliary reflex (Cope's sign)**.

Clinicians should:

- Consider abdominal causes in unexplained bradycardia
- Perform thorough abdominal examination
- Correlate clinical findings with imaging
- Early recognition can prevent misdiagnosis and ensure timely surgical intervention.

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