

A Trans-Axillary Resection of a Giant Left Atrial Myxoma: A Case Report

Résection trans-axillaire d'un myxome géant de l'oreillette gauche : Cas clinique

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RÉSUMÉ

Introduction : Le myxome est la tumeur cardiaque primitive la plus fréquente et présente un risque embolique important qui impose une exérèse rapide. La sternotomie médiane reste l'approche traditionnelle, mais les techniques mini-invasives vidéo-assistées ont de plus en plus démontré leur équivalence oncologique tout en réduisant le traumatisme chirurgical, même pour les tumeurs volumineuses ou très mobiles.

Cas clinique : Une femme de 55 ans, sans antécédents médicaux notables, a consulté pour des palpitations et une sensation d'oppression thoracique évoluant depuis une semaine. L'échocardiographie trans-œsophagienne a mis en évidence une masse auriculaire gauche très mobile, « bourgeonnante », de 5 cm de grand axe, adhérente au septum inter-auriculaire, présentant un risque embolique élevé justifiant une intervention chirurgicale urgente. La tumeur a été excisée selon une stratégie en trois temps par mini-thoracotomie transaxillaire droite vidéo-assistée : positionnement et accès par le quatrième espace intercostal avec des ports de vidéo-assistance supplémentaires ; accès à l'oreillette gauche par le sillon de Sondergaardt sous visualisation vidéo haute définition du septum inter-auriculaire et de la base tumorale. L'exérèse en bloc a été réalisée sous circulation extracorporelle périphérique. L'échocardiographie trans-œsophagienne postopératoire a confirmé la résection complète, sans masse résiduelle, et la fonction mitrale a été préservée. Les suites opératoires ont été simples et la patiente a pu quitter l'hôpital le 6^e jour postopératoire.

Conclusion : Ce cas illustre qu'une approche trans-axillaire vidéo-assistée permet d'obtenir une résection oncologique radicale, incluant l'exérèse complète d'un myxome géant et très mobile, tout en évitant la sternotomie médiane. Cette technique se prête donc à être considérée comme une stratégie reproductible pour certaines tumeurs intra-cardiaques.

MOTS-CLÉS

Myxome auriculaire ; Chirurgie cardiaque mini-invasive ; Thoracotomie transaxillaire ; Chirurgie vidéo-assistée ; Résection en bloc

SUMMARY

Introduction: Myxoma is the most common primary cardiac tumour and carries a substantial embolic risk that mandates prompt excision. Median sternotomy remains the traditional approach, but video-assisted minimally invasive techniques have increasingly demonstrated oncological equivalence while reducing surgical trauma, even for large or highly mobile tumours.

Case presentation: A 55-year-old woman with no significant past medical history presented with a one-week history of palpitations and thoracic oppression. Transoesophageal echocardiography identified a highly mobile, "budding" left atrial mass, 5 cm in its major axis, attached to the interatrial septum, with a high embolic risk warranting urgent surgery. The tumour was excised through a three-stage strategy video-assisted right trans-axillary minithoracotomy: positioning and access through the fourth intercostal space with additional video-assistance ports; left atrial access via the Sondergaardt groove under high-definition video visualisation of the interatrial septum and tumour base; and en bloc excision under peripheral cardiopulmonary bypass. Postoperative transoesophageal echocardiography confirmed complete resection with no residual mass and preserved mitral valve function. The postoperative course was uneventful, and the patient was discharged on postoperative day 6.

Conclusion: This case illustrates that a standardised video-assisted trans-axillary approach can achieve genuine oncological radicality, including R0 excision of a giant, highly mobile myxoma, while avoiding median sternotomy, supporting its consideration as a reproducible strategy for selected intra-cardiac tumours.

KEYWORDS

Atrial myxoma; Minimally invasive cardiac surgery; Trans-axillary thoracotomy; Video-assisted surgery; En bloc resection.

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INTRODUCTION

Atrial myxoma is the most common primary cardiac tumour in adults and arises most frequently from the interatrial septum of the left atrium [1]. Although histologically benign, it carries a significant risk of intracardiac obstruction and systemic embolisation, so prompt surgical excision is indicated once the diagnosis is established [1].

Median sternotomy has long been the standard access route for cardiac tumour resection. However, a growing body of evidence supports minimally invasive video-assisted approaches as oncologically equivalent to sternotomy while reducing surgical trauma and accelerating recovery [2,3]. The posteromedial left atrium can be reached through the Sondergaard groove via a right-sided approach, providing wide-field visualisation without sternal division. Video-assisted transaxillary and mini-thoracotomy techniques have proven feasible across institutions, including for large, highly mobile tumours [2,3].

