

Transcatheter Embolization of A Dilated Left Internal Mammary Artery Supplying A Recurrent Chest Wall Angiolipoma in An Adolescent: A Case Report

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ABSTRACT

Background: Angiolipoma is a benign lipomatous tumor containing prominent vascular components. Although usually managed by surgical excision, recurrent or highly vascular lesions may present a challenging operative and bleeding-risk profile. We describe an adolescent with recurrent chest wall angiolipoma in whom transcatheter embolization was used to control a major arterial feeder.

Case presentation: A 14-year-old boy presented with a 2-year history of recurrent swelling over the left anterior chest wall associated with pain during exertion. He had undergone surgical excision and biopsy 5 years earlier, with histopathology showing angiolipoma, followed by another surgical excision 2 years before the current presentation for a similar recurrent lesion. Examination revealed a 5 × 5 cm swelling over the left lower anterior chest wall. Laboratory investigations were within normal limits. Contrast-enhanced CT/CT angiography demonstrated a highly vascular chest wall mass with a prominent arterial supply from the left internal mammary artery (LIMA), with additional diminutive feeders from the inferior epigastric and posterior intercostal arteries.

Intervention: Right femoral arterial access was obtained using a 6-F sheath. LIMA angiography demonstrated a markedly dilated LIMA measuring approximately 9 mm, branching below the fifth costal cartilage and supplying the hypervascular tumor. The distal LIMA measured approximately 5.6 mm before bifurcation. An 8-mm Amplatzer Vascular Plug II was deployed through a 5-F JR 3.5 catheter close to the fourth anterior intercostal artery. Final angiography showed complete occlusion of the LIMA supply to the tumor. Attempts to engage the left superficial epigastric artery were unsuccessful; because CT angiography showed only diminutive additional feeders, further embolization was not pursued.

Conclusion: Selective transcatheter embolization can provide effective control of a dominant arterial supply to a recurrent, hypervascular chest wall angiolipoma. Careful pre-procedural vascular mapping is important to identify dominant and minor feeders and to guide a targeted embolization strategy.

Keywords: Angiolipoma; chest wall tumor; adolescent; internal mammary artery; embolization; vascular plug; interventional radiology.

INTRODUCTION

Angiolipoma is a benign variant of lipoma characterized by mature adipose tissue admixed with numerous vascular channels. It commonly occurs in the extremities and trunk and may be painful, particularly in young patients. Surgical excision is generally curative; however, recurrent lesions and tumors with a prominent arterial supply may pose additional challenges. The use of endovascular embolization to reduce tumor vascularity may be considered when a dominant feeding artery can be safely accessed. We report the successful embolization of a markedly dilated LIMA supplying a recurrent chest wall angiolipoma in a 14-year-old boy.

Case Presentation

A 14-year-old adolescent boy presented with swelling over the left anterior chest wall for approximately 2 years. The swelling was associated with mild pain at the site during exertion. He had a previous history of a similar lesion 5 years earlier, for which surgical excision and biopsy were performed. Histopathological examination at that time was reported as angiolipoma. Because of recurrence, he underwent another surgical excision 2 years before the current presentation.

On examination, a 5 × 5 cm swelling was noted over the left lower anterior chest wall. Routine laboratory investigations were within normal limits.

Imaging Findings

Contrast-enhanced CT of the chest and CT angiographic reconstruction demonstrated a vascular soft-tissue mass in the left anterior chest wall with prominent arterial channels. The imaging showed a major arterial supply arising from the LIMA, with smaller contributions from the inferior epigastric and posterior intercostal arteries. The vascularity and recurrent nature of the lesion prompted consideration of transcatheter embolization.

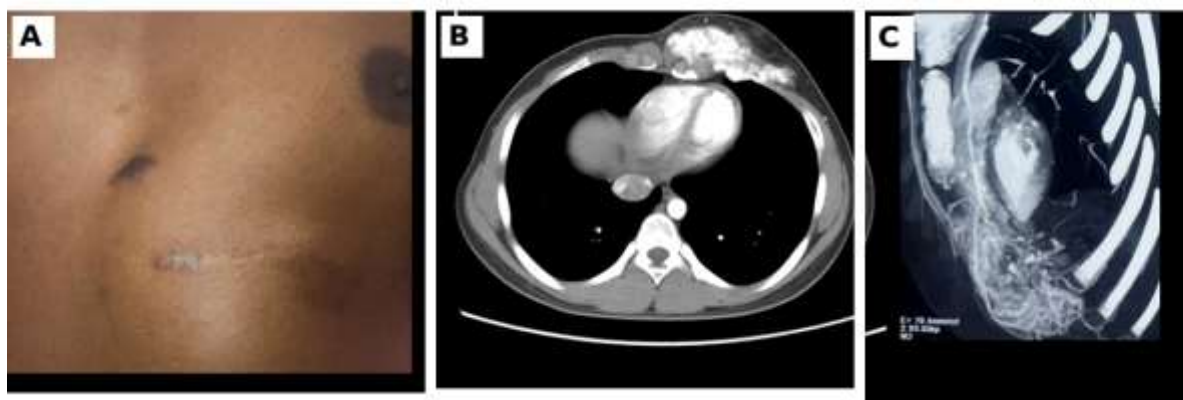


Figure 1. Clinical and CT imaging findings.

(A) Clinical photograph demonstrating the recurrent swelling over the left anterior chest wall with scar. (B) Contrast-enhanced axial CT demonstrating the hypervascular chest wall lesion. (C) Contrast-enhanced multiplanar CT/angiographic image demonstrating prominent vascular channels associated with the lesion.

