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# Cervical Squamous Cell Carcinoma of Unknown Primary Following an Initial Ultrasound Interpretation of Venous Thrombosis: A Case Report

Ali Raza

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**Abstract**

Background: A persistent hard or fixed neck mass warrants investigative escalation for malignancy even when initial point-of-care or diagnostic imaging suggests a benign vascular explanation. This report describes diagnostic discordance between an initial ultrasound interpretation and subsequent clinical examination findings.

Case Presentation: An 83-year-old male with a history of penile squamous cell carcinoma treated with radiotherapy in 1986 presented with a left posterior-triangle neck swelling in May 2025. Initial ultrasound interpreted an irregular, non-flowing structure as an occluded superficial branch of the external jugular vein with localized edema. Subsequent clinical examination by a primary care physician revealed a hard, fixed mass, prompting urgent referral through a suspected head and neck cancer pathway. Magnetic resonance imaging (MRI) later suggested a prevertebral abscess with an epidural collection extending from C1 to C4. Following targeted ultrasound and core biopsy, p16-positive squamous cell carcinoma was confirmed. Advanced cervical nodal disease (classified as AJCC 8th edition clinical N3) was diagnosed. Neither PET-CT nor diagnostic mucosal panendoscopy was attempted due to subsequent rapid clinical deterioration. The patient transitioned to palliative care and died in November 2025.

Conclusion: Concerning clinical examination findings must supersede reassuring or alternative imaging reports when a mass remains persistent. This case underscores the necessity of combining multimodal clinical diagnostics and maintaining an exhaustive index of suspicion, while balancing diagnostic aggressiveness with patient performance status.

**Keywords:** Neck mass; Squamous cell carcinoma; Unknown primary; Ultrasound; Diagnostic error.

## I. Introduction

A cervical neck mass is a common clinical presentation that requires a structured, multi-step diagnostic workup to exclude head and neck malignancies. Firmness, relative immobility, and tissue fixation are established physical risk features that heavily increase the pre-test probability of malignancy and necessitate prompt cross-sectional imaging and histological evaluation.

In primary care settings, national guidelines universally advocate for immediate referral via dedicated suspected cancer pathways for any persistent, unexplained neck mass. However, clinical dilemmas arise when initial frontline diagnostic imaging yields an alternative benign explanation that stands in direct opposition to physical examination findings. This case report details an educational scenario regarding an older male whose initial cervical ultrasound suggested an acute superficial venous thrombosis, contrasting with a subsequent physical finding of a hard, fixed mass. The focus of this report is to analyze the critical management choices required when clinical examination and diagnostic imaging findings become deeply discordant.

## II. Case Presentation

In May 2025, an 83-year-old male presented with a palpable, visible, and slowly enlarging swelling located within the left posterior triangle of the neck. His past medical history was notable for a cutaneous penile squamous cell carcinoma (SCC) diagnosed and treated definitively with local radiotherapy in 1986.

A baseline diagnostic cervical ultrasound was performed to characterize the swelling. The sonographic evaluation identified an irregular structure corresponding directly to the palpable mass. The structure demonstrated internal echoes, but color Doppler interrogation revealed no demonstrable blood flow. The reporting radiologist interpreted these findings as most consistent with an acute thrombosed superficial vein, likely a tributary of the left external jugular vein, accompanied by localized soft-tissue edema. The major salivary glands and visualised cervical lymph nodes were noted as morphologically normal, and no sonographic features of malignancy were described.

Upon subsequent physical re-evaluation by the primary care physician, the left neck mass was found to be distinctly hard and fixed to the

underlying deep tissues. Because these highly concerning physical findings were entirely unexplained by an acute superficial venous thrombosis, the clinician bypassed the initial sonographic interpretation and initiated an urgent referral through the suspected head and neck cancer pathway. The patient was rapidly taken over by a specialist Head and Neck multidisciplinary service due to a combination of the fixed neck mass and worsening, persistent left-sided cervical pain.

