SPECTRUM INDIA 2024
MUMBAI VASCULAR FOUNDATION
8TH - 10TH NOVEMBER, 2024 | GRAND HYATT MUMBAI

Registration number: 534

IR **PE**fore fore-front :
Preoperative **E**mbolization Improving Patient Outcomes

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Introduction:

Pre-operative embolization promises a significant improvement in overall patient outcome by reducing intra-op blood loss, improving visualization of surgical field and planes of dissection.

It has been described in brain, head and neck tumours by Duffis and Gandhi et al. as part of society of neurosurgery guidelines[1], several studies have described its use in incracranial AVMs including Brunozzi et al.[2] It has been also described for intracranial meningiomas by Raper et al[3] and even in mediastinal mass by Brown et al.[5] Recently it has been described for musculoskeletal tumours by Kedra et al.[6]

It was first described for head and neck AVM by Zhang C. and Zhang Z. in 1998 who used absolute ethanol and gelfoam as a therapeutic measure.

We describe three patients who were managed with preoperative embolization before difficult surgery in view of high vascularity, or direct large feeders from central vessels. All the three patients had a better plane of dissection at surgery, better visualization at surgery and minimal blood loss. One patient who had inoperable right gluteal AVM was therapeutically treated with glue embolization.

Objective

Highlight the usefulness of preoperative angioembolization in difficult surgery cases where lesion has feeding vessels from vessels that are difficult to reach at the time of surgery.

Methodology

Three patients who visited the department of interventional radiology at Kidwai memorial institute of oncology for angioembolization before surgical excision.

Results:

Pre operative embolization resulted in significant reduction in blood loss, easier surgical dissection and better field of view.

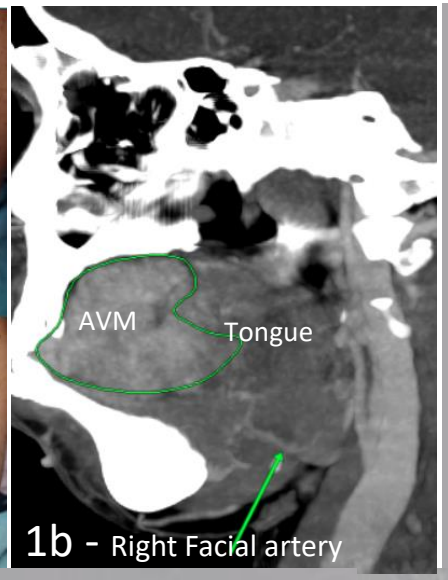
Case 1: Floor of mouth AVM, in words of surgeon “lesion came out like a scoop” with < 50 mL blood loss.

Case 2: Right lumbar AVM, <150 mL blood loss.

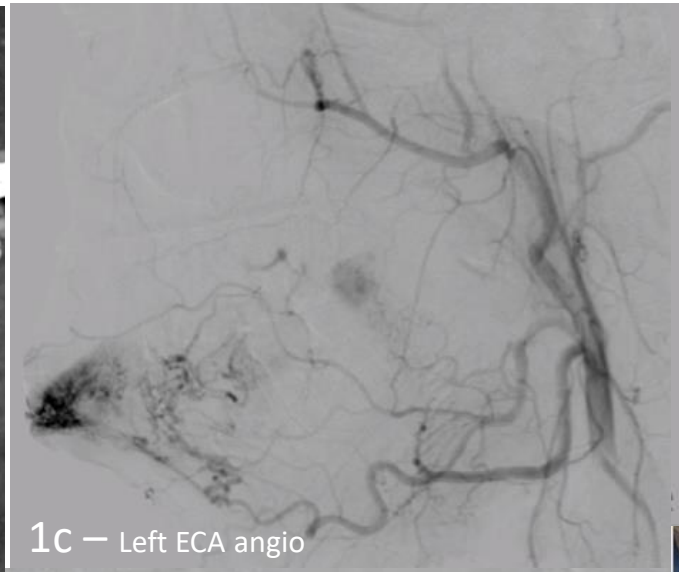
Case 3: Mediastinal mass, <500 mL blood loss.

Case 1: Young female in her mid twenties with history of gradually progressive swelling in floor of mouth since 2 years. Past history of surgery 3 years ago for similar complaints. Severe anemia and depression.

