Glue Embolization Surgery for Vascular Malformations: Filling in all the Details

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Disclosures

- I am not a Physician, topics discussed in this presentation is from my perspective and experiences at Seattle Children’s Hospital.

- I do not have any affiliation to any products, equipment or pharmaceuticals discussed in this presentation.

- Some devices are considered OFF label use and may not be FDA approved for pediatric use.
Background
Vascular Malformations

Vascular Anomaly

Vascular Tumor
- Hemangioma
- Other

Vascular Malformation
- Simple
- Combined

Slow-Flow
- Venous Malformation
- Lymphatic Malformation
- Capillary Malformation

High-Flow
- Arteriovenous Malformation
- Arteriovenous Fistula
Vascular Malformations

• Patients are born with these but come to attention when they grow.
• Slow flow made up of disorganized veins
• Treatment Indications
  • Mainly for symptoms related to pain
    • Nerve or articular involvement
  • Some for cosmetic or dysfunctions concerns
• Treatment options:
  • Sclerosing: often transient relief and induces a lot of scar formations making future resection difficult
  • Glue embolization with surgical resection
    • Collaborative effort b/n IR and Ortho, IR and ENT to plan surgical approach.
Set Up
Glue Table

- Glue handling
  - Glue Steward
  - Ion free environment
  - Polycarbonate syringes
  - D5W
Embolic Glue
Embolic Glue
IR Procedure Suite

- Equipment
  - Single plane or Biplane
  - DSA
  - Road map glue setting
  - Cone beam CT capabilities
  - US guidance for access
Case Review
14 year old female active in dance
Presented with an long standing history of left knee swelling and pain initially thought to be due to “juvenile idiopathic arthritis”
  • With no response to anti inflammatory, physical therapy, and steroid injections
MRI performed and identified a Suprapatellar intra-articular left knee VM
Referred to Ortho and IR for GES
Pre Imaging and Access

FAT SAT T2

3D MRI recon

US Guided Access
Digital Subtraction Angiography (DSA)

AP

Lateral

NOT FOR MEDICAL USE
Glue Embo Road Map Visualization

India ink stain

Match Stick
Embolization

- Untouched VMs appear lobular when injected and requires less access.
- Sclerosed VMs have a cob web appearance requiring multiple access.
- Importance of the glue steward.
- Anticipation of glue volume.
- Continuous embolization.
- Filling in ALL THE DETAILS.
- Create a dry surgical bed for resection.
- Additional access.
Embolization

Lateral View

Initial Access

Secondary Access
Final Embolization Images

Pre MRI Recon

Post Embo

Post Embo
Cone Beam CT Recon
Surgical Resection
Surgical Resection
• Overnight stay for pain management, antibiotics, and intra-articular drain management.

• 6 week post op visit the patient reported that her old pre-op knee pain has gone away.

• Patient has full range of motion but continues to work with PT and has been able to return to full activities/dancing.
Questions?

Thank You!

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