Tumour size and mobility have traditionally been considered relative contraindications to minimally invasive resection, owing to concerns about incomplete excision or intraoperative embolisation. We report a case of a giant, highly mobile left atrial myxoma resected en bloc with clear margins through a standardised, reproducible three-stage video-assisted transaxillary strategy, and discuss it in the context of the current literature. This report follows the CARE (CAse REport) guidelines for the reporting of clinical case reports [9].

CASE PRESENTATION

Patient information

A 55-year-old woman with no significant past medical history presented with a one-week history of exertional palpitations and thoracic oppression. She reported no prior cardiovascular disease, no family history of cardiac tumours, and no constitutional symptoms such as fever, weight loss, or malaise.

cClinical findings and timeline

On admission, the patient was haemodynamically stable. Given the symptom profile, transthoracic and transoesophageal echocardiography were performed as first-line investigations. The clinical course is summarised in Table 1.

Table 1. Timeline of presentation, intervention, and outcomes

Time point	Event
Day -7	Onset of exertional palpitations and thoracic oppression at home
Day 0	Admission to the Department of Cardiac Surgery; transoesophageal echocardiography reveals a 5 cm, highly mobile, "budding" left atrial mass attached to the interatrial septum; high embolic risk assessed
Day 0–1	Multidisciplinary decision for urgent surgical excision; three-stage video-assisted transaxillary right minithoracotomy performed under peripheral cardiopulmonary bypass
Postoperative Day 0	Intraoperative TOE confirms complete (R0) resection with no residual mass and preserved mitral valve function
Postoperative Day 1–5	Uneventful recovery; no arrhythmia, neurological event, or bleeding complication
Postoperative Day 6	Hospital discharge; histopathology confirms benign myxoma with clear margins
3-month follow-up	Patient asymptomatic; transthoracic echocardiography normal, with no evidence of recurrence and preserved mitral valve function
6-month follow-up	Patient asymptomatic; transthoracic echocardiography normal, with no evidence of recurrence and preserved mitral valve function

Diagnostic assessment

Transoesophageal echocardiography (TOE) demonstrated a left atrial mass, 5 cm in its major axis, attached to the interatrial septum, with a highly mobile, "budding" surface morphology. These features — large size, marked mobility, and septal attachment — were considered to confer a high risk of systemic embolisation, and the multidisciplinary team elected for urgent surgical excision rather than elective scheduling. No further cross-sectional imaging (cardiac CT or MRI) was required, as TOE provided sufficient anatomical detail to plan the surgical strategy.

Therapeutic intervention

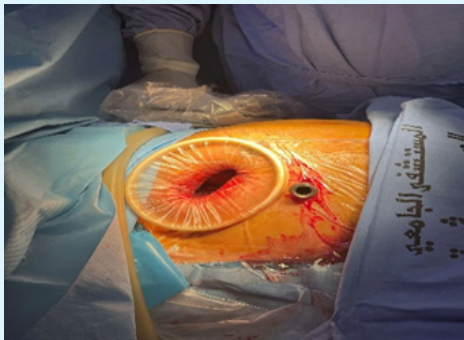
The tumour was excised using a standardised, reproducible three-stage strategy performed under right video-assisted transaxillary minithoracotomy and peripheral cardiopulmonary bypass (femoral arterial and venous cannulation):

- Stage 1 — Positioning and access: the patient was positioned to optimise axillary exposure, and a minithoracotomy was

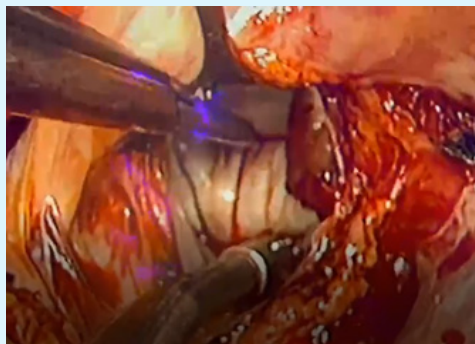
performed at the fourth intercostal space, supplemented by additional video-assistance ports.

- Stage 2 — Left atrial access: the left atrium was entered via the Sondergaard (interatrial) groove, allowing high-definition video visualisation of the interatrial septum and the tumour base.
- Stage 3 — En bloc excision: the myxoma was resected in its entirety together with a margin of adjacent septal tissue, and the interatrial septum was repaired.

No conversion to median sternotomy was required. Intraoperative and postoperative transoesophageal echocardiography were used to confirm completeness of resection and mitral valve competence. Intraoperative photographs of the surgical access and of the video-assisted left atrial exposure are shown in Figure 1.



