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Case Report

Idiopathic Venous Pseudoaneurysm Confined to the Jugular Vein-A Rare Clinical Entity

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ABSTRACT

Jugular venous pseudoaneurysm represents an exceedingly rare vascular abnormality and may present as an atraumatic neck mass. We report the clinical presentation, imaging findings, operative management under local anesthesia, anticoagulation strategy, and follow-up of a patient with a thrombosed jugular venous pseudoaneurysm after exclusion of common secondary causes. Duplex ultrasonography and CT angiography confirmed the diagnosis and guided surgical planning; complete excision with preservation of venous continuity was performed without perioperative complications, and follow-up duplex at 3 months demonstrated no recurrence.
A jugular venous pseudoaneurysm should be considered in the differential diagnosis of atraumatic neck swelling; management should be individualized based on symptoms, thrombus burden, and imaging findings, with surgery favored for symptomatic or thrombosed lesions.

1. Introduction

Venous pseudoaneurysms are uncommon, and their occurrence in the jugular vein is exceptionally rare. Unlike arterial pseudoaneurysms, venous pseudoaneurysms are infrequently reported in the literature [1, 2, 3, 4]. We present a case of a 39-year-old female with a jugular venous pseudoaneurysm, detailing the clinical presentation, diagnostic workup, and successful management. Most reported cases are associated with trauma, central venous catheterization, or prior neck surgery, whereas spontaneous presentations are distinctly uncommon.

2. Case Report

A 39-year-old female presented to our institution with a chief complaint of swelling **(Figure 1)** and pain on the left side of her neck. The patient denied any history of trauma or recent medical procedures. The mass was initially soft and relatively large; over several weeks, it gradually became firmer and smaller. Physical examination revealed a non-pulsatile and tender mass in the left jugular region **(Figure 1)**. A thorough medical history and imaging studies were performed to characterize the swelling. Baseline laboratory evaluation, including complete blood count, coagulation profile (PT, aPTT, INR), inflammatory markers, and thrombophilia screening, was unremarkable. There was no history or clinical evidence of connective tissue disease, infection, or prior central venous access.

Duplex ultrasonography and contrast-enhanced computed tomography (CT) angiography were conducted to assess the anatomy and hemodynamics of the neck vessels. The imaging studies revealed a jugular venous pseudoaneurysm **(Figure 2)**, characterized by a thrombosed saccular outpouching of the jugular vein wall. The total duration of symptom evolution was 11 weeks. The lesion measured approximately 3 cm in diameter, was non-compressible, and did not increase in size with the Valsalva maneuver. Cranial nerve examination (IX–XII) was normal.

Given the risk of embolization and cosmetic and pain complaints of the patient, surgical intervention was deemed necessary. Although the pseudoaneurysm was predominantly thrombosed, the presence of residual venous flow and friable thrombotic material raised concern for potential embolization. The patient underwent pseudoaneurysm resection and primary vascular repair with local anesthesia. Local anesthesia was achieved with layered infiltration. A total of 20 mL of solution, consisting of 10 mL of 2% prilocaine (200 mg) and 10 mL of 0.5% bupivacaine (50 mg), was administered via layered local infiltration without sedation or epinephrine. Intraoperatively, the pseudoaneurysm was carefully excised **(Figure 3a)**, and the adjacent jugular vein was repaired primarily **(Figure 3b)**. The patient tolerated the procedure well, and postoperative recovery was uneventful. She was discharged home the next day with an oral anticoagulation regimen (apixaban 5mg, twice daily) for at least 3 months. Histopathological examination confirmed the diagnosis of venous pseudoaneurysm, demonstrating disruption of the venous wall architecture with organized thrombus.

