A Hiatal Hernia Causing Atrial Fibrillation through Direct Mechanical Irritation

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Introduction

• Hiatal hernias (HH) are anatomically classified into four types according to herniated structures.
• Giant HH refers to a herniation of > 50% of the stomach.
• Atrial fibrillation (AF) is the most common arrhythmia, frequently associated with cardiovascular diseases
• We report a case of AF caused by a case of giant HH compressing the left atrium.

Case Presentation

• A 90 year-old female with a medical history of GERD, was surgically evaluated for symptomatic HH.
• During hospital stay the patient developed symptomatic AF with RVR.
• EKG showed new onset AF with non-specific ST-T wave changes. Sinus rhythm conversion was achieved by amiodarone drip.
• Common metabolic and endocrine etiologies of AF were ruled out by specific tests. Additionally, underlying cardiac ischemia was ruled out by normal myocardial perfusion study.
• Chest CTA (Figure 1A and 1B) was only remarkable for persistent giant HH.
• Echo (Figure 2A and 2B) showed external material compressing against the left atrium.
• Due to the high surgical risk decision was made to treat the patient with conservative management. Patient was discharged home in NSR on oral anticoagulant and BB.

Figure 1

(Figure 1A & 1B) CTA of the chest showing giant HH with the majority of the stomach projecting superior to the diaphragm and compressing the posterior wall of the heart.

Figure 2

(Figure 2A & 2B) Echocardiogram showing external material compressing against the heart and causing the left atrium to be not well visualized.

Discussion

• AF, gastrointestinal reflux disorder (GERD) and HH are often seen in association. AF in GERD cases is likely due to local cytokine release from esophageal injury or vagal overstimulation.
• Such association is supported by reduced AF recurrences by reflux suppression. However, the underlying mechanism of AF in HH patients has not been fully understood.
• In our case, left atrial compression and impingement were seen, which indicates direct left atrial irritation causing atrial arrhythmia.
• A similar case scenario was previously reported, in which AF was suppressed after laparoscopic surgical repair of a giant paraesophageal hernia.
• More cases need to be studied to confirm the hypothesized etiology of AF in patients with giant HH.

References