

Endovascular management of a large aneurysm of the superior vena cava involving internal thoracic vein with remodeling technique

Loïc Griviau, Olivier Chevallier, Sylvain Favelier, Pierre Pottecher, Sophie Gehin, Romaric Loffroy

Department of Vascular, Oncologic and Interventional Radiology, LE2I UMR CNRS 6306, Arts et Métiers, University of Burgundy, François-Mitterrand Teaching Hospital, Dijon Cedex, France

Correspondence to: Prof. Romaric Loffroy, MD, PhD. Department of Vascular, Oncologic and Interventional Radiology, LE2I UMR CNRS 6306, Arts et Métiers, University of Burgundy, François-Mitterrand Teaching Hospital, 14 Rue Paul Gaffarel, BP 77908, 21079 Dijon Cedex, France. Email: romaric.loffroy@chu-dijon.fr.

Abstract: We report a case describing endovascular treatment of a large aneurysm of the superior vena cava involving internal thoracic vein. The goal of this case report is to highlight the contributing role of embolization with remodeling technique in such an exceptional condition.

Keywords: Aneurysm; venous disease; computed tomography (CT); endovascular procedures/stents

Submitted May 20, 2016. Accepted for publication Jun 06, 2016.

doi: 10.21037/qims.2016.06.03

View this article at: <http://dx.doi.org/10.21037/qims.2016.06.03>

A 66-year-old female presented for etiologic diagnosis of a mediastinal mass of 6.5 cm × 5.5 cm. Computed tomography (CT) imaging was consistent with a superior vena cava aneurysm involving the right internal thoracic vein (*Figure 1*). Anticoagulation was initiated in hopes of preventing thrombus formation and pulmonary embolism. Phlebographic study was undertaken to confirm the diagnosis and if feasible attempt endovascular treatment (*Figure 2*). Exclusion of the aneurysm with remodeling technique was achieved. It consisted in embolization of the right internal thoracic vein by coils through the aneurysmal sac followed by uncovered stent deployment in the superior vena cava and coil occlusion of the neck of the sac through stent meshes (*Figures 3,4*). Coil protrusion into the parent vein because of an unfavorable neck-to-sac ratio was then avoided. This approach was preferred to covered stenting of the superior vena cava to preserve the patency of the azygos vein. Superior vena cava aneurysm involving the internal thoracic vein has never been reported as well as its endovascular management. The patient's post-procedural course was uneventful, without flow into the aneurysm cavity (*Figure 5*). Mediastinal vascular anomalies should



Figure 1 Computed tomography (CT) imaging of the chest showing a vascular mediastinal mass consistent with a superior vena cava aneurysm involving the right internal thoracic vein.

always be suspected before an invasive diagnostic approach (1-4). Although very rare, superior vena cava aneurysm should be entertained before planning a CT-guided biopsy of undiagnosed anterior mediastinal masses as the diagnosis



Figure 2 Phlebographic study confirms the diagnosis of superior vena cava aneurysm involving the right internal thoracic vein.

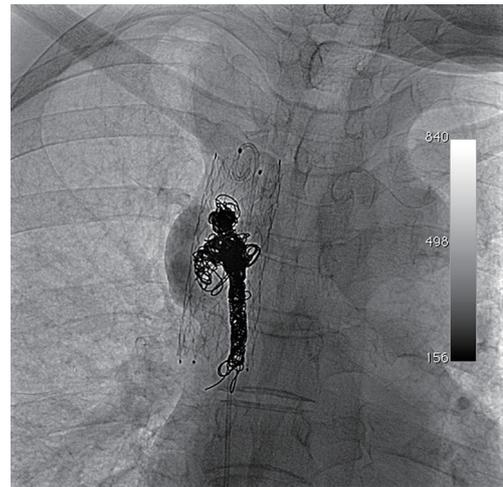


Figure 4 Results after embolization of the aneurysm with remodeling technique. Coil protrusion into the parent vein because of an unfavorable neck-to-sac ratio was avoided.

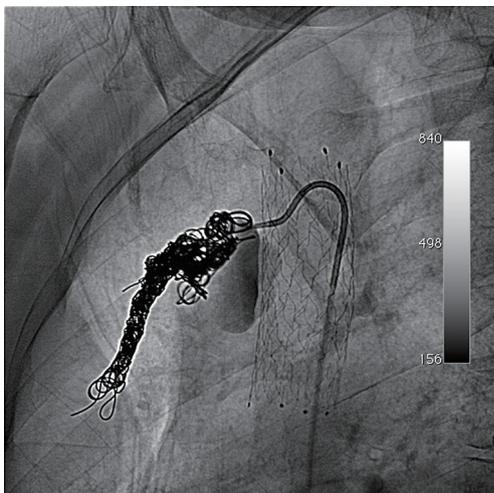


Figure 3 Exclusion of the aneurysm with remodeling technique was achieved, consisting in embolization of the right internal thoracic vein by coils through the aneurysmal sac followed by uncovered stent deployment in the superior vena cava and coil occlusion of the neck of the sac through stent meshes.

is readily established by contrast CT scan of the chest with image acquisition in the venous phase (2-4). Treatment can be attempted to avoid thrombus formation and pulmonary embolism (3).

Acknowledgements

None.



Figure 5 Computed tomography (CT) scan before patient discharge showing complete occlusion of the superior vena cava aneurysm without flow into the aneurysm sac.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Informed Consent: Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

References

1. Modry DL, Hidvegi RS, LaFleche LR. Congenital

- saccular aneurysm of the superior vena cava. *Ann Thorac Surg* 1980;29:258-62.
2. Almassi GH. Internal thoracic vein aneurysm presenting as an anterior mediastinal mass. *J Thorac Cardiovasc Surg* 2006;131:500-1.
 3. Jargiello T, Durakiewicz M, Sojka M, Czekajska-Chehab E, Szczerbo-Trojanowska M. Saccular aneurysm of superior vena cava treated with percutaneous, transcatheter thrombin injection. *Cardiovasc Intervent Radiol* 2014;37:529-32.
 4. Varma PK, Dharan BS, Ramachandran P, Neelakandhan KS. Superior vena caval aneurysm. *Interact Cardiovasc Thorac Surg* 2003;2:331-3.

Cite this article as: Griviau L, Chevallier O, Favelier S, Pottecher P, Gehin S, Loffroy R. Endovascular management of a large aneurysm of the superior vena cava involving internal thoracic vein with remodeling technique. *Quant Imaging Med Surg* 2016;6(3):315-317. doi: 10.21037/qims.2016.06.03