Classification of Vascular Anomalies – Recent up-date of the ISSVA classification

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Conflicts of interest

Scientific grants:
Siemens, Phillips, ab medica, ev3/covidien/medtronic, itm, Toshiba, Cook, W. L. Gore, Bracco

Lectures:
ev3/covidien/medtronic, Biotronic, St Jude Medical, Abbott, Siemens, ab medica, Boston Scientific, itm Flowmedical, Terumo, W. L. Gore, IGEA

Consulting:
1st WITiG, itm Flowmedical, Siemens, ev3/covidien/medtronic, ab medica
# ISSVA Classification 2014

## Vascular Anomalies

<table>
<thead>
<tr>
<th>Vascular Tumors</th>
<th>Simple</th>
<th>Combined</th>
<th>&quot;Associated with other anomalies&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Benign</td>
<td>Venous M</td>
<td>CVM</td>
<td>Klippel-Trenaunay</td>
</tr>
<tr>
<td>- Locally aggressive / borderline</td>
<td>Lymphatic M</td>
<td>CLM</td>
<td>Parkes-Weber</td>
</tr>
<tr>
<td>- Malignant</td>
<td>Capillary M</td>
<td>CAVM</td>
<td>Sturge-Weber</td>
</tr>
<tr>
<td></td>
<td>AVM</td>
<td>LVM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AV Fistula</td>
<td>CLVM</td>
<td>CLOVES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Proteus etc.</td>
</tr>
</tbody>
</table>

**Last update May 2018, Buenos Aires**

Vascular Anomalies

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</tr>
</tbody>
</table>

One type of vessel

Different involved vessels

+ / - soft tissue / bone
Type V marginal vein (Weber)
Propagation via 0.018 in guidewire in tortous vein, radiofrequency ablation
After occlusion foam scerotherapy via guiding sheath
Warm, painful, pulsating, sweating, itching → AVM
Multiple small feeders directly from ulnar A.
And multiple small feeders directly from arch / radial A.
Direct puncture, Plug & Push, 3 vials of EVOH
Immediately after embolisation: temperature normal, fingers fine
News from the last revision

• More genetically based informations
  • PIK3CA-related overgrowth spectrum
• More histopathologically driven classifications
  Hobnail hemangioma, Microvenular hemangioma, Anastomosing hemangioma
  Glomeruloid hemangioma, Papillary hemangioma, Intravascular papillary
  endothelial hyperplasia, Cutaneous epithelioid angiomatous nodule, etc
• HHT (M. Osler) is found in 3 different categories
  • CM/Teleangiektasia, AVM in HHT, AVF in HHT
• Malformations of major named vessels…..
• Arterial Malformation is lacking until now

Last revision May 2018, ISSVA
Would you take...

the red pill and see the truth

or the blue pill and go back to sleep
VM patient (*2002), MRI 2006
VM patient (*2002), MRI 2019

Massive progress, developed new VM during 13 years

Are vascular malformations inborne developmental tumors?
Vascular Malformations may behave like tumors: apoptosis and proliferation
After the next revision is before the next revision