



Management of A Case of Multiple Fibroids Uterus with Deep Vein Thrombosis and Pulmonary Embolism

KEYWORDS

Pulmonary Embolism, Deep Vein Thrombosis, IVC filters, anticoagulation, Inferior Venacava, abdominal hysterectomy, multiple fibroids, Guthen Tulip Filter.

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ABSTRACT Management of a case of Dysfunctional Uterine Bleeding due to multiple fibroids for Hysterectomy can be really challenging when the patient has Deep Vein Thrombosis² leading to Pulmonary Embolism.

The incidence ratio of Deep Vein Thrombosis and Pulmonary Embolism increases exponentially with age.

Neuraxial blockade reduces the post-operative morbidity, mortality and other serious complications. Both unfractionated Heparin and Low Molecular Weight Heparin significantly reduce the incidents of Venous Thrombo- Embolism and its associated complications.

When anticoagulation therapy alone cannot help in a bleeding patient, placing a filter in the Inferior Venacava prevents further recurrence of Pulmonary Embolism.

We present an interesting case of a patient who successfully underwent Total Abdominal Hysterectomy after being diagnosed with multiple fibroids, Deep Vein Thrombosis and Pulmonary Embolism.

Introduction:

Pulmonary Embolism can be an immediate or underlying or contributing cause of morbidity and mortality in patients with Deep Vein Thrombosis. It is a real challenge to anesthetize patients with history of Deep Vein Thrombosis and Pulmonary Embolism especially when the patient is on anticoagulant therapy.

The placement of an Inferior Venacava Filter prevents significant Pulmonary Emboli recurrence as a result of Deep Vein Thrombosis.

We report a case of a 52 year old female with multiple fibroids and deep vein thrombosis with Pulmonary Embolism.

She was treated with Anticoagulants and had an Inferior Venacava Filter placed before undergoing an Abdominal Hysterectomy successfully under Combined Spinal Epidural⁴ anesthesia.

Case Report:

A 52 Year old female with history of 2 previous Lower Segment Caesarean Section - [G3P3L3A0] presented to casualty with complaints of breathlessness, right lower limb swelling for 10 days, and profuse bleeding per vaginum for 6 months. She was evaluated thoroughly. She was administered 3 units packed red blood cell transfusion for Dysfunctional Uterine Bleed.

Her Lab Investigations - Haemogram, renal, liver parameters, ECG were normal.

An echocardiogram showed normal Left Ventricle function, Right Atrium and Ventricle mildly dilated. The Mean Pulmonary Artery Pressure was 26mmHg.

The CT Venogram showed Right Ilio Femoral Vein Thrombosis.

The CT Pulmonary Angiography showed Bilateral Lower Lobe Pulmonary Arterial Emboli and Left Upper Lobe Embolism- Figures 1, 2 below.



Figure 1



Figure 2

Diagnosis - CECT Report:

CECT Report proved Deep Vein Thrombosis -

- Non-Occlusive Thrombus of Infra Renal Inferior Venacava and
- Occlusive Thrombus of External Iliac and Common Femoral Vein

on the right side with limb edema.

Management:

On admission, patient received blood transfusion 3 units packed cells for Dysfunctional Uterine Bleeding. Inj. Heparin 5000 units b.d. was started as soon as DVT with pulmonary embolism was diagnosed.

The patient was shifted to vascular surgery department for placement of the Inferior Venacava Filter to prevent further extension and recurrence of Pulmonary Embolism.

Using the USG-guided jugular approach, IVC cannulation was done and deployment sheath placed. The Guthen Tulip Filter was then placed between renal veins.

Inj. Heparin 5000 units qid for 10 days was advised after the procedure.

The patient was then put on Tab. Acitrom 2mg o.d.

INR was maintained around 2 to 3.

Acitrom was stopped 5 days before surgery and as a bridging therapy, Inj. Heparin 5000 Units b.d. was started. She was assessed under high-risk ASA III. Inj. Heparin was stopped on the day of surgery and she received 4 units FFP and 1 packed cell pre-operatively. Her INR was 1.2 on the day of surgery.

Total Abdominal Hysterectomy with Bilateral Salpingo Oophorectomy was done under Combined Spinal Epidural Anaesthesia when her coagulation profile was normal. 0.5% Heavy Bupivacaine 3ml was given intrathecally in the L3-L4 Space after inserting an Epidural catheter in the L1-L2 space.

Inj. Fentanyl 50 µg was given in epidural catheter at the start of the procedure. Duration of surgery was 90 minutes.

The uterus was enlarged 14 to 16 weeks size, there was anterior wall intramural fibroid, large infected fibroid polyp 7x6 cm size. Total Abdominal Hysterectomy was done. Intra-Operative period was uneventful and blood loss was 500 ml.

The patient received Inj. Fentanyl 50 µg t.d.s. with 0.0625 % Bupivacaine through an Epidural catheter for post-operative analgesia.

Low Molecular Weight Heparin (LMWH) Inj. Enoxaparin 40 mg o.d. was started on the first post-operative day, 24 hours after surgery.

The patient was given 1 unit packed cell during the post-operative period and advised to wear elastocrepe compression bandage over her legs.

The Epidural catheter was removed on the second post-operative day and LMWH Inj. Enoxaparin was given 2 hours later⁵.

Inj. Enoxaparin was continued for a week and changed to Tab. Acitrom 2mg before discharge from the hospital.

The post-operative period was uneventful .INR was 2.5 before discharge and the patient was advised to continue Tab. Acitrom 2 mg for 3 months.

Discussion:

Anti-Coagulant Therapy forms the mainstay of treatment in Deep Vein Thrombosis^{1,2} and, established cases of Pulmonary Embolism¹. Inserting an Inferior Venacava Filter prevents further recurrence of pulmonary embolism.

In our case the patient had a definite Deep Vein Thrombosis² with Pulmonary Embolism diagnosed by CT Venogram and CT Pulmonary Angiography³. Other investigations include increased levels of D-dimer which has negative predictive value as it is also elevated in cancer, trauma, inflammation, bleeding and necrosis. Immediate management with Inj. Heparin 5000 units qid definitely reduced the morbidity^{5,7}. Since the patient had multiple fibroids with infected polyp and had profuse vaginal bleeding, it was necessary for the patient to undergo a Total Abdominal Hysterectomy after improving her Hemoglobin to 10 grams with Packed Cell transfusion⁵ and treating Pulmonary Embolism immediately.

Recurrent Pulmonary Emboli^{3,7} was prevented with the insertion of Inferior Venacava filter under local anesthesia by USG-guided trans-jugular approach. After insertion, the patient received Inj. Heparin and Tab. Acitrom. Bridging therapy⁸ is very important when patients on oral anticoagulants get operated.

Bridging Therapy Table⁸:

| | |
|--|--|
| Key: CrCl - creatinine clearance UFH - unfractionated heparin VTE - venous thromboembolism | |
| (A) Low risk: | |
| <ul style="list-style-type: none"> • Target INR 2.0-3.0 <i>unless</i> VTE with: <ul style="list-style-type: none"> • active cancer - intermediate risk • VTE within last 3 months - intermediate risk • VTE within last 6 weeks - high risk: ideally avoid surgery, consider use of temporary IVC filter • non valvular AF target INR 2.0-3.0 <i>unless</i>: <ul style="list-style-type: none"> • TIA/CVA within the last 3 months (ideally avoid surgery) - intermediate risk | |
| (B) Intermediate risk: | |
| <ul style="list-style-type: none"> • DVT/PE target INR 2.0 - 3.0 but VTE 6-12 weeks ago • Valvular AF (even if INR target 2.0 - 3.0) • TIA/CVA within the last 3 months (ideally avoid surgery) | |
| (C) High risk: | |
| <ul style="list-style-type: none"> • VTE within the last 6 weeks - ideally avoid surgery, consider use of temporary IVC filter • Any indication with target INR 3.0 - 4.0, unless mechanical cardiac valves when very high risk | |
| (D) Very high risk: | |
| <ul style="list-style-type: none"> • Mechanical cardiac valves | |

Figure 3

Current ASRA guidelines⁸ recommend INR of 1.4 or less for regional anesthesia.

