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# AN UNUSUAL PRESENTATION OF PSEUDOANEURYSM OF A BRANCH OF THE TRANSVERSE CERVICAL ARTERY FOLLOWING HAEMODIALYSIS CATHETER REMOVAL: A CASE REPORT

General Surgery

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## ABSTRACT

Pseudoaneurysms of cervical arteries are rare and may present as neck swellings that mimic cystic lesions or lymphadenopathy. We report a case of a 53-year-old male who developed a +pseudoaneurysm of a branch of the transverse cervical artery, likely iatrogenic in origin, following the removal of a temporary haemodialysis catheter from the right internal jugular vein. Clinical examination, imaging, and invasive angiography guided the diagnosis. The lesion was successfully managed surgically. This report emphasizes the need to consider vascular lesions in the differential diagnosis of neck swellings, particularly in patients with prior invasive procedures.

## KEYWORDS

Pseudoaneurysm, Transverse Cervical Artery, Neck Swelling, Haemodialysis Catheter, Iatrogenic Injury, Case Report

## INTRODUCTION

Aneurysms are defined as localized arterial dilatations with ≥50% increase in vessel diameter. In contrast, pseudoaneurysms lack the complete vessel wall structure and are usually formed by fibrous containment of extravasated blood. Pseudoaneurysms commonly involve arteries such as the femoral, aortic, and visceral branches, often following iatrogenic trauma from catheterization or surgery. Cervical artery pseudoaneurysms are rare, and involvement of smaller branches like the transverse cervical artery is exceedingly uncommon, with only isolated reports in the literature. Here we present a case of pseudoaneurysm of a branch of the transverse cervical artery, a rare complication possibly related to a prior internal jugular vein catheterization.

### Case Presentation

A 53-year-old male presented with a progressively enlarging swelling on the right side of the neck for six months, with a sudden increase in size over the past 15 days. The patient had been diagnosed with end-stage renal disease (ESRD) six months earlier, requiring haemodialysis via a temporary catheter placed in the right internal jugular vein (IJV). Following the creation of a left brachiocephalic arteriovenous fistula and subsequent removal of the right IJV catheter, he noted the onset of the neck swelling.

On examination, a large, oval, solitary swelling was noted on the right side of the neck (Figure 1). It was non-tender, cystic, well-defined, and had a bruit on auscultation. Local temperature was elevated.

**Figure 1: Clinical Photograph Showing a Large, Oval, Right-sided Neck Swelling.**

Magnetic resonance (MR) angiography twice ruled out abnormalities in the innominate, subclavian, and cerebral vessels. MR imaging of the neck showed a vascular blush collecting in a cavity between the subclavian and innominate arteries. Invasive digital subtraction angiography via a femoral artery approach revealed no leaks from the major cervical vessels but identified active extravasation from a branch of the transverse cervical artery, a derivative of the thyrocervical trunk (Figure 2).

**Figure 2: Digital Subtraction Angiogram Revealing Leak From a Branch of the Transverse Cervical Artery.**

### Surgical Intervention

A curvilinear incision was made over the swelling. The platysma was separated without dissecting the sternocleidomastoid. On exploration, a cavity with organized hematoma and liquefied clots was identified. A fibrous white shell encapsulating the hematoma was dissected and removed (Figure 3). An active bleeding point (~2 mm) at the base was identified and controlled using 6-0 Prolene suture. Thickened fibrous subcutaneous tissue was excised, and a Romovac drain (No.10) was placed (Figure 4). The skin was approximated.

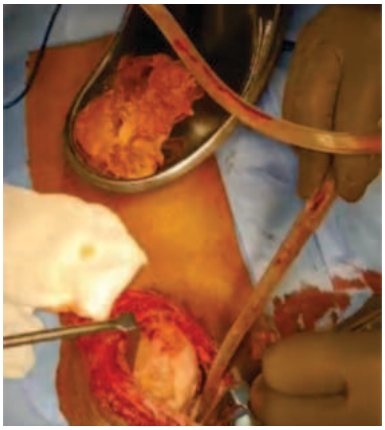

**Figure 3: Intraoperative Image Showing Organized Hematoma and Surrounding Fibrous Capsule.**

**Figure 4: Post- Operative Wound with Romovac Drain Insitu**

**Postoperative Course:**
The patient had an uneventful recovery. No recurrence or complications were noted at follow-up.

