Polymerizing Agents Can and Do Cure AVMs And Are Now The Agents Of Choice: Ethanol Is Too Dangerous FOR


Walter A. Wohlgemuth
University Clinic and Polyclinic of Radiology
Martin-Luther Universität Halle-Wittenberg, Germany

Typical ethanol case: Not without complications, but is it cured?

Typical EVOH case: cured without complications.

Why do people die when treated with ethanol embolotherapy of vascular anomalies?

- Pulmonary vasospasm or pulmonary embolism?
- 4 patients, three of which died
  - 5 – 12 ml ethanol with outflow compression (3 VM patients)
  - 1 pelvic AVM patient, direct puncture + coils
- Death was caused by multiple small peripheral emboli


Endovascular treatment of peripheral AVM

- According to angio anatomy
  - Type I (AVF), e.g., pulmonary AVM/AVF in HHT
    → Quite simple (Coils, AVP)
  - Type II with dominant venous outflow
    → transvenous + retrograde treatment options
    → Good long-term results when venous outflow occluded
    → EVOH, as adjunct; coils/AVP for flow-modulation
  - Type III, diffuse, net-like “Nebus”, multiple venous drainages
    → Direct puncture, i.e., i.a.
    → Difficult to treat
    → EVOH first line, “finishing” with ethanol
    → MEK1-Inhibitors, PIK3CA pathway modulators (?)
    → Sometimes palliative results regardless of agent
  - Wrong technique worsens situation (PVA, coils etc.)!

Summary

• AVM angioanatomy decides agent
  – Type I (e.g. in HHT): plugs, coils etc.
  – Type II (with DOV): transvenous occlusion EVOH
  – Type III (nidus as network): EVOH, finishing with ethanol may be necessary
• Correct technique in EVOH is mandatory
  – Plug&Push, pressure-cooker: complete filling
• Prospective study ongoing in Halle/Germany