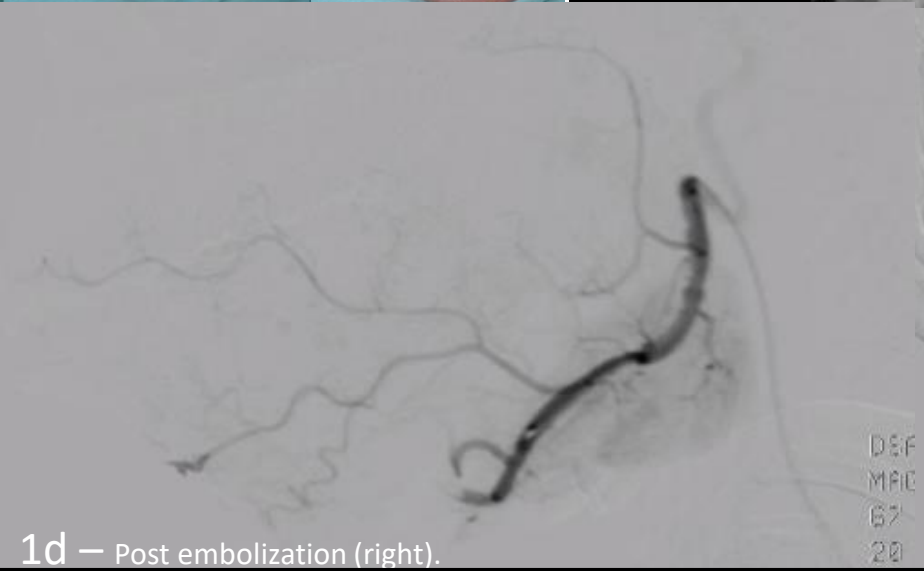

1a



1b - Right Facial artery


1c – Left ECA angio


Superselective catheterization of feeding vessel from facial artery


1d – Post embolization (right).


1e- Post embolization (left)

