

Robotic Resection of Left Atrial Myxoma with Cryoablation of Tumor Stalk

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Introduction

Myxomas are the most common non-cancerous tumor of the heart. These occur predominately in the atrium, with up to 80% of those occurring in the left atrium¹. Left untreated, embolism (up to 40% of patients), intracardiac obstruction, and even infection is possible.¹ Therefore, resection is indicated. Recurrence rates after myxoma resection are around 5%.² Cryoablation of the tumor stalk, to mitigate this recurrence risk, was first performed in 1992 (reference). While several case reports currently exist describing the use of cryoablation of a tumor stalk after atrial myxoma resection, they all approach with a median sternotomy. 2–4 Here, we seek to describe the resection of an atrial myxoma, with cryoablation of the tumor stalk via a robotic approach.

Patient Presentation

A 38-year-old female presented to our clinic for an incidental finding of an atrial tumor, found on a CT obtained at an outside clinic to evaluate history of back pain (figure 1). The patient denied past stroke, palpitations, syncope, angina, or prior family history of cardiac tumors.

She underwent further diagnostic evaluations, including a transesophageal echocardiogram (TEE), which indicated an echogenic, globular, 2.5 x 2.5 cm left atrial mass attached to her interatrial septum (figure 2). She was referred to cardiac surgery for robot-assisted resection of her left atrial mass.

Myxoma Resection

- Standard Supine Position with Right Chest Elevated 30 degrees.
- Our Standard Port Placement for Robotic Cardiac Surgery (Figure 3)
- Patient Placed on Cardiac Bypass
- Myxoma Resected – with PDS suture used for retraction. (Figure 4)
- Cryoablation of Tumor Stalk (Figure 5)
- Post-operative TEE (Figure 6)

