



## EXCISION OF VASCULAR MALFORMATIONS: A SURGEON'S INSIGHT

## Surgery

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## ABSTRACT

**Background:** Vascular anomalies encompass a spectrum of lesions arising from aberrations in vascular development. Categorized by the International Society for the Study of Vascular Anomalies (ISSVA) as either vascular tumors or vascular malformations, these anomalies remain a diagnostic and therapeutic challenge. The current study assesses the outcomes of surgical excision of vascular malformations across various anatomical regions. **Methods:** A retrospective study was conducted between June 2022 and June 2024 at a tertiary medical center. Ten patients with symptomatic vascular malformations underwent surgical excision. Preoperative imaging (MRI/CT angiography) was employed for lesion assessment. Postoperative follow-up included evaluation of symptom relief, functional outcomes, and recurrence. **Results:** Patients ranged from 7 months to 78 years (mean: 29.85 years), with a female predominance (8/10). Lesions were localized to the head, neck, and lower limbs. Surgical excision yielded favorable aesthetic and functional outcomes with minimal complications. One patient experienced recurrence at a nearby site after a year, which was successfully re-excised. **Conclusions:** Surgical excision of vascular malformations offers significant symptomatic relief and functional improvement, particularly in well-circumscribed lesions. It remains a safe and effective treatment modality when carefully selected.

## KEYWORDS

## 1. INTRODUCTION

Vascular anomalies are developmental lesions broadly divided into vascular tumors and vascular malformations, as defined by the ISSVA classification system<sup>1</sup>. Vascular tumors, such as infantile hemangiomas, demonstrate increased endothelial proliferation. In contrast, vascular malformations are structural anomalies of blood vessels without endothelial proliferation and are present at birth, though often unnoticed until later<sup>2</sup>. Their management depends on type, flow characteristics, location, and clinical presentation<sup>3</sup>.

## 2. Aims And Objectives

- To evaluate the safety and efficacy of surgical excision for vascular anomalies.
- To assess postoperative outcomes including symptom resolution, functionality, and aesthetic improvement.
- To analyze recurrence and complication rates.
- To identify determinants of surgical approach based on lesion characteristics.

## 3. MATERIALS AND METHODS

**Study Design:** Retrospective observational study

**Study Period:** June 2022 – June 2024

## Inclusion Criteria:

- Age < 80 years
- Symptomatic vascular malformations
- Lesions causing functional impairment

## Exclusion Criteria:

- Asymptomatic lesions
- Lesions treated with minor procedures or non-excisional modalities
- Diffuse/inaccessible/internal lesions

## Patient Evaluation:

Ten patients at Alluri Sitarama Raju Academy of Medical Sciences were selected. Preoperative imaging (MR/CT angiography) evaluated lesion extent and vascular flow. Surgical excision was performed with follow-up assessments over 2 years.

## 4. RESULTS

- **Demographics:** 10 patients (8 females, 2 males), ages 7 months to 78 years.
- **Lesion Sites:** Head and neck (6 cases), lower limbs (4 cases).
- **Symptoms:** Pain, swelling, functional impairment, and cosmetic

concerns.

**Histopathological Findings:** Included arteriovenous malformations, venous hemangiomas, capillary hemangiomas, angiomatous hyperplasia, and venolymphatic malformations.

**Overall Goal Of Management:** Symptom control, cosmetic improvement, and functional recovery.

## Outcomes:

- Significant symptom relief and improved appearance in all patients (especially facial lesions).
- Restoration of near-normal function (muscle-involved lesions).
- One recurrence observed (venous angioma in thigh and residual lesion in knee) a year later which was re-excised with satisfactory outcome.
- No major intra operative or postoperative complications.

## 5. Operative Techniques

- **Superficial Lesions:** Excision with primary closure; grafting or flaps when necessary.
- **Intramuscular Lesions:** Muscle excision followed by rehabilitation and physiotherapy for functional restoration.



Pre and postoperative images of hemangioma over upper lip.



### Residual lesion in knee (with scar of previously excised venous angioma in thigh).



Pre and postoperative images of AV malformation over left ankle.

### 6. DISCUSSION

The ISSVA classification remains the gold standard for categorizing vascular anomalies<sup>1</sup>. Surgical excision has been shown to be effective in appropriately selected cases<sup>4</sup>. Imaging modalities such as MRI and CT angiography are vital for preoperative planning<sup>5</sup>. While sclerotherapy and laser treatments are alternatives, excision offers definitive management for localized, symptomatic, or aesthetically concerning lesions<sup>6</sup>. Recurrence is uncommon when lesions are fully excised but may occur due to residual tissue or involvement of adjacent vascular compartments<sup>7</sup>. Multidisciplinary management, including radiologists and pathologists, is key to optimizing outcomes.

### 7. CONCLUSION

Surgical excision is an effective, safe, and functionally rewarding option for treating vascular malformations. Its success hinges on proper patient selection, preoperative planning, and postoperative care.

### 8. REFERENCES

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