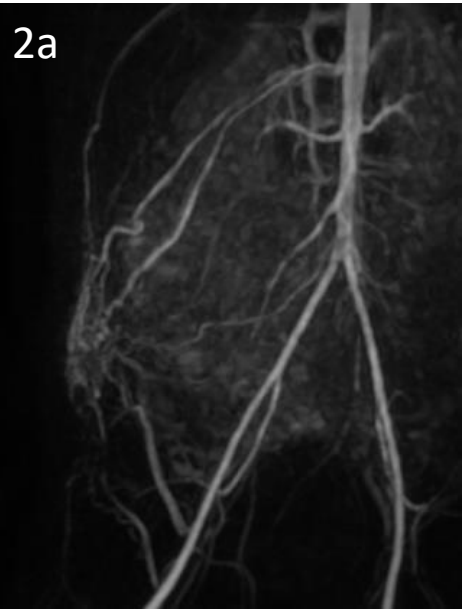

1f

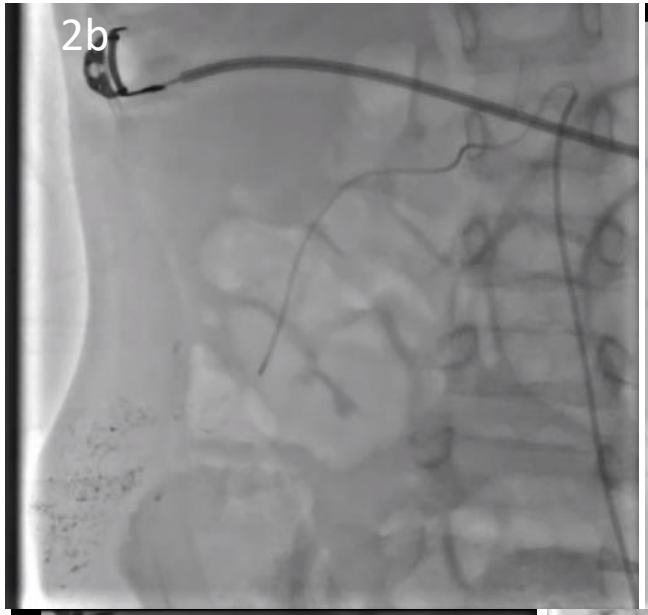

1g

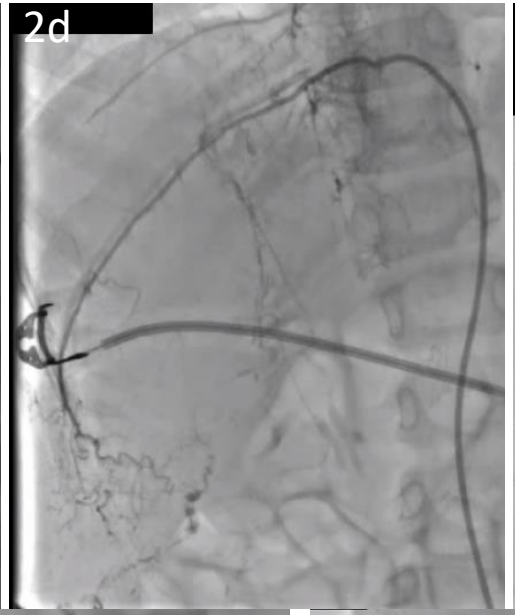
Case 1: AVM in floor of mouth pushing the tongue posteriorly; CECT image showing feeding vessel arising from facial artery on the right and facial+labial artery on the left; post n-butyl cyanoacrylate glue embolization, no significant tumour blush.

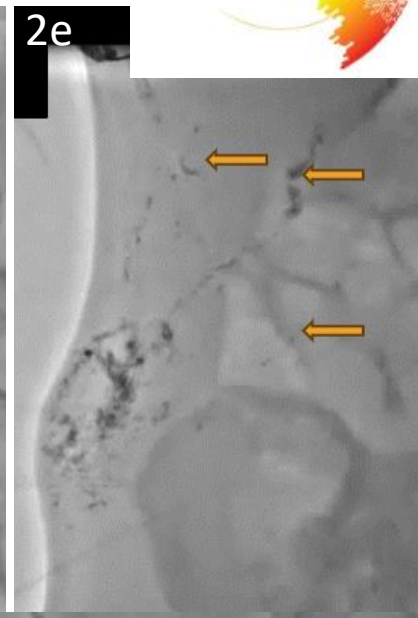
Intra op – lesion was “scooped” out easily with <50 mL blood loss. Post surgery face contour was near normal.

Case 2: 5 year old child with painful right lumbar swelling. Unable to engage in playful activities.

