

Cope's Sign - Bradycardia as a Rare Cardiovascular manifestation of Acute Cholecystitis

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INTRODUCTION

Acute cholecystitis commonly presents with right upper quadrant pain, nausea and vomiting, fever and leukocytosis. A positive murphy's sign on a physical exam supports the diagnosis but ultrasound is needed for confirmation. Rarely these patients can present with bradycardia, a rare cardiovascular manifestation of acute cholecystitis called the "Cardio-biliary reflex by Cope in 1970, later named the 'Cope's Sign'".



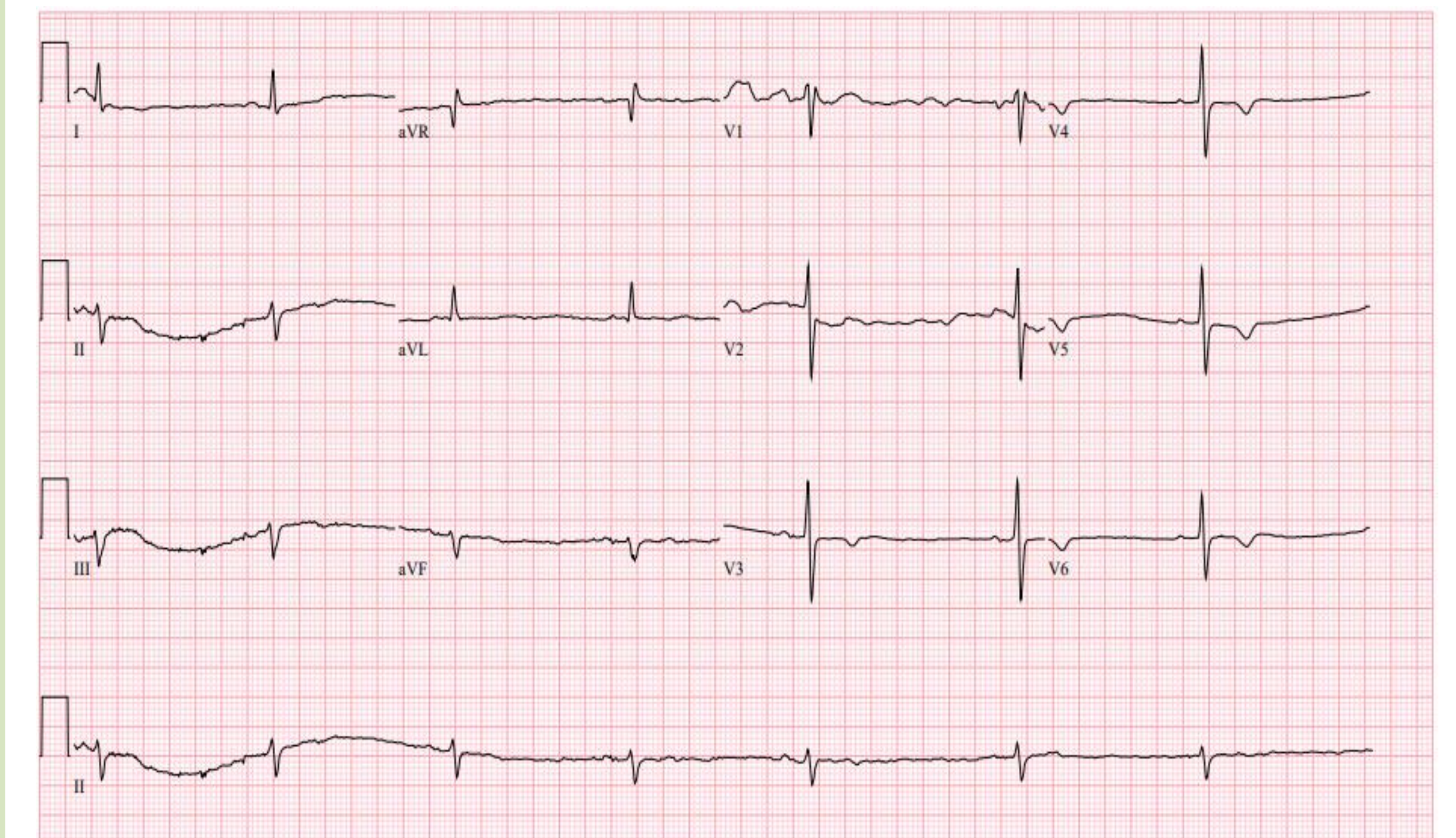
RUQ ultrasound: Sludge and gallstones in gallbladder. Top normal gallbladder wall with a positive sonographic Murphy's sign

CASE DESCRIPTION

A 67-year-old male presented to the emergency department with epigastric and right upper quadrant pain that started 4 days prior. His physical examination was significant for epigastric tenderness, diaphoresis, and bradycardia with a heart rate as low as 38 beats/minute. Of note, he was not on any AV nodal blocking agents. The bradycardia coupled with diaphoresis and epigastric pain was concerning for an inferior wall MI however his troponin was normal and EKG did not show ST segment or T wave changes. Further investigation with a right upper quadrant ultrasound showed sludge and gallstones in gallbladder, gallbladder distension and a positive sonographic Murphy's sign, consistent with acute cholecystitis. He was diagnosed with acute cholecystitis and was believed to have bradycardia secondary to cardio-biliary reflex. He was treated with IV fluids and antibiotics, and an urgent cholecystectomy was performed, Upon telemetry review he remained bradycardic until cholecystectomy, following which the bradycardia resolved.

DISCUSSION

The Cardio-biliary reflex can cause bradyarrhythmia and in severe cases even complete heart block. In some cases, EKG changes consistent with ACS including ST elevation and T wave inversion may also be present. The vagal nerve innervates the heart and gallbladder, the biliary inflammation leads to an increased autonomic vagal tone, which can result in bradycardia and also coronary vasospasm causing chest pain. Clinicians should consider acute cholecystitis as one of their differentials for bradycardia in these patients and they should be monitored closely for resolution of bradycardia with management of their acute cholecystitis.



EKG: Sinus bradycardia, 42 bpm