## DISCUSSION

Pseudoaneurysms result from a disruption of the arterial wall, with extravasated blood being contained by surrounding fibrous tissue rather than an intact vessel wall. They are most commonly observed in the femoral artery, especially following catheter-based interventions, where they may develop in up to 1% of cases. Other frequently affected arterial sites include the aorta, left ventricular wall (post-myocardial infarction), and visceral arteries. The causes are broadly categorized into iatrogenic (e.g., catheterization, surgery) and non-iatrogenic (e.g., trauma, infection, pancreatitis).

A Concise Comparison of Commonly Reported Arterial Pseudo-aneurysms and their Aetiologies is Provided Below:

| Arterial Site | Common Aetiology |
|---|---|
| Femoral Artery | Iatrogenic (Arterial Puncture For Catheterization), Trauma, Infection |
| Aorta | Blunt/penetrating Trauma, Infection, Atherosclerosis, Post-surgical Anastomosis |
| Cardiac (LV wall) | Post-myocardial Infarction, Mitral Valve Surgery, Endocarditis, Trauma |
| Visceral Arteries | Pancreatitis with Pseudocyst, Endovascular Procedures |
| Internal Jugular Vein | Iatrogenic Injury (Central Line Placement/Removal) |
| External Jugular Vein | Rare; Usually Iatrogenic or Spontaneous |
| Transverse Cervical Artery | Extremely Rare; Reported After Neck Dissection, Trauma, or Catheter-related Injury |

Our case represents a rare pseudoaneurysm involving a branch of the transverse cervical artery, a vessel that is infrequently implicated in aneurysmal pathology. Most reported cervical pseudoaneurysms involve larger vessels such as the carotid or vertebral arteries. Pseudoaneurysms of the transverse cervical artery have been described only in isolated instances, typically following extensive neck dissection or penetrating trauma.

In our patient, the pseudoaneurysm was likely iatrogenic in origin, occurring after the removal of a right internal jugular vein catheter used for temporary haemodialysis access. Given the anatomical proximity of the transverse cervical artery to the jugular sheath, it is plausible that vessel wall injury occurred either during insertion or withdrawal of the catheter. This aligns with known risk factors for iatrogenic pseudoaneurysm formation, including hypertension, use of anticoagulants, multiple puncture attempts, and absence of real-time ultrasound guidance.

Diagnosis was achieved using MR angiography and digital subtraction angiography, which localized the lesion to a branch of the transverse cervical artery. Although endovascular embolization is a standard treatment for deep pseudoaneurysms, surgical exploration and ligation were preferred in this case due to the superficial location and favorable anatomy.

This case emphasizes the importance of including vascular lesions in the differential diagnosis of neck swellings, particularly in patients with a history of central venous catheterization. It also underscores the need for ultrasound-guided access during both insertion and removal of central lines to minimize the risk of vascular injury.

## CONCLUSION

Pseudoaneurysms, while commonly seen in major arteries following interventional procedures, are rarely encountered in small cervical branches such as the transverse cervical artery. This case highlights an unusual presentation of a pseudoaneurysm arising after haemodialysis catheter removal, emphasizing the potential for iatrogenic injury to adjacent arterial structures during central venous access procedures.

A high index of suspicion, appropriate imaging, and timely surgical management are crucial for favourable outcomes. Clinicians must consider pseudoaneurysms in the differential diagnosis of progressive neck swellings, particularly in patients with recent invasive vascular interventions. This case also reinforces the critical role of ultrasound guidance during both insertion and removal of central venous catheters to reduce the risk of such vascular complications.

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