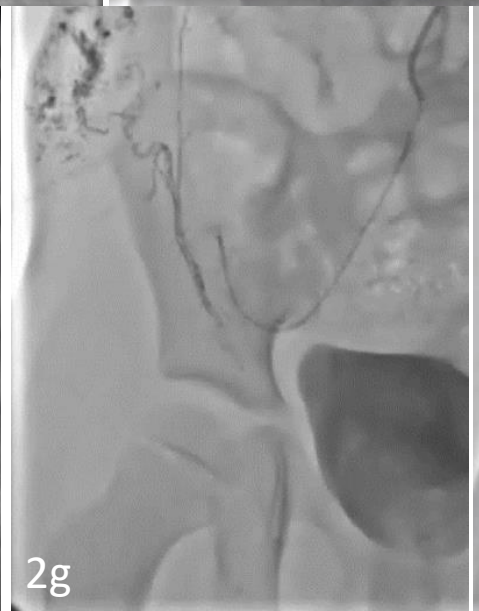


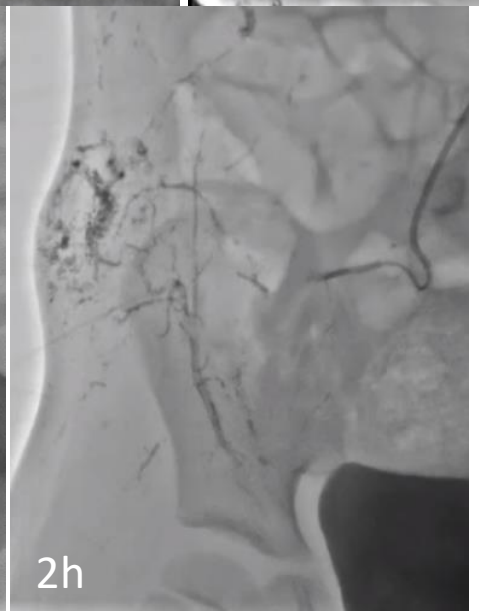


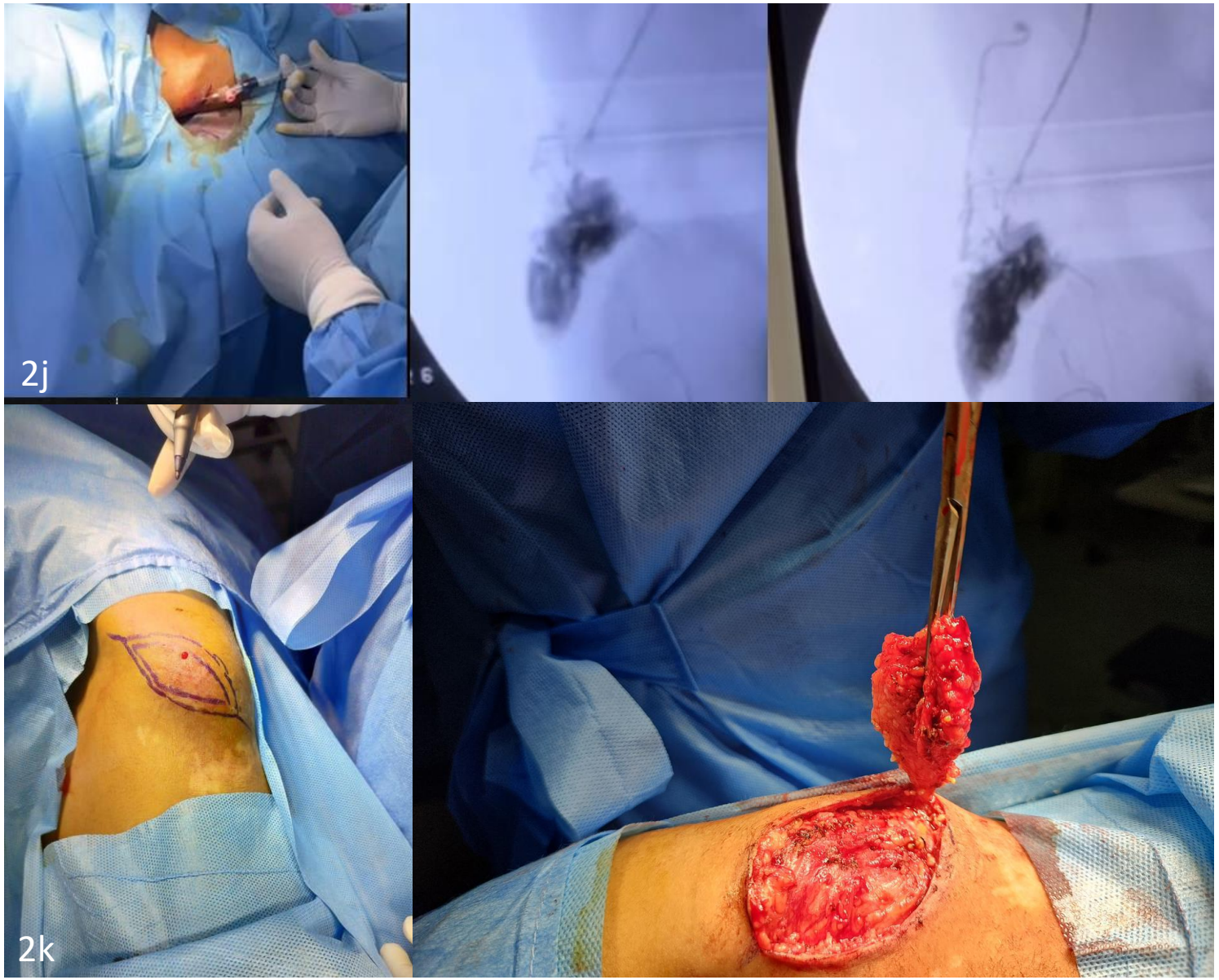




Glue embolization of feeders from right subcostal (2b), right lumbar (2c), right intercostal (2d), right external iliac (2f), internal iliac (2g,2h)