Staging investigations commenced with a contrast-enhanced magnetic resonance imaging (MRI) scan of the neck. The MRI raised acute diagnostic concerns, showing features suggestive of a prevertebral abscess accompanied by a small epidural collection extending from the C1 to C4 vertebral levels. The patient was referred for urgent spinal stability assessment, and an ultrasound-guided drainage procedure was successfully arranged.

During the same interventions, a targeted repeat ultrasound and core needle biopsy of the solid elements of the left neck lesion were performed. Histopathological and immunohistochemical analysis of the core biopsy specimen demonstrated nests of poorly differentiated squamous cell carcinoma that exhibited strong, diffuse p16 positivity.

A definitive primary mucosal or cutaneous tumor site could not be localized. Due to rapid systemic deterioration, severe local pain, and a dropping performance status, advanced diagnostic staging maneuvers—specifically an 18F-FDG PET-CT scan and a comprehensive diagnostic mucosal panendoscopy (including direct laryngoscopy and tonsillectomy)—were deemed inappropriate and were not attempted. The final specialist oncology diagnosis was advanced p16-positive squamous cell carcinoma of an unknown primary, presenting as advanced left cervical nodal disease, staged clinically as N3 according to the American Joint Committee on Cancer (AJCC) 8th edition criteria.

The patient was evaluated by radiation oncology for potential palliative radiotherapy. However, his clinical status degraded rapidly, characterized by intractable locoregional pain and systemic frailty. The patient was transitioned entirely to a specialized palliative care team for supportive optimization. He continued to decline and died in November 2025.

## III. Discussion

The primary clinical teaching point highlighted by this case is the distinct mismatch between an objective physical finding (a hard, fixed malignant-type mass) and an initial diagnostic imaging interpretation (superficial venous thrombosis). Frontline clinicians must allow suspicious physical examination features to dictate management pathways even in the face of reassuring or alternative imaging reports. The American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) clinical practice guidelines dictate that any adult presenting with a neck mass that is fixed or firm warrants immediate cross-sectional imaging (CT or MRI) and tissue sampling. Bypassing the initial ultrasound report in this case was the correct clinical decision, enabling the discovery of advanced malignancy that otherwise would have suffered prolonged diagnostic neglect.

The mechanical origin of the initial sonographic misinterpretation remains speculative. It is impossible to definitively determine if the first ultrasound sampled an adjacent, co-existing thrombosed vessel, or if the primary neoplastic mass was obscured by regional inflammatory edema and architectural distortion. Furthermore, the subsequent discovery of a prevertebral collection on MRI introduced massive diagnostic complexity, mimicking an infectious etiology and momentarily distracting from the underlying neoplastic process.

From a diagnostic optimization perspective, establishing a true diagnosis of "Squamous Cell Carcinoma of Unknown Primary" requires exhaustive attempts to locate an occult mucosal primary. Standard modern workups dictate the utilization of an 18F-FDG PET-CT scan and functional panendoscopy with targeted palatine and lingual tonsillectomies. In this clinical scenario, these interventions were explicitly not attempted. This clinical decision represents a pragmatic pivot; when a terminal patient exhibits rapid functional decline and severe pain, aggressive diagnostic maneuvers that will not alter the therapeutic trajectory or survival metrics should be deferred in favor of comfort-directed care.

The tumor's strong immunohistochemical expression of p16 serves as a surrogate marker for Human Papillomavirus (HPV) mediation. According to the College of American Pathologists (CAP) guidelines, while p16 positivity strongly implies an oropharyngeal mucosal origin, it cannot be used in isolation to assign a primary site. Additionally, given the extreme 39-year latency period, the patient's remote history of radiotherapy-treated penile SCC must be viewed as an independent historical event rather than evidence of late systemic metastasis. Ultimately, this case serves as an important reminder to balance standardized diagnostic guidelines against personalized clinical performance statuses in advanced oncology.

## IV. Conclusion

A persistent, hard, or fixed cervical neck mass requires absolute clinical priority and tissue diagnosis, irrespective of alternative baseline imaging explanations. Diagnostic modalities must be synthesized together with physical findings. When advanced staging tools like PET-CT or panendoscopy cannot be attempted due to a patient's rapid clinical deterioration, care paradigms must seamlessly pivot from aggressive diagnostic pursuit to structured palliative optimization.

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