A Case of Mistaken Identity:

When Deep Vein Thrombosis is not a Thrombosis.

A review By:
Brad Arnold
3-21-2012
Preview

• Article Published in the June issue of the JVU
  – 2 case studies
    • Initially thought to be thrombus
    • Later found to be intravascular tumors
  – The S/S of the patients
  – Presentation upon Duplex ultrasound
  – Whether definitive diagnosis with US is possible
First Patient:

- 72 year old woman
- Presented with Thigh Pain
- No previous History of DVT
- Duplex Ultrasound identified acute thrombus in the proximal GSV projecting into the CFV.

(Hamilton, Omari, 2011)
First Patient: Treatment

- Patient was put on lovenox and coumadin
- Several follow up scans during the following 12 months
  - Revealed no significant reduction in the visualized thrombus.
- At the 3 month follow-up vascularity was noted within the thrombus.

(Hamilton, Omari, 2011)
3 month follow up:

Figure 2

Sagittal color Doppler image demonstrating flow in the LSV.

(Hamilton, Omari, 2011)
3 month Follow up

Figure 1

Spectral Doppler tracing demonstrating low resistant pulsatile flow in the LSV.

(Hamilton, Omari, 2011)
First Patient: 12 month Follow-up

- Patient developed a palpable lump in prox inner thigh.

- Findings:
  - Abnormal Vascularization of the thrombus
  - Presence of a vascular mass extending outside the walls of the GSV.
  - MRI noted a 4x4x7 cm Mass adjacent to the GSV and extending into the GSV and CFV.

- Surgical Resection of the mass, GSV, and regional lymph nodes was performed.

- Histological Diagnosis of Leiomyosarcoma was made. (malignant tumor composed of smooth muscle)

(Hamilton, Omari, 2011)
Second Patient:

- 48 year old man
- Swelling in his right groin
- No previous history of DVT
- Noted a 12 month history of right leg swelling.
- 2 weeks prior a CT scan identified an EIV thrombus and many collaterals.
- Ultrasound showed 2-3cm lesion in distal EIV with evidence of High Velocity, Low resistant flow within the lesion.
- Patient put on lovenox and asked to follow up.

(Hamilton, Omari, 2011)
Figure 4

Sagittal B-mode image demonstrating the lesion within the EIV.

(Hamilton, Omari, 2011)
Second Patient: 3 Month Follow-Up

- After three months on Blood thinners, no change in the size of the lesion was noted.
- MRI showed a soft tissue mass within the EIV lumen.
- After resection, a histological diagnosis of Intravascular Epithelioid Hemangioma was made.

(Hamilton, Omari, 2011)
Recap:

<table>
<thead>
<tr>
<th>S/S</th>
<th>Patient #1</th>
<th>Patient #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain/Swelling</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>History of DVT/VT</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Initial US Findings consistent with Thrombus</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Initial Treatment</td>
<td>Blood Thinners</td>
<td>Blood Thinners</td>
</tr>
<tr>
<td>Follow-up Scans</td>
<td>No change in thrombus size</td>
<td>No Change in thrombus size</td>
</tr>
<tr>
<td>Noted Vascularity</td>
<td>Yes at 3 month F/U</td>
<td>Yes Initial scan</td>
</tr>
</tbody>
</table>

(Hamilton, Omari, 2011)
Tumor vs. Thrombus

• Tumors
  – B-mode appearance ranges from Hypoechoic to Echoic within a vessel lumen.
  – When within the vessel lumen Compression cannot be performed.
  – Vary in size and shape
  – Typically Vascularized with high velocity and low resistant flow.

(Hamilton, Omari, 2011)
Tumor vs. Thrombus

• Thrombus
  – B-mode appearance ranges from anechoic to hyperechoic.
  – When within the vessel lumen complete compression cannot be performed.
  – Varies in size and shape
  – Recently High resolution US imaging has revealed vascularity within acute stages of thrombus.
    • AKA Neovascularization

(Hamilton, Omari, 2011)
Neovascularization

- The formation of Low resistive arterial flow extending from the vasa vasorum within early stages of thrombus.
- Suggested as a process of venous remodeling.
- Typically only lasts for several months
- Spectral Doppler Similar to that of fistula flow.
  - High flow low resistance wave forms.

(Hamilton, Omari, 2011)
(Labropoulos, Bhatti, Amaral, et al., 2005)
Intravascular Tumor

Neovascularization

(Hamilton, Omari, 2011)

(Labropoulos, Bhatti, Amaral, et al., 2005)
Conclusion:

- Although Rare Non Thrombotic Venous obstruction does occur.

- Non Thrombotic obstructions can mimic thrombus on Ultrasonic Imaging.

- Thrombus flow diminishes over time where tumor flow is consistent.

- Upon follow up examination, persistence of flow within the suspected thrombus and/or a lack of degeneration or increase in size would warrant further testing.

(Hamilton, Omari, 2011)


THE END