



## Case Report

# Anaesthetic management of a patient with cortical sinus venous thrombosis on Warfarin therapy posted for emergency dilatation and curettage

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## Abstract

Hypercoagulability, venous stasis and vascular damage are initiating factors for venous thrombosis. Women in reproductive age group are more prone for central sinus venous thrombosis (CSVT) due to pregnancy, puerperium and use of oral contraceptives. Women previously diagnosed with cortical sinus venous thrombosis will have been on oral anticoagulants like Warfarin to prevent further thromboembolic events. Patients on Warfarin posted for emergency surgery, are at high risk of bleeding and requires preoperative stabilization, in order to prevent perioperative hemorrhage.<sup>1</sup> Adequate pre-operative stabilization of a patient on Warfarin undergoing major surgery or minor surgery reduces intraoperative risk of bleeding.

**Case Report:** 31 year old, lady had presented to labor ward with bleeding per vaginam over the 24 hours. She was a known case of sinus venous thrombosis since 2013, on warfarin therapy for the same since. Urine pregnancy test done was positive, and an ultrasound of the abdomen depicted retained products of conception. It was hence decided that she required dilatation and curettage of the uterus for removal of the same. Pre-operatively, her INR was sent for and was found to be on a higher level from control (2.49), and she was transfused six fresh frozen plasma (FFP) prior to the procedure.

**Keywords:** Central venous Sinus thrombosis, dilatation and curettage, Warfarin, fresh frozen plasma.

## Introduction

Hypercoagulability, venous stasis and vascular damage are the initiating factors for venous thrombosis. CSVT is the presence of a thrombus within the dural venous sinuses.<sup>2</sup> Women, over 40 years of age, with a high BMI, who smoke and were sedentary/immobile are more prone to central venous sinus thrombosis. Congenital or acquired thrombophilia, hypertension, congestive heart failure or a malignancy are also risk factors for central venous sinus thrombosis. A hypercoagulable state of pregnancy and puerperium plays a major role in development of central venous sinus thrombosis. Patients present

symptomatically with headache, visual disturbances, vomiting, seizures and weakness in limbs. CSVT can be diagnosed by CT or MRI. Vitamin-K antagonists like warfarin remain the drug of choice for long term therapy. We present here, a case of preoperative stabilization of a 31 year old, lady; who is a known case of cortical sinus venous thrombosis on warfarin therapy for 5 years; scheduled for dilatation and curettage.

## Case Report

A 31 year old, lady had presented to labor ward with bleeding per vaginam since 24 hours. She was a known case of cortical sinus venous

thrombosis since 5 years; on Warfarin 6 mg. Her labs were as follows: Haemoglobin-8.7g/dl, Platelet count- 97000 lakhs/mm<sup>3</sup>, Serum Creatinine-0.63 mg/dl, and her an INR of 2.49. A urine pregnancy test was done which was positive, and an ultrasound of the abdomen depicted retained products of conception. Evaluation of airway was normal. In view of her elevated INR levels, a physician opinion was sought and she was transfused six FFP. Post-transfusion, her INR value was 1.82, and she was taken up for the procedure.

After shifting the patient to the operation theatre, standard monitors were connected, general anesthesia was planned, Inj. Glycopyrrolate and Midazolam was given as a premedication to reduce secretions and anxiety. She was pre-oxygenated with 100% Oxygen for 3 minutes, Inj. Fentanyl (2 mcg/kg) and Inj. Propofol (2mg/kg) were given administered intravenously through an 18G IV cannula (which was secured on her left hand before shifting to operation theatre). She was positioned in lithotomy, and was maintained on an oxygen, nitrous oxide and sevoflurane mixture. The intra-operative period was uneventful. On completion of the procedure, inhalational agent was cut off, and she was re-positioned in supine. Once she was fully conscious, she was shifted to the post-anaesthesia care unit; on 4 litres Oxygen (via aHudson mask); for further monitoring. Inj. Heparin 5000 units was given an hour after the procedure.

### Discussion

Warfarin, a coumarin derivate, acts by inhibiting Vitamin K synthesis in the liver and thereby limiting the coagulation factors that are dependent

on vitamin K, namely factors II,VII,IX,X. Warfarin is available in enteral form, bioavailability of which is 100%. The anti-coagulant effects of warfarin can best be measured through Prothrombin time.

British society for hematology suggests that an INR of 2-2.0 is required for DVT prophylaxis, INR of 2.5-3 for those with a history of pulmonary embolism, atrial fibrillation, dilated cardiomyopathy, mural thrombus and valvular heart disease. INR is targeted to 3.5 for patients with recurrent deep vein thrombosis and pulmonary embolism.

If a minor procedure is planned electively, INR is to be reduced to below 2.5 either by reducing the dose or by stopping the warfarin until the completion of procedure.<sup>3</sup>

For major surgeries Warfarin is stopped 3 days before the surgery and when INR is less than 3.0 Heparin is initiated. Warfarin should be restarted as soon as risk of surgical hemorrhage is passed and Heparin is initiated after the surgical procedure till INR falls within therapeutic range.

The choice to reverse the anticoagulant effect of Warfarin differs in elective and emergency setting.

For an elective case where there is adequate time for optimization, INR is withheld for 4 to 5 days pre-operatively. Anticoagulant with a shorter half-life such as Heparin is initiated as a bridging agent for patients at high risk for thrombosis or a thrombo-embolic event.

In an emergency setting, Warfarin therapy is stopped and the effects of warfarin are reversed with fresh frozen plasma transfusion, prothrombin complex concentrate and recombinant factor VII a.<sup>4</sup>

### Reversal of Anticoagulation<sup>5</sup>

	Time for normalizing INR	Volume
Prothrombin Complex Concentrate	Less than 60 min	Less than 100 ml
Fresh Frozen Plasma	More than 2 hours depending on the rate of transfusion and amount transfused	May need 15 to 20 ml/kg
Factor VII a	Less than 60 min	Less than 100 ml

### Conclusion

Patients on anticoagulation therapy should be reversed of the effects of the same, prior to an elective or emergency surgery in order to prevent major catastrophies such as perioperative hemorrhage. Restarting anticoagulant therapy after surgery prevents thrombo-embolic events and post-operative hemorrhage.

### References

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