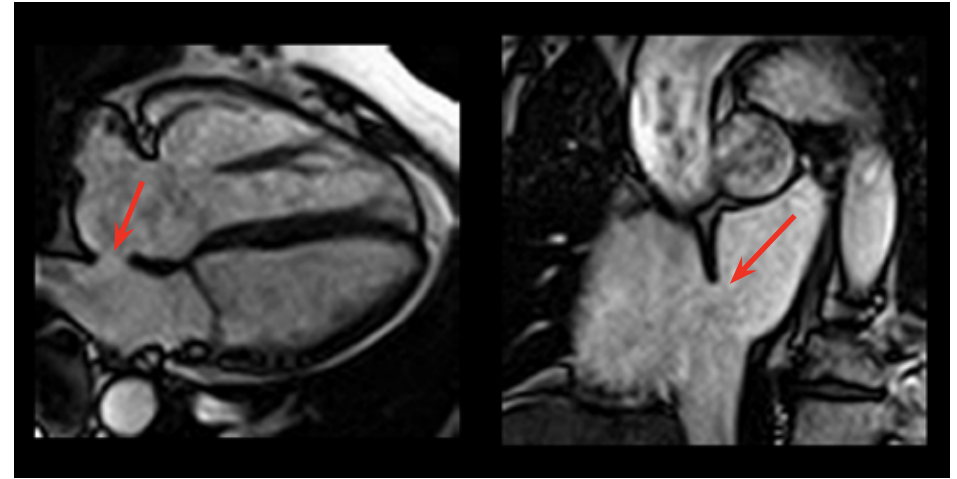
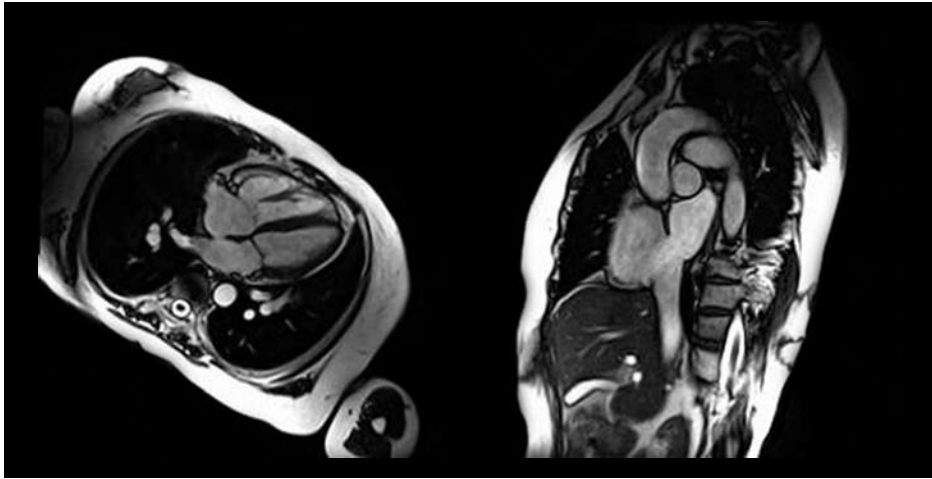


CLINICAL CASE STUDY

Cardiac MRI: Atrial Septal Defect



Background: ASD is a congenital birth heart defect that is most commonly diagnosed in adults. MRI is fast becoming a valuable tool for evaluating heart function and muscle viability as it does not use radiation and is non-invasive.

Cardiac Magnetic Resonance Imaging is challenging due to the constant motion of a beating heart and respiratory motion. To successfully image the heart anatomy and heart function using MR, the ability to acquire images rapidly with optimal resolution and contrast is required.

Toshiba uses a 16 element Atlas SPEEDER body array coil coupled with the 32 element Atlas SPEEDER spine array coil to produce the signal required for evaluation of the heart. Vantage MRI systems have a complete cardiac software package available which includes specialized sequences for speed and image quality, as well as the post processing software for cardiac analysis.

Four-chamber (left) and short axis (right) views of the heart demonstrating atrial septal defect (ASD). Images courtesy of Cardiovascular Diagnostic Center, Monterey, CA.

Case Study: MRI of the heart to evaluate cause for shortness of breath and heart murmur.

Technology: Toshiba Vantage Atlas MRI system using body array and spine array coils. The heart is imaged using Steady State Free Precession (SSFP) cine sequences in varying planes.

Diagnosis: 2D cine sequences clearly depict the atrial septal defect allowing blood to flow between the right and left atrium. This increases blood pressure in the left atria causing the heart to pump harder which could be why the patient has a heart murmur. The additional blood flow being pushed into the lungs most likely was causing the patient's shortness of breath.

By using Toshiba's cardiac MR system and specialized sequences no contrast or radiation was necessary in making this diagnosis.

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