

Endovascular Repair of Ruptured Pseudoaneurysm of Left Internal Mammary Graft Following Redo Aortic Valve Replacement and Coronary Artery Bypass Grafting.

Sanjeev U. Nair MD

Lehigh Valley Health Network, sanjeev.nair@lvhn.org

Nainesh C. Patel MD

Lehigh Valley Health Network, nainesh_c.patel@lvhn.org

David A. Cox MD

Lehigh Valley Health Network, David.Cox@lvhn.org

Follow this and additional works at: <https://scholarlyworks.lvhn.org/medicine>



Part of the [Medical Sciences Commons](#)

Published In/Presented At

Nair, S. U., Patel, N. C., & Cox, D. A. (2015). Endovascular repair of ruptured pseudoaneurysm of left internal mammary graft following redo aortic valve replacement and coronary artery bypass grafting. *JACC. Cardiovascular Interventions*, 8(1 Pt A), e3-e5. doi:10.1016/j.jcin.2014.08.008

This Article is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact LibraryServices@lvhn.org.

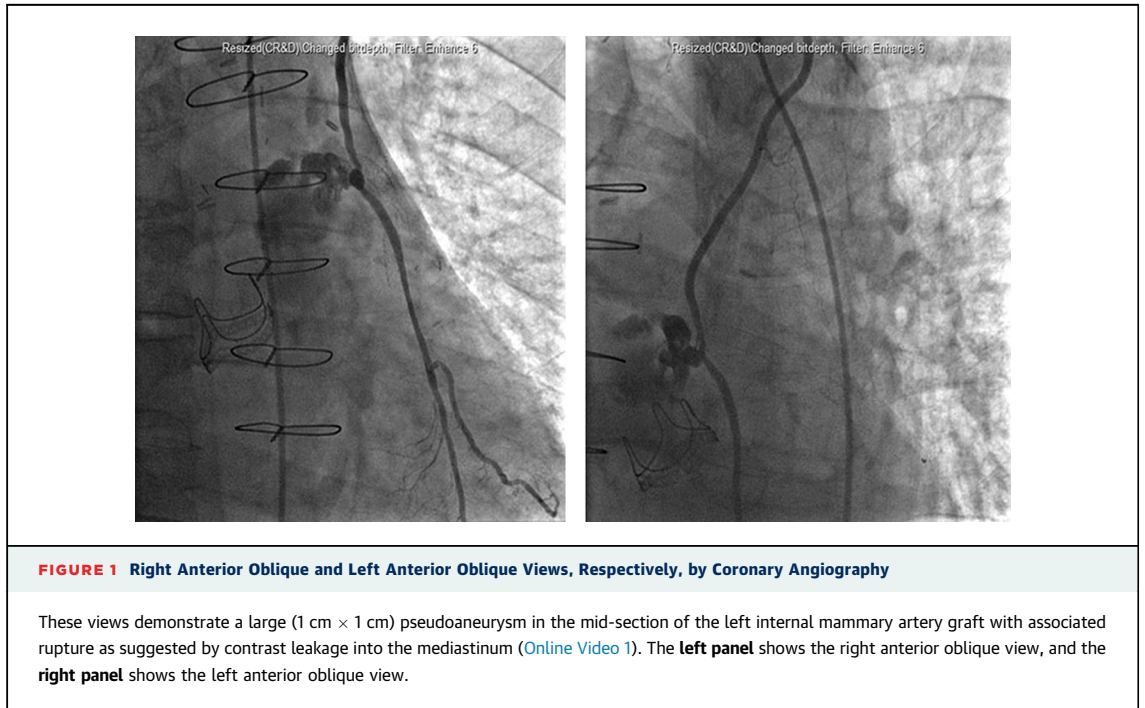
IMAGES IN INTERVENTION

Endovascular Repair of Ruptured Pseudoaneurysm of Left Internal Mammary Graft Following Redo Aortic Valve Replacement and Coronary Artery Bypass Grafting



Sanjeev U. Nair, MBBS, MD, Nainesh C. Patel, MD, David A. Cox, MD

Pseudoaneurysm of internal mammary arteries may be asymptomatic or present within weeks following a sternotomy procedure with features such as chest swelling, atypical chest pain, and angina or rarely with rupture and exsanguination (1,2,3).



From the Division of Cardiology, Lehigh Valley Health Network/ University of South Florida College of Medicine, Allentown, Pennsylvania. Dr. Patel is on the advisory board of St. Jude Medical. Dr. Cox is on the advisory boards of Abbott Vascular, Boston Scientific, and The Medicines Company. Dr. Nair has reported that he has no relationships relevant to the contents of this paper to disclose.

Manuscript received August 11, 2014; accepted August 14, 2014.