Pre-op

Figure 1

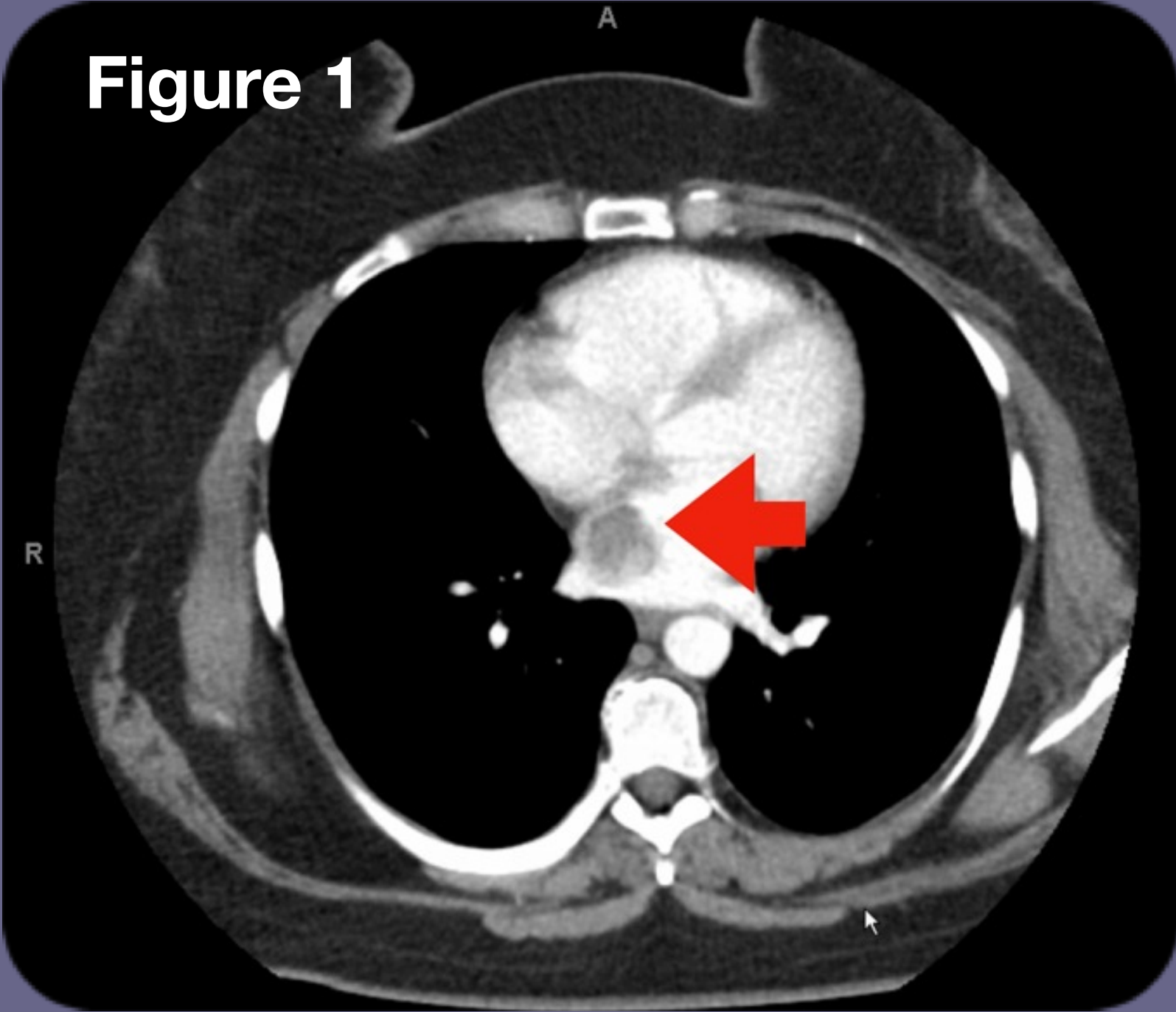
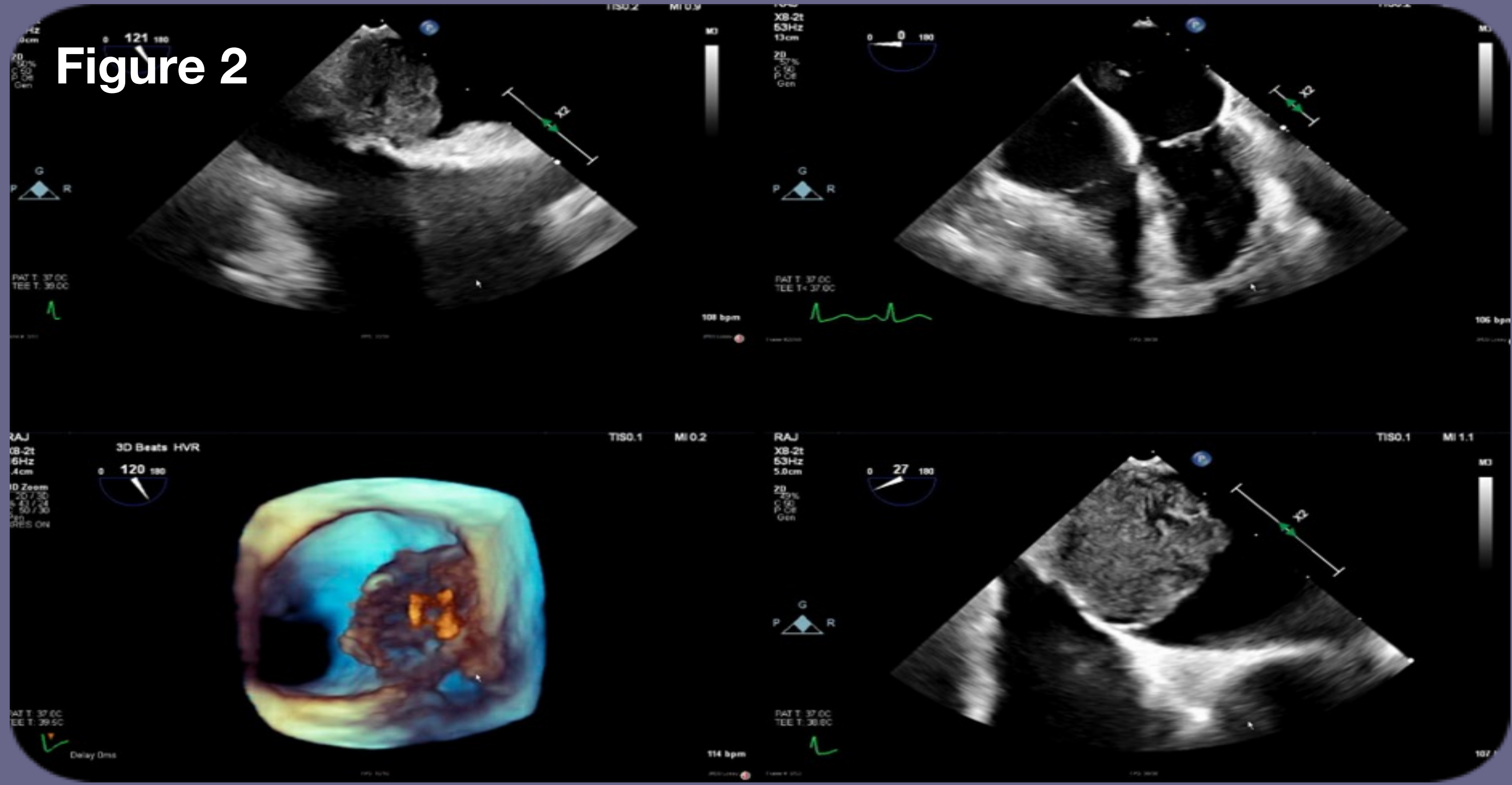