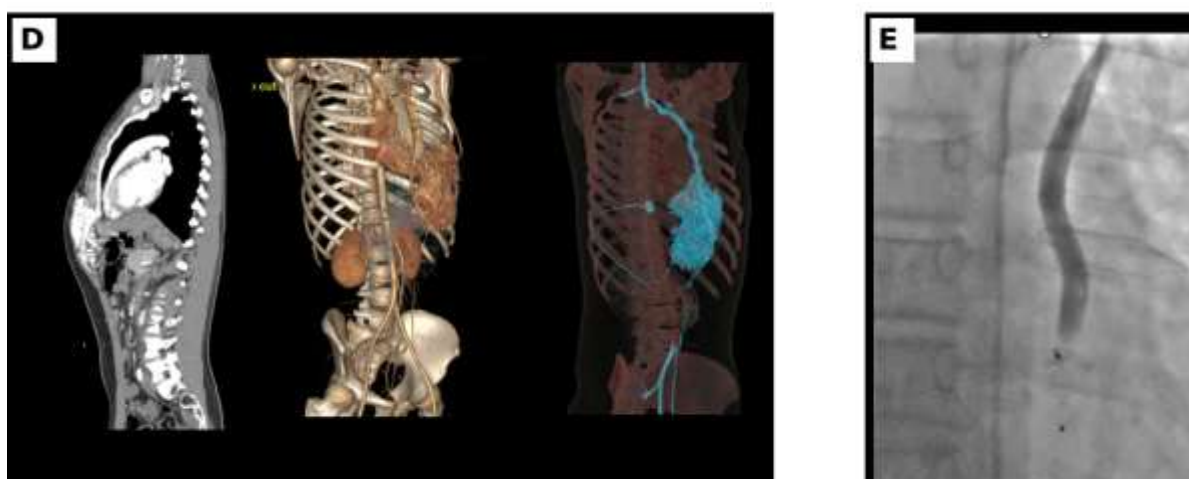


Figure 2. CT angiographic reconstruction and selective LIMA angiography.

(D) CT angiographic/3-dimensional reconstructions demonstrating the vascular tumor and its arterial supply, including the prominent LIMA contribution. (E) Selective LIMA angiogram showing vascular plug is in situ and that there is no residual tumor blush.

Endovascular Procedure

In view of the prominent LIMA supply, transcatheter embolization was planned. Right common femoral arterial access was obtained and a 6-F sheath was inserted. A 5-F multipurpose I diagnostic catheter was used for selective LIMA angiography. The LIMA was markedly dilated, measuring approximately 9 mm, and demonstrated branching below the fifth costal cartilage with supply to a highly vascular tumor. The distal segment of the LIMA immediately proximal to the bifurcation measured approximately 5.6 mm.

The multipurpose catheter was exchanged for a 5-F JR 3.5 catheter. An 8-mm Amplatzer Vascular Plug II was advanced and successfully deployed in the LIMA close to the fourth anterior intercostal artery. Post-deployment angiography demonstrated complete occlusion of the LIMA supply to the tumor.

Attempts to selectively engage the left superficial epigastric artery were unsuccessful. Given that CT angiography demonstrated only diminutive feeders arising from the inferior epigastric and posterior intercostal arteries, no further embolization was attempted.

Outcome

The dominant arterial supply from the LIMA was successfully occluded with a vascular plug, with complete angiographic cessation of LIMA flow to the tumor. No additional intervention was undertaken for the small

collateral feeders. On clinical follow-up, the patient demonstrated symptomatic improvement, with a reduction in pain and improvement in the previously reported exertional symptoms. No procedure-related complications were noted during follow-up. The patient remains under clinical surveillance for assessment of the recurrent chest wall lesion and further symptom progression.

DISCUSSION

This case highlights several clinically relevant features. First, recurrent chest wall angioliipoma in a young patient may demonstrate substantial vascularity, making repeat surgical management potentially more complex. Second, CT angiography was useful for mapping the arterial anatomy and identifying the LIMA as the dominant feeder while demonstrating smaller collateral vessels. Third, selective angiography provided definitive assessment of the caliber and course of the LIMA and allowed treatment to be directed at the dominant arterial supply.

The choice of a vascular plug was particularly suited to the markedly enlarged feeding artery. The LIMA measured approximately 9 mm proximally, with a 5.6-mm distal segment, allowing selection of an appropriately sized plug. Deployment close to the fourth anterior intercostal artery resulted in complete angiographic occlusion of the tumor supply. The decision not to pursue diminutive collateral feeders was based on the pre-procedural CT angiographic assessment and the technical difficulty of selectively engaging the left superficial epigastric artery. This approach emphasizes the value of combining cross-sectional vascular imaging with selective angiography before embolization. In recurrent hypervascular soft-tissue lesions, identifying the dominant feeder may permit a focused endovascular procedure while avoiding unnecessary instrumentation of small collateral vessels.

CONCLUSION

Recurrent chest wall angioliipoma in an adolescent can have a prominent arterial supply from the LIMA. Pre-procedural CT angiography followed by selective angiography enabled identification and successful embolization of the dominant feeder using an Amplatzer Vascular Plug II. Targeted transcatheter embolization may therefore be a useful adjunct in the management of selected hypervascular recurrent chest wall angioliipomas.

Learning Points

- Recurrent angioliipoma may demonstrate substantial arterial vascularity despite its benign histology.
- CT angiography is useful for delineating dominant and minor arterial feeders before intervention.
- A markedly dilated LIMA can be a major feeding artery to an anterior chest wall angioliipoma.
- Vascular plug embolization can achieve rapid and complete occlusion of a large-caliber dominant feeder.
- Minor collateral feeders may not require treatment when they are diminutive and the dominant arterial supply has been successfully occluded.

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