FIGURE 2 Covered Stent (Jostent) Placement at the Site of the Ruptured Pseudoaneurysm in the LIMA Graft

By the femoral arterial route, a 7-F left internal mammary artery (LIMA) guide was used to wire the LIMA. A 3.0 × 26-mm covered Jostent stent (Jomed International AB, Helsingborg, Sweden) was placed at the site of the rupture and inflated to 19 atm pressure (Online Video 2).

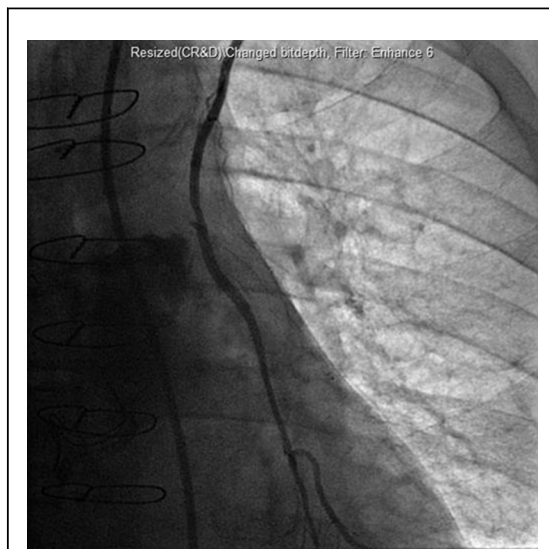


FIGURE 3 Post-Stent LIMA Graft With Good Distal TIMI Flow

Thrombolysis In Myocardial Infarction (TIMI) flow grade III was obtained distally after placement of covered stent (Jostent) at the site of the ruptured left internal mammary artery (LIMA) graft pseudoaneurysm (Online Video 3). The associated rupture is completely sealed off as evidenced by lack of contrast extravasation.

A 62-year-old man status post-coronary artery bypass grafting and aortic mechanical valve replacement presented a decade later with angina and dyspnea. He was found to have a partially thrombosed aortic prosthetic valve. The patient underwent a reoperation with aortic bioprosthetic valve replacement. Two weeks later, the patient was readmitted with acute chest pain and ST-T changes on the electrocardiogram. Urgent coronary angiography showed the previously placed coronary artery grafts to be patent. However, there was a large (1 cm × 1 cm) pseudoaneurysm of the left internal mammary artery (LIMA) graft with leakage of contrast into the mediastinum at the site of the pseudoaneurysm suggesting an associated rupture (Figure 1, Online Video 1). Utilizing the femoral arterial approach, a 7-F LIMA guide was used to wire the LIMA, and a 3.0 × 26-mm covered Jostent stent graft (Jomed International AB, Helsingborg, Sweden) was placed and inflated to 19 atm. This completely sealed the ruptured pseudoaneurysm, and post-dilation was done with a 3.0 Quantum balloon to 20 atm (Figure 2, Online Video 2).

An excellent result was obtained, with Thrombolysis In Myocardial Infarction flow grade III distally. There was good flow down to the left anterior descending coronary artery (LAD) with some evidence of wire spasm, which improved with intracoronary nitroglycerine. The LAD diagonal, as well as the collaterals to the right coronary artery, was patent. Multiple angiographic views were taken that showed no evidence of further extravasation of contrast (Figure 3, Online Video 3). The patient was eventually discharged home on dual antiplatelet therapy (aspirin and clopidogrel).


Thus, a ruptured pseudoaneurysm of an internal mammary graft can be successfully and safely repaired percutaneously using a covered stent and avoids the risks and complications associated with sternotomy.

REPRINT REQUESTS AND CORRESPONDENCE: Dr. David A. Cox, Lehigh Valley Health Network/University of South Florida College of Medicine, 1250 South Cedar Crest Boulevard, Allentown, Pennsylvania 18103. E-mail: David.Cox@lvhn.org.

REFERENCES

1. Martin A, Ross BA, Braimbridge MV. Peristernal wiring in closure of median sternotomy. False aneurysm of the internal mammary artery. *J Thorac Cardiovasc Surg* 1973;66:145-6.
2. Frank MW, Alexander JC Jr., Pineless GR, Votapka TV, Curran RD. False aneurysm of the right internal mammary artery. Late rupture after sternotomy. *Tex Heart Inst J* 1998;25:86-7.
3. Kamath S, Unsworth-White J, Wells IP. Pseudoaneurysm of the internal mammary artery as an unusual cause of post-sternotomy hemorrhage: the role of multislice computed tomography in the diagnosis and treatment planning. *Cardiovasc Intervent Radiol* 2005;28:246-8.

KEY WORDS covered stent, internal mammary artery, pseudoaneurysm, rupture

 **APPENDIX** For supplemental videos, please see the online version of this article.