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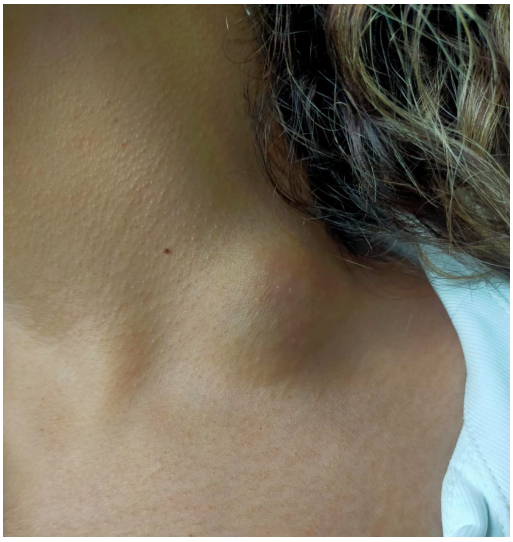

Figure 1: Clinical appearance of the left external jugular vein pseudoaneurysm. Non-pulsatile and tender mass in the left jugular region.

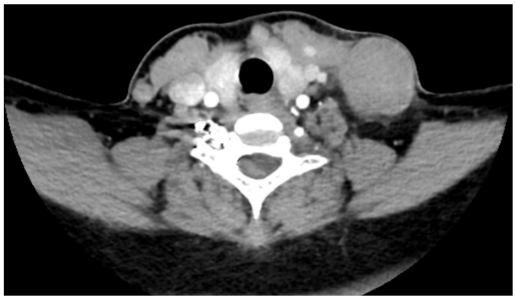

Figure 2: Appearance of the jugular vein pseudoaneurysm by CT angiography. Imaging demonstrated a thrombosed saccular pseudoaneurysm arising from the left external jugular vein, measuring 30 × 20 mm, without arterial communication.

The patient was closely monitored postoperatively for any signs of complications or recurrence. Anticoagulation was initiated due to partial thrombosis and theoretical embolic risk. A minimum duration of three months was selected based on venous thrombotic disease practices and planned reassessment with follow-up duplex imaging. Follow-up duplex ultrasonography confirmed successful repair of the jugular vein, with no evidence of residual pseudoaneurysm or vascular flow compromise. The patient reported resolution of symptoms, and no complications were observed during follow-up. At 3 months of follow-up, the patient reported complete resolution of symptoms and maximum satisfaction with the cosmetic outcome.

Timeline: Symptom onset → imaging at week 6 and 9 → surgery at week 11 → discharge on postoperative day 1 → follow-up at 3 months.

3. Discussion

Jugular venous pseudoaneurysms are exceedingly rare vascular abnormalities. Most reported cervical venous pseudoaneurysms are traumatic or iatrogenic, whereas spontaneous presentations without a clear precipitating factor are distinctly uncommon [1, 2, 3, 4].

The diagnostic workup for venous pseudoaneurysms typically involves imaging studies, with duplex ultrasonography and contrast-enhanced computed tomography (CT) angiography playing pivotal roles in delineating the anatomy and hemodynamics of the lesion [1, 2, 3]. Detailed identification of the pseudoaneurysm with modern radiologic diagnostic modalities, as seen in our patient, aids in confirming the diagnosis.

Venous pseudoaneurysm should be considered in the differential diagnosis of atraumatic neck swelling, and management should be individualized based on clinical and imaging findings [5]. Differential diagnoses, including lymphadenopathy, thyroid nodules, cystic lesions, and soft tissue tumors, were considered and excluded based on clinical presentation and imaging characteristics [6]. In our case, the absence of solid components, lack of arterial enhancement, and venous continuity on duplex and CT angiography allowed the exclusion of lymphadenopathy, thyroid nodules, cystic lesions, and soft-tissue tumors.

Surgical intervention is generally indicated for jugular venous pseudoaneurysms due to the associated risks of thrombosis, embolization, and rupture [7]. The choice of intervention, whether surgical or endovascular, depends on the specific characteristics of the pseudoaneurysm and the patient's overall health [1, 2, 3, 4]. In our case, pseudoaneurysm resection and primary vascular repair were performed to relieve pain and cosmetic concerns, providing a direct and effective approach to the pathology. Conservative management with surveillance can be appropriate for selected asymptomatic, nonthrombotic jugular venous lesions; however, surgical excision is typically preferred in symptomatic, enlarging, or thrombosed cases [8].