Figure 2



Intra-op

Figure 3

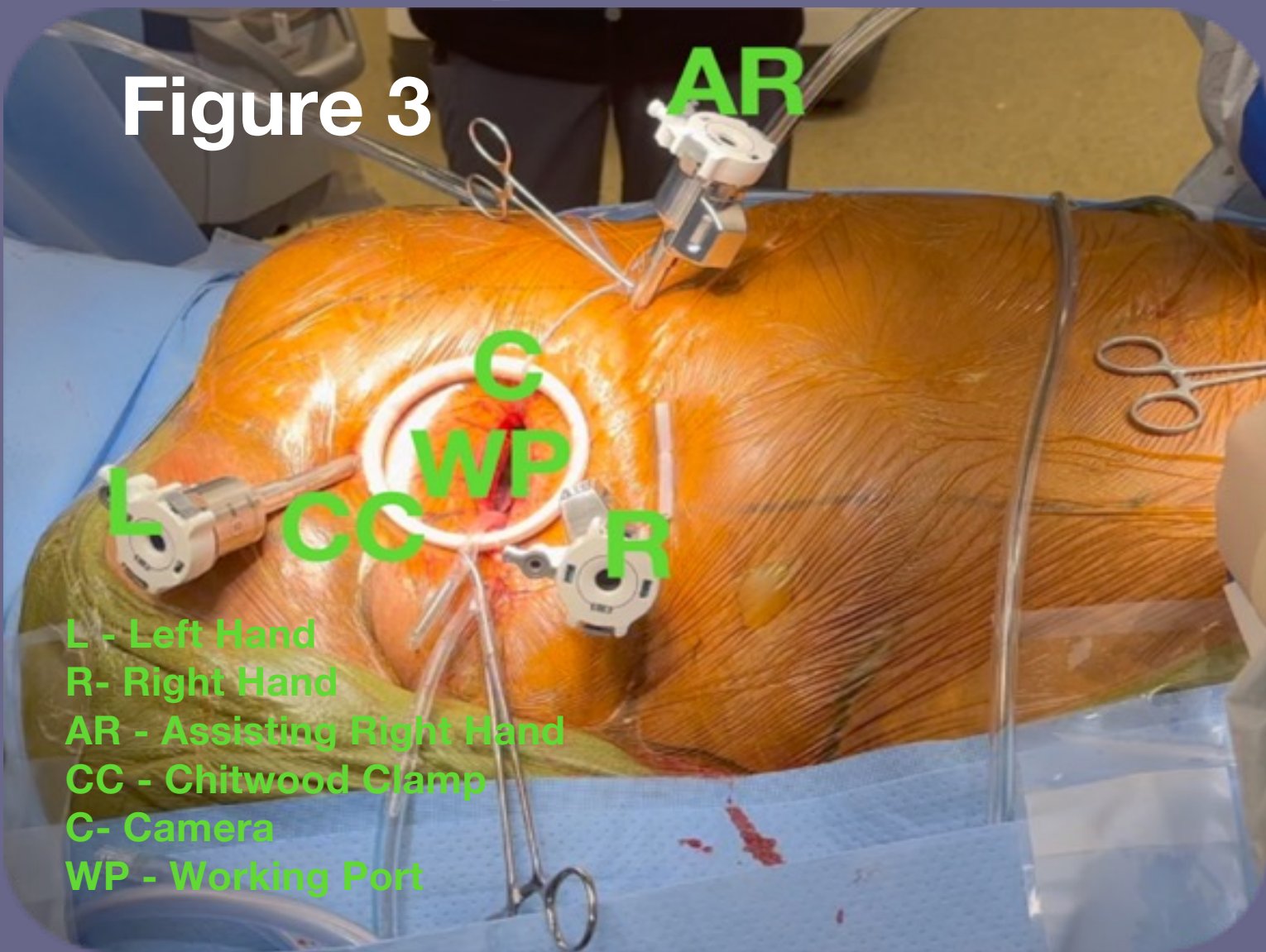


Figure 4

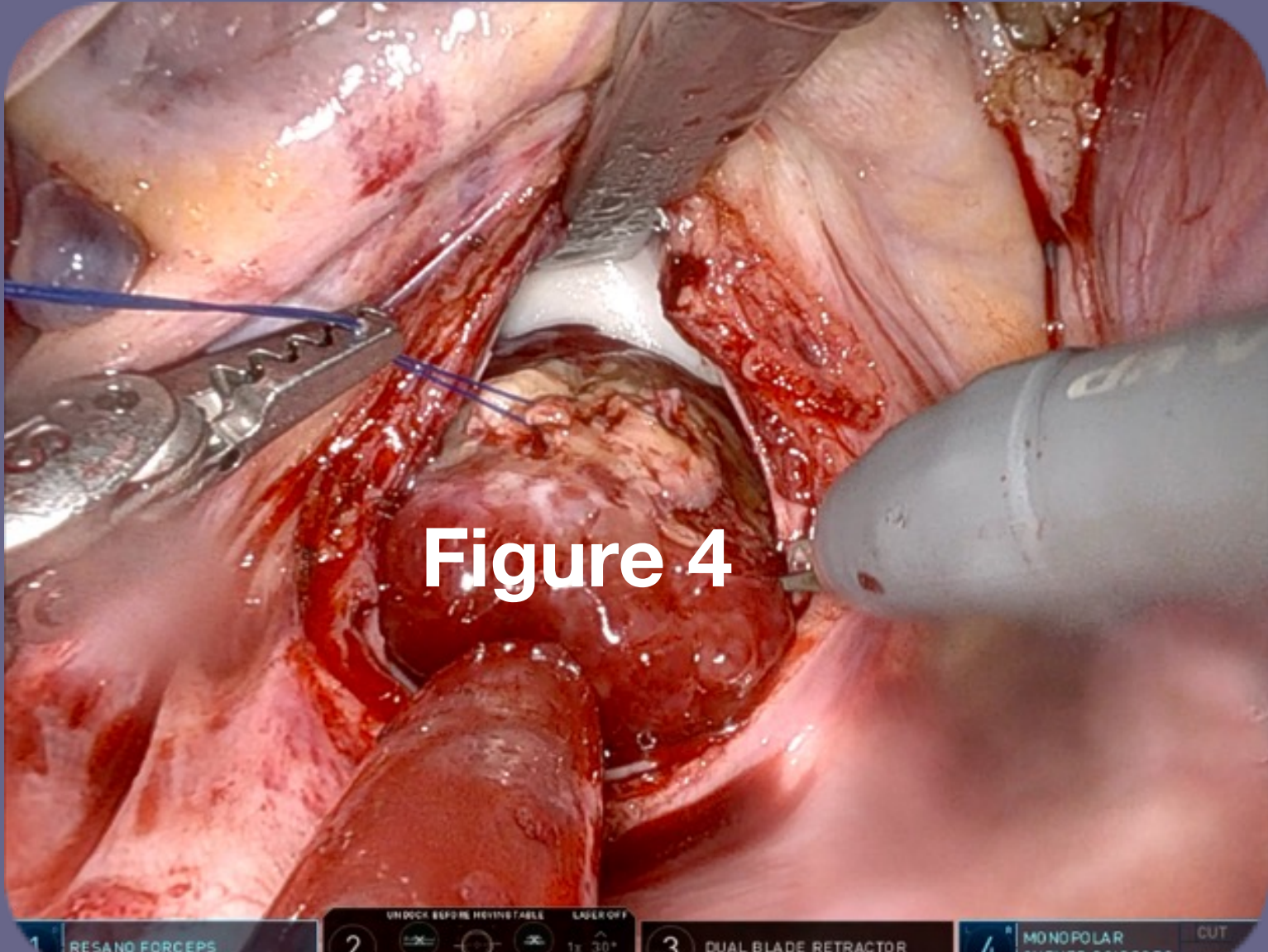
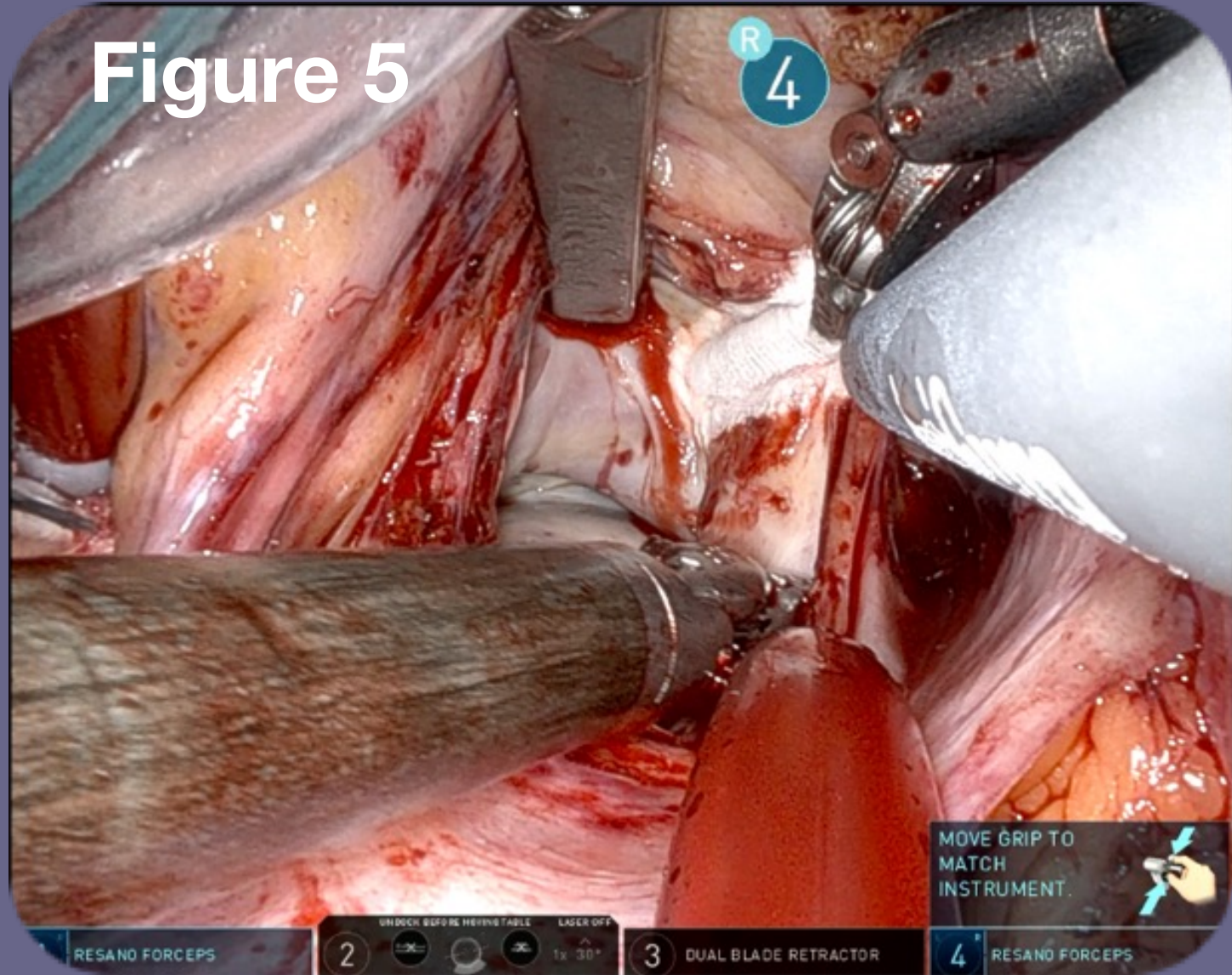
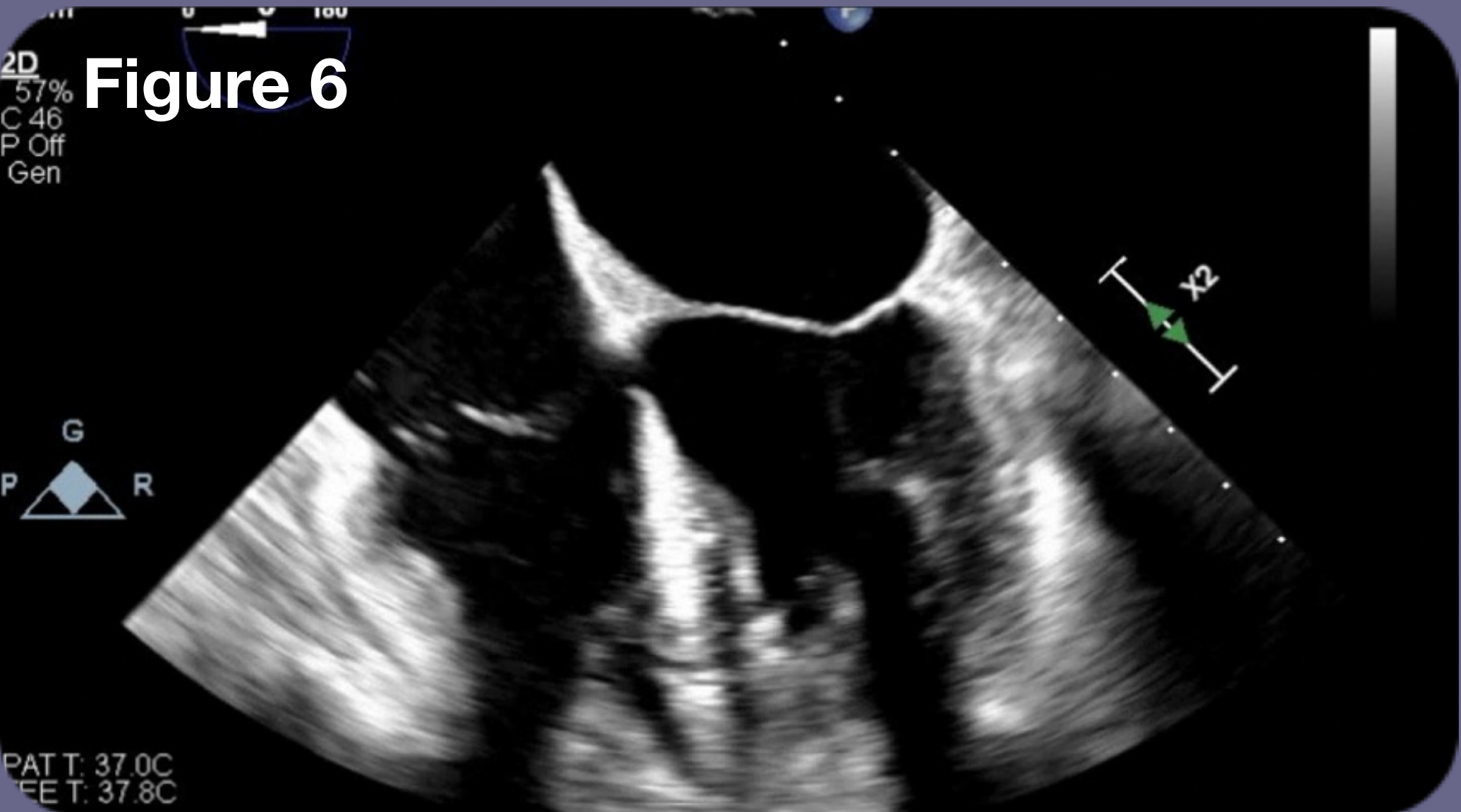


Figure 5



Post-op

Figure 6



Post-operative Course

- Patient tolerated the procedure well.
- Discharged on POD 3
- No evidence of recurrence on 6 month Follow-up TTE

Discussion

Cryoablation for prevention of myxoma recurrence first occurred in 1992.³ Follow-up at one year showed no recurrence. Cryoablation for recurrence prevention has been well reported in the literature, with follow-up as long as 3 years without recurrence.^{2,4,5} However, all of these studies used a median sternotomy for their approach. Robotic surgery for atrial myxoma resection has also been well reported.⁶ However the use of cryosurgery with a robotic approach is not well described. The robotic approach to mitral valve replacement is very similar to that of robotic atrial myxoma resection. A recent systematic review and metaanalyses comparing robotic versus conventional mitral valve resection demonstrated a decreased mortality, ICU and Hospital LOS for patients who underwent a robotic versus a conventional approach.⁷ A similar benefit can be inferred for atrial myxoma resection. While the robotic approach lends the dexterity to perform the full thickness resection required for the resection of atrial myxomas⁸, the use of cryoablation to avoid resection of areas that would require an extensive resection and reconstruction, should be in the armamentaria of all minimally invasive cardiac surgeons.

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