

# SVC Obstruction Secondary to Indwelling Central Venous Catheter – A Case Report

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## ABSTRACT

SVC obstruction is attributed to intraluminal and extraluminal causes. A 55 year lady, known diabetic was diagnosed with carcinoma left breast. The preoperative PET scan showed FDG avid index lesion with enlarged axillary nodes but none in neck or thorax. In this case, carcinoma breast -associated hyper coagulable state and infection may have promoted thrombus formation rather than the CVAD.

**Keywords:** Central Venous Catheter, SVC Obstruction.

## INTRODUCTION

SVC obstruction is attributed to intraluminal and extraluminal causes.<sup>[1]</sup> Etiology like infections and malignancies (mainly lung carcinoma in 75-80 % cases) is a major cause.<sup>[2]</sup> With growing need for central line catheters, incidence of infection related thrombosis is rising.<sup>[3]</sup>

### Objective

To understand the factors contributing to svc obstruction secondary to indwelling central venous catheter.

## CASE REPORT

A 55 year lady, known diabetic was diagnosed with carcinoma left breast. The preoperative PET scan showed FDG avid index lesion with enlarged axillary nodes but none in neck or thorax. She underwent left modified radical mastectomy with ultrasound guided chemoport placement through right internal jugular vein on 11/05/2017. X ray chest showed catheter tip at upper border of 3rd rib. After 21 days of surgery, she developed fever and pain at operative site .5 ml pus was drained and culture grew staphylococcus aureus which was then treated with culture specific antibiotics. On 30th post

operated day, she presented in emergency with breathlessness, extensive facial edema extending to the chest and bilateral upper limbs. Her vitals were stable but SpO2 was 94%.



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SpO<sub>2</sub> improved to 92% on O<sub>2</sub> of 6 litres. A Doppler ultrasound of the neck showed thrombosis of both internal jugular veins. CT angiogram showed extensive thrombus in bilateral internal jugular vein, left subclavian, left axillary and left innominate vein and superior vena cava. Tracheostomy was done due to respiratory distress. The chemoport was removed. She was shifted to ICU and ventilated. She was started on anticoagulant therapy (heparin infusion). The vascular surgeon advised surgical thrombectomy when there was no improvement but the family refused. The family took voluntary discharge and was lost to follow up.

## DISCUSSION

Despite routine flushing with heparin or saline, 41% of central venous catheters result in thrombosis of the blood vessel, and this markedly increases the risk of infection.<sup>[4]</sup> Almost all central venous catheters are coated with a fibrin sheath within 30 days. The position of the catheter tip is an important risk factor for thrombosis. Tesselaar et al. showed a 2.6-fold higher risk when the catheter was located in the SVC compared with the right atrium.<sup>[5]</sup> The formation, growth, and dissolution of venous thrombosis are determined by several factors (duration of catheterization, physical properties of the catheter, nature of infused fluid). In spite of high thrombotic incidence, symptomatic massive thrombosis causing superior vena cava syndrome is not common.<sup>[6]</sup>

## CONCLUSION

In our centre, 150 central venous catheters were placed under ultrasound guidance, of which 2 patients developed limited thrombosis during chemotherapy and 3 ports had to be explanted due to infection. In this case, carcinoma breast-associated hypercoagulable state and infection may have promoted thrombus formation rather than the CVAD.

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