The successful outcome in our patient emphasizes the importance of timely and definitive management. The absence of complications during the postoperative period and the resolution of symptoms highlight the efficacy of the chosen interventional approach [1, 2, 3, 4]. However, long-term follow-up remains crucial to monitor for any potential recurrence or late-onset complications.

Despite the successful management of this case, the underlying etiology of jugular venous pseudoaneurysms, particularly in the absence of trauma or iatrogenic factors, remains unclear. Further research is warranted to elucidate the pathophysiological mechanisms contributing to the spontaneous formation of venous pseudoaneurysms [1, 3, 4]. Additionally, the development of standardized diagnostic and therapeutic guidelines for this rare entity can enhance the overall understanding and management of jugular venous pseudoaneurysms.

This represents the only case of jugular venous pseudoaneurysm treated at our institution over the past 10 years. As a single-case report, the findings may not be generalizable, particularly regarding the feasibility of local anesthesia and outpatient management.

4. Conclusions

This case report contributes to the limited body of literature on jugular venous pseudoaneurysms, emphasizing the importance of a comprehensive diagnostic approach and timely surgical intervention. Continued research is essential to enhance our understanding of the etiology, optimal diagnostic strategies, and management approaches for this rare vascular anomaly.

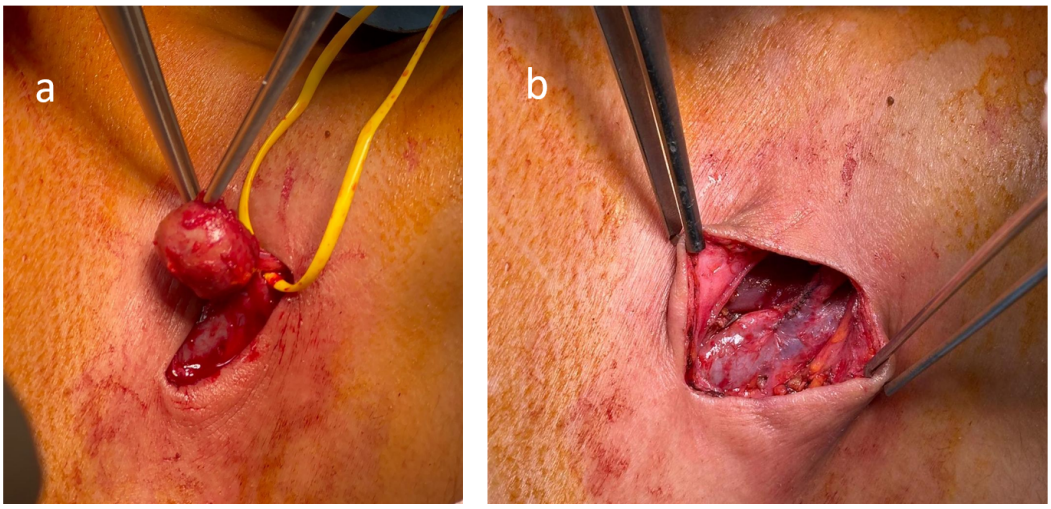

Figure 3: (a) Perioperative view of the pseudoaneurysm; (b) Perioperative view of the jugular vein following pseudoaneurysm resection and primary suture repair of the jugular vein.

Conflicts of Interest

The authors declare no competing interests that could have influenced the objectivity or outcome of this research.

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Informed consent

Written informed consent for publication of clinical details and images was obtained from the patient.

Large Language Model

Generative artificial intelligence (ChatGPT, OpenAI) was used solely for language refinement. The authors reviewed and approved the final manuscript and take full responsibility for its content.

Authors Contribution

DMO, YEA, YO, and MU all contributed substantially to the conception and design of the study, data acquisition, and interpretation of clinical findings. DMO and MU drafted the manuscript. DMO, YEA, YO, and MU critically revised the manuscript for important intellectual content. All authors participated in patient management, approved the final version of the manuscript,

Data Availability

The data supporting the findings of this case report are contained within the article. No new datasets were generated or analyzed. Additional clinical details cannot be shared publicly to protect patient privacy; limited clarifications may be provided by the corresponding author upon reasonable request, subject to institutional and ethical approval.

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