(a) Stage 1 — Positioning and access



(B) Stage 2 — Left atrial access

Figure 1. Intraoperative photographs of the three-stage video-assisted transaxillary strategy. (a) Right minithoracotomy at the fourth intercostal space with additional video-assistance ports, optimised for axillary exposure (Stage 1). (b) High-definition video view of the left atrium after access through the Sondergaard groove, showing exposure of the interatrial septum and tumour base prior to en bloc excision (Stage 2).

Postoperative TOE confirmed complete resection with no residual tumour and preserved mitral valve function. Histopathological examination confirmed the diagnosis of myxoma with clear (R0) margins. The postoperative course was uneventful, with no major complications, arrhythmia, or neurological events. The patient was discharged on postoperative day 6.

At scheduled follow-up visits at 3 and 6 months after surgery, the patient remained entirely asymptomatic, with resolution of the palpitations and thoracic oppression reported preoperatively. Transthoracic echocardiography performed at both visits was normal, with no evidence of tumour recurrence and persistently preserved mitral valve function. A summary of the key outcome measures, including this follow-up, is presented in Table 2.

Table 2. Summary of perioperative, short-term, and 6-month follow-up outcomes.

Outcome measure	Result
Resection margins	R0 (clear histological margins)
Mitral valve function	Preserved (confirmed on postoperative TOE)
Major complications	None
Length of hospital stay	6 days
Conversion to sternotomy	None
Clinical status at 3 and 6 months	Asymptomatic
Echocardiography at 3 and 6 months	Normal; no recurrence, mitral valve function preserved

DISCUSSION

This case demonstrates that a video-assisted transaxillary approach can achieve genuine oncological radicality — not merely a cosmetic benefit — in the resection of a giant, highly mobile atrial myxoma. Tumour size has historically been regarded as a relative contraindication to minimally invasive resection, for fear of incomplete excision or intraoperative embolisation of tumour fragments [2]. The R0 excision achieved in this case, of a 5 cm, “budding” myxoma, challenges that assumption and is consistent with prior reports demonstrating the feasibility of video-assisted and minimally invasive access even for large or highly mobile intracardiac tumours [2,3].

Since Owais and colleagues first described a video-assisted minimally invasive route as “a possible routine access” for intracardiac tumour excision [2], subsequent series have reinforced its safety. Sawaki et al. compared a video-assisted right mini-thoracotomy approach with

median sternotomy for benign cardiac masses and found comparable oncological outcomes with the minimally invasive route [3]. High-definition visualisation of the interatrial septum, as achieved in the present case, allows thorough assessment of the tumour base and stalk, which is directly relevant to minimising the risk of local recurrence — a concern previously highlighted by Yüksel et al., who advocated wide excision with a margin of at least 5 mm of macroscopically normal tissue around the tumour to reduce recurrence risk [7].

Beyond oncological safety, avoiding sternotomy is expected to reduce sternal wound complications, postoperative pain, and blood loss, and to accelerate mobilisation and rehabilitation, translating into shorter hospital stays. This is consistent with our patient's uncomplicated 6-day length of stay. Comparable findings have been reported for robotic-assisted resection: in a recent single-centre series, Saiydoun et al. found that robotic left atrial myxoma resection achieved outcomes comparable to sternotomy with a shorter hospital stay [8]. The video-assisted transaxillary strategy illustrated here may extend similar recovery benefits with a lower resource footprint than fully robotic platforms, which remain limited by cost and availability in many centres, including ours.

This report has several limitations inherent to the single-case design. First, conclusions about generalisability cannot be drawn from a single patient, and larger comparative series (such as those cited above) remain the appropriate evidence base for practice recommendations [2,3,7,8]. Second, although the patient remained asymptomatic with a normal echocardiogram at 3 and 6 months, myxoma recurrence — while uncommon — can occur later still, and longer structured echocardiographic surveillance would be required to confirm durable freedom from recurrence beyond the interval reported here. Third, patient selection for a minimally invasive strategy remains critical: tumours with unfavourable attachment sites, marked calcification, or biatrial extension may still be better served by conventional sternotomy, and this technique should be reserved for centres with the requisite minimally invasive cardiac surgery expertise.

CONCLUSION

Video-assisted transaxillary resection of a giant, highly mobile left atrial myxoma achieved R0 excision, preserved mitral valve function, and an uneventful short-term

recovery, without the need for median sternotomy. This standardised, reproducible three-stage strategy merges oncological safety with reduced surgical aggression and may represent a viable option for selected patients with large intracardiac tumours in centres experienced in minimally invasive cardiac surgery. Larger series with structured long-term follow-up are needed to confirm its durability and to define selection criteria more precisely.

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