Acute Superior Vena Cava Syndrome in the Setting of an Intravascular Device

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Superior Vena Cava Syndrome (SVC) syndrome is often associated with a malignancy that causes obstruction of the SVC resulting in decreased venous drainage from the head and neck. It most commonly presents with neck, facial, and upper extremity swelling, dyspnea, or cough. The clinical effects of SVC syndrome range from mild aesthetic disturbances to life-threatening situations and hemodynamic instability. Increased venous pressure and edema may compromise the larynx and pharynx, leading to symptoms of stridor and dysphagia. Furthermore, confusion and coma may result from increased cerebral edema. SVC syndrome is most commonly presenting with neck, facial, and upper extremity swelling, dyspnea, or cough. The clinical effects of SVC syndrome range from mild aesthetic disturbances to life-threatening situations and hemodynamic instability. Increased venous pressure and edema may compromise the larynx and pharynx, leading to symptoms of stridor and dysphagia. Furthermore, confusion and coma may result from increased cerebral edema.

Case Report

A 34-year-old Caucasian female presented with dyspnea and a two-month history of facial swelling and discoloration, exacerbated when bending over. Past medical history was significant for methylenetetrahydrofolate reductase deficiency, history induced SVC syndrome, without the need for stent placement. Percutaneous angioplasty can be used as an adjunct to tPA therapy to accelerate clot dissolution and successfully treat thrombus in SVC syndrome. Stent placement also has its own risks such as: infection, pulmonary emboli, stent migration, hematoma formation, or SVC rupture. In thrombus induced SVC syndrome, thrombolysis prior to stent placement has been shown to be successful, however, it has also shown to increase morbidity therefore making this combined strategy less desirable. Stent placement also has its own risks such as: infection, pulmonary emboli, stent migration, hematoma formation, or SVC rupture. In this case, due to the large extent of clot burden, the patient had a combination of catheter directed tPA and balloon angioplasty. After 62 hrs of tPA, infusion catheter check relieved excellent flow through the SVC therefore not requiring stent placement. Patient’s symptoms significantly and quickly improved with the above treatment.

Discussion

- SVC syndrome is most commonly caused by obstruction of the SVC by invasion or extrinsic compression by malignancies such as non-small cell lung cancer, lymphoma, metastases or thymomas.
- A smaller portion of patients with SVC syndrome have non-malignant causes such as thrombosis, post-radiation fibrosis or an infectious etiology.
- Due to the increasing use of intravascular devices, such as central venous catheters and pacemaker/defibrillator leads, a larger portion of SVC syndromes now occur from benign causes which may account for up to 40% of cases.
- Treatment of SVC syndrome is accomplished by removing or attempting to decrease the size of the mass or thrombus causing the obstruction and is guided by the etiology and severity of symptoms on presentation.
- Options for treatment for SVC syndrome include: thrombolysis, endovascular stenting, balloon angioplasty, venous grafting or mechanical thrombectomy.

Stent placement is a commonly used treatment and has been shown to be successful in both benign and malignant causes of SVC syndrome.

- Due to the increasing use of intravascular devices, a larger portion of SVC syndromes now occur from benign causes.
- Percutaneous angioplasty can be used as an adjunct to tPA therapy to accelerate clot dissolution and successfully treat thrombus induced SVC syndrome, without the need for stent placement.

References: