SUPERFICIAL THROMBOPHLEBITIS, SUPERFICIAL VEIN THROMBOSIS

OBJECTIVE:
To provide an evidence-based approach to the diagnosis and management of patients presenting with superficial vein thrombosis (SVT).

BACKGROUND:
Superficial thrombophlebitis or superficial vein thrombosis (SVT) results from thrombus formation in a superficial vein with associated inflammation of the vessel wall. SVT is most often observed in the lower extremities with greater saphenous vein (GSV) involvement in 60-80% of affected individuals. SVT is 6-fold more common than venous thromboembolism (VTE) with a yearly incidence rate of 0.64%.

Risk factors for SVT are similar to those for DVT and PE and include active malignancy or cancer therapy, surgery, trauma/injury, immobilization, obesity, estrogen use/pregnancy, a personal or family history of VTE and inherited thrombophilia. In addition, SVT often occurs in the presence of varicose veins (present in up to 80% of SVT patients). At diagnosis, approximately 25% of patients with SVT are found to have concomitant VTE.

DIAGNOSIS:
The diagnosis of SVT is, in general, made clinically, based on the presence of characteristic signs and symptoms including erythema, warmth and tenderness along a palpable cord. Compression ultrasound (CUS) can confirm the presence of SVT and delineate the length of the thrombus and proximity to the saphenofemoral junction (SFJ), where the GSV joins the deep veins. Details regarding these parameters should be sought from the radiologist when not included in the ultrasound report.

Performance of CUS should be considered in patients with clinically diagnosed SVT, particularly those with symptoms above the knee or located close to the popliteal fossa, in those with symptoms suggestive of DVT and in patients with VTE risk factors. Patients with below the knee SVT restricted to a varicose vein without additional VTE risk factors may not require CUS assessment.

TREATMENT OF SVT:
General measures:
• As approximately 4% of patients with SVT will have a concomitant PE, all patients should be assessed for a history of PE symptoms (e.g., dyspnea, pleuritic chest pain, hemoptysis) and investigated accordingly [See Pulmonary Embolism (PE) Guide].

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• Patients with upper extremity SVT associated with vein cannulation or IV catheters should be assessed for signs of infection (fever, purulent discharge at insertion site).

**Approach to treatment**

Once SVT is diagnosed, treatment will depend on whether or not a concomitant DVT is identified and on the extent and most proximal location of the SVT (see Figure 1 for management algorithm). Antibiotic therapy is generally not indicated unless there are signs of infection.

- Patients in whom a concomitant DVT is identified should be managed with therapeutic anticoagulation (see Deep Vein Thrombosis (DVT): Treatment guideline).
- Isolated SVT which extends to within 3 cm of the SFJ is associated with a high risk of progression into the deep venous system. These patients should also receive therapeutic doses of anticoagulation for 3 months (see Deep Vein Thrombosis (DVT): Treatment guideline).
- Isolated SVT ≥5 cm in length located >3 cm from the SFJ should receive prophylactic doses of fondaparinux (2.5 mg subcutaneously per day), rivaroxaban 10 mg po daily or prophylactic/intermediate doses of LMWH (see Table 1) for 45 days. Patients can also receive topical Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and/or compression therapy for symptomatic relief in conjunction with anticoagulation.
- Isolated SVT <5 cm in length located >3 cm from the SFJ can be treated with oral or topical NSAIDs and compresses (warm or cool) for symptomatic relief. In patients with isolated SVT <5 cm in length located >3 cm from the SFJ with severe symptoms or risk factors for extension (prior history of DVT/PE or SVT, cancer, pregnancy, hormonal therapy, recent surgery or trauma) treatment with prophylactic doses of fondaparinux (2.5 mg subcutaneously per day), prophylactic doses of rivaroxaban (10 mg po daily) or prophylactic/intermediate doses of LMWH (see Table 1) for up to 45 days can be considered.
- SVT associated with IV cannulation is not generally treated with anticoagulation. Supportive measures such as warm compresses and topical NSAIDs can be considered for symptom relief.

**Table 1: Treatment Options**

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Suggested dosing</th>
<th>Duration of treatment</th>
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</thead>
<tbody>
<tr>
<td>LMWH</td>
<td>Dalteparin 5,000-10,000 units SC daily</td>
<td>45 days</td>
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<tr>
<td></td>
<td>Enoxaparin 40-80 mg SC daily</td>
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<tr>
<td></td>
<td>Nadroparin 2,850-5,700 units SC daily</td>
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<tr>
<td></td>
<td>Tinzaparin 4,500-10,000 units SC daily</td>
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<tr>
<td>Fondaparinux</td>
<td>2.5 mg SC daily</td>
<td>45 days</td>
</tr>
<tr>
<td>Rivaroxaban</td>
<td>10 mg PO daily</td>
<td>45 days</td>
</tr>
<tr>
<td>Oral NSAIDs</td>
<td>Ibuprofen 400 mg PO TID</td>
<td>7-14 days</td>
</tr>
<tr>
<td></td>
<td>Naproxen 500 mg PO BID</td>
<td></td>
</tr>
<tr>
<td>Topical NSAIDs</td>
<td>Topical diclofenac [Voltaren Emugel®] apply 2 to 4 g to affected area 3 or 4 times daily</td>
<td>7-14 days</td>
</tr>
</tbody>
</table>

**SPECIAL POPULATIONS:**

**Pregnancy**

No randomized studies have assessed the management of SVT during pregnancy. Guideline recommendations differ and include prophylactic or intermediate doses of LMWH for a fixed period...
(1 to 6 weeks) or throughout pregnancy and the postpartum period in pregnant women with SVT that is bilateral, symptomatic, ≤5 cm from the deep venous system or ≥5 cm in length. If no treatment is administered, clinical follow-up and repeat CUS is recommended within 7 to 10 days. Warfarin and DOACs are contraindicated in pregnancy as these medications can cross the placenta (see Pregnancy: Venous Thromboembolism Treatment).

**Pediatrics**
Data regarding the management of SVT in this population are very limited. If possible, pediatric hematologists with experience in thromboembolism should manage children with or at risk for SVT. When this is not possible, a combination of a neonatologist/pediatrician and an adult hematologist, supported by consultation with an experienced pediatric hematologist, should manage these children.

*Prophylactic/intermediate dosing anticoagulation is reasonable for severe symptoms or with risk factors
**If not treating or if using topical NSAIDs, monitor for extension with serial U/S

**Figure 1: Approach to management of SVT.** DVT, deep vein thrombosis; NSAID, non-steroidal anti-inflammatory; LMWH, low molecular weight heparin

**Other relevant Thrombosis Canada clinical guides:**
- Deep vein thrombosis (DVT): Diagnosis
- Deep vein thrombosis (DVT): Treatment
- Pulmonary embolism (PE): Diagnosis
- Pregnancy: Venous Thromboembolism Treatment
- Rivaroxaban (Xarelto®)
- Unfractionated Heparin, Low Molecular Weight Heparin and Fondaparinux
REFERENCES:


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