Perioperative Bridging of Warfarin in Adult Patients Undergoing Elective Surgery

Pre-op ALL patients should take the last dose of warfarin 4 days before the procedure (ie: 4)

| Low risk (A) | Intermediate risk (B) | High risk (C) | Very high risk (D) |
|--|--|--|--|
| Pre-op: No additional anticoagulation required Post-op: Stop prophylactic heparin (UFH) according to patient weight and renal function on day 1-2 and 4-5 after the timing of surgery Post-op: Stop prophylactic heparin (UFH) according to patient weight and renal function on day 1-2 and 4-5 after the timing of surgery Restarting oral anticoagulant: Restart warfarin on day 1-2 after the timing of surgery | Pre-op: Administer prophylactic UFH (according to patient weight and renal function) on day 1-2 and 4-5 after the timing of surgery Post-op: Stop prophylactic heparin (UFH) according to patient weight and renal function on day 1-2 and 4-5 after the timing of surgery Restarting oral anticoagulant: Restart warfarin on day 1-2 after the timing of surgery | Pre-op: Administer prophylactic UFH (according to patient weight and renal function) on day 1-2 and 4-5 after the timing of surgery Post-op: Administer prophylactic UFH (according to patient weight and renal function) on day 1-2 and 4-5 after the timing of surgery Restarting oral anticoagulant: Restart warfarin on day 1-2 after the timing of surgery | Pre-op: Administer prophylactic UFH (according to patient weight and renal function) on day 1-2 and 4-5 after the timing of surgery Post-op: Administer prophylactic UFH (according to patient weight and renal function) on day 1-2 and 4-5 after the timing of surgery Restarting oral anticoagulant: Restart warfarin on day 1-2 after the timing of surgery |

Restarting oral anticoagulant: There is no evidence regarding oral anticoagulant (warfarin) restart timing in the setting of surgery (class I, level of evidence II). Restarting oral anticoagulant (warfarin) should be initiated on day 1-2 after the timing of surgery.

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Figure 4

On the day of surgery, the INR was 1.2 for the patient. This was achieved after pre-operative transfusion of 4 FFP and a red blood packed cell on the day previous to surgery day.

Regional Anaesthesia has lot of advantages because of decreased incidence of respiratory depression, pneumonia, helps in early mobilization, improves blood flow, and provides very good post-operative analgesia. Further, Regional Anesthesia breaks the stress response, and allows the patient to breathe free of pain. All the adverse effects of General Anesthesia are avoided.

The only adverse effect of regional anesthesia is the risk of Spinal Hematoma in patients on Anti-Coagulant therapy. But this is a rare complication with an occurrence of 0.1 per 1 lakh per year.

Inj. Heparin potentiates Anti Thrombin III and inactivates factor Xa, factor IXa and thrombin. There should be a delay of one hour between needle placement and heparin administration. The Epidural Catheter must be removed 1 hour before subsequent heparin administration and 2-4 hours after last dose, APTT must be monitored.

Initiation of LMWH should be delayed 24 hours postoperatively for patients on therapeutic dosages.

Needle or catheter placement should be performed 12 hours after the prophylactic dose of Enoxaparin 1mg/kg or 24 hours after last therapeutic dose of LMWH - Dalteparin 120 u/ kg. or Enoxaparin - 1.5 mg/kg. Anti Xa monitoring is not recommended.

Conclusion:

Deep vein thrombosis with Pulmonary Embolism can be definitely managed and even surgical intervention is definitely possible in patients with history of pulmonary embolism.

Proper monitoring of INR and APTT helps in performing surgery under regional anesthesia thereby reducing morbidity and mortality.

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