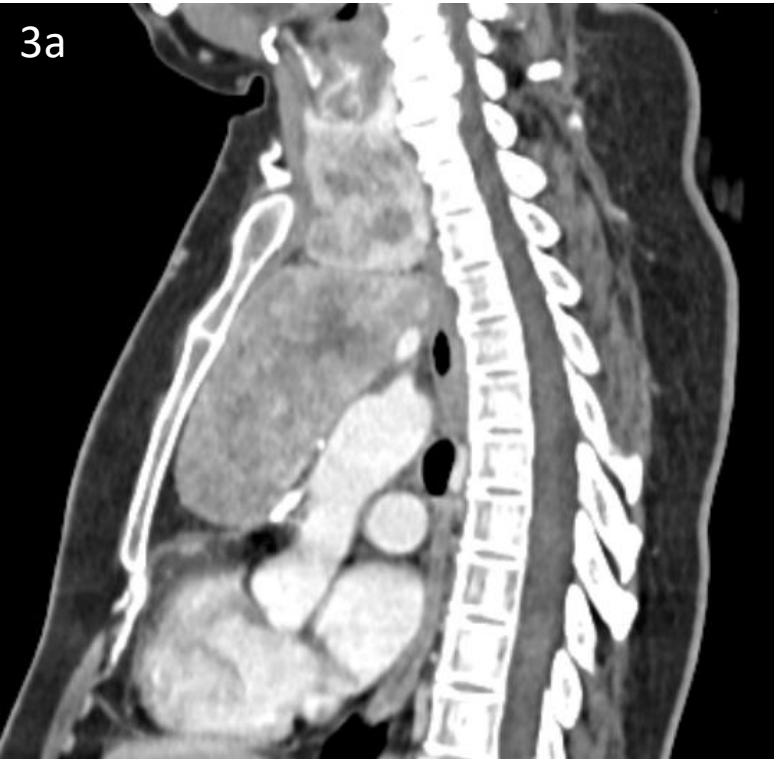


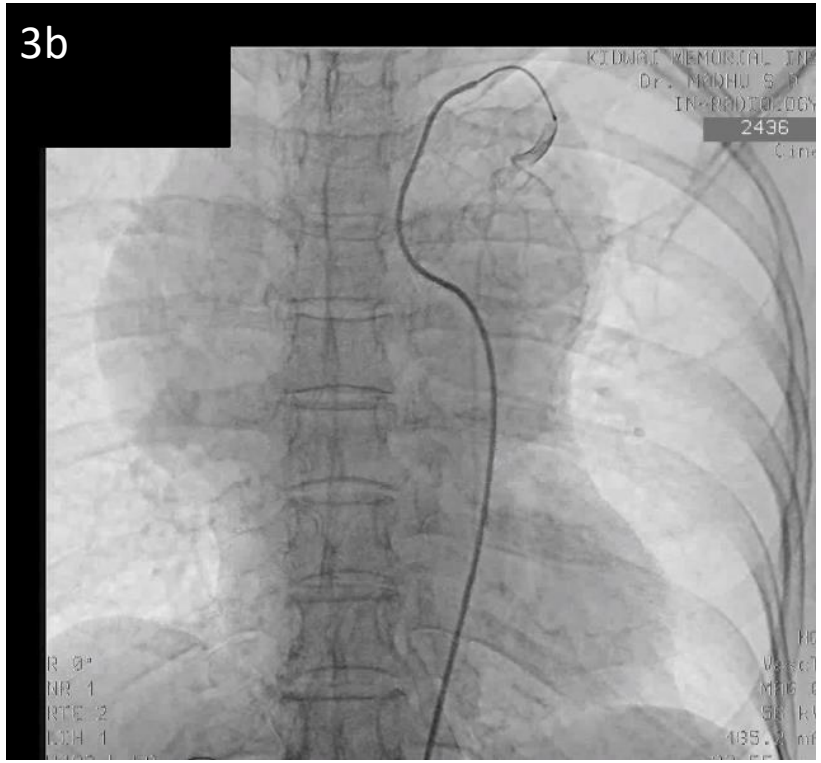


Intra-op pre incision catheterization of superficial vessel and glue embolization.

Intra op blood loss <150 mL.

Case 3: 38 year old female planned for mediastinal mass excision referred for embolization of mediastinal feeding vessels.





Sagittal reformat showing anterior mediastinal mass (3a), one feeding artery identified from left internal mammary artery identified, PVA embolization using mix of different sized particles. Post surgery specimen came out in two pieces. HPE : Thyroid tissue. Blood loss <500 mL.

Conclusion:

Pre operative embolization is a safe and effective procedure in minimizing blood loss, improving bloodless field of view easing surgical dissection and tumour removal. Overall, reducing time required intra-op and overall hospital stay of the patient.

References:

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