Endovascular Stenting of Benign Superior Vena Cava Syndrome

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Disclosure

I have the following potential conflicts of interest to report:

☐ Consulting

☐ Employment in industry

☐ Stockholder of a healthcare company

☐ Owner of a healthcare company

☐ Other(s)

☒ I do not have any potential conflict of interest
Introduction

Superior Vena Cava Syndrome (SVCS) is an obstruction of blood flow through the Superior Vena Cava (SVC).

Causes - The vast majority is malignant due to neoplastic invasion of the venous wall associated with intravascular thrombosis or by extrinsic pressure.
Introduction

• Benign etiologies may now comprise 40% of cases primarily ¹ due to a rise in use of indwelling central venous catheters.

• SVCS reportedly occurs in 1% to 3% of patients with central venous catheters and in 0.2% to 3.3% of patients with implanted pacemakers.¹,²
**Treatment**

- Patients with benign SVCS are younger, with longer life expectancy and therefore need a durable reconstruction that can be achieved with open surgery repair.

- Along with the widespread increase in endovascular repair in all vascular procedures, this has became the preferred primary method of treatment of benign SVCS.
Case report

• 42 year old woman

• History of Classical Hodgkin Lymphoma in remission.

• 1 year before: placement of a Totally Implantable Venous Access Device through the right jugular vein for chemotherapy
• Referred to the emergency department due to face swelling, upper limb oedema and paresthesia with > 15 days.

• Se was admitted and treated with full anticoagulant therapy.
Work up

PET-Scan
Without evidence of active lymphoproliferative relapse

Doppler Ultrasound
Permeability of Internal and External Jugular veins
Continuous flow
Veno-CT: segmental occlusion of SVC with collateralization through the azygos vein.

Cavo-venography
She did 31 days of full anticoagulation with LMWH without clinical improvement.

So, it was proposed for endovascular treatment.
1) Surgical exposure of TIVAD

2) Explantation of the sub-clavicular port-chamber while maintaining the 8,5F internal jugular vein catheter.

3) 5000U of UFH
4) Catheterization of this catheter lumen with a CTO 0.018 inch hydrophilic guide-wire.

5) Crossed the lesion and removed the TIVAD catheter.

6) Pre-dilatation with plain old balloon (POBA 4, 8, 10,18mm)
7) Deployment of a self-expandable nitinol stent (Sinus XL- Optimed ®18x60mm)
Final antegrade SVC opacification
1st day post-op

Symptomatic relief with the face swelling and hand oedema resolution.

She maintained anticoagulant therapy
Post-operative treatment and Follow-up

Anticoagulant therapy with Rivaroxaban 20 mg od for 1 year.

She did Venous Triplex scan at 24h and 1 week after the procedure and evaluated at 3 and 6 months – without symptoms recurrence.

She has the CT scan scheduled at 1 year of procedure.
Discussion

- Rizvi et al, in 2008, concluded that stenting should be considered first line therapy for SVCS of benign origin.
  - Primary patency rate of 57-79% and primary assisted or secondary rates of 85-100%
  - More re-interventions
  - The OSR is still a good option if endovascular repair fails or is unsuitable.
• In 2016, a study by Breault et al reported the use of percutaneous endovascular techniques to treat benign SVCS with good long-term patency, recurrences easily addressable by repetition of the procedure.
Conclusion

• Percutaneous SVC stenting may be challenging in cases of complete occlusion due to an extensively organized thrombus and venous fibrosis.

• The lumen catheterization of the venous implanted catheter is an efficient and attractive approach.
Conclusion

- The endovascular treatment is appropriate in patients with superior vena cava syndrome of benign etiology with low complications rates and good permeability.
- Optimal duration of anticoagulation after stenting for SVCS due to catheter related-thrombosis it’s not well defined.
Thank you for your attention
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