Abstract: We report the case of a 66-year-old man with a cervical neck mass located behind the left sternocleidomastoid muscle. To exclude malignancy, a full workup, including clinical, radiological, and cytological examination, was performed but failed to provide a definitive diagnosis. Histological analysis following excisional biopsy revealed a benign epithelial cyst, consistent with an atypically located branchial cyst. We describe an approach to the management of these neck masses and discuss several theories of the etiology of branchial cysts and how they may come to be abnormally located.
Case Report

Epithelial Cyst in the Posterior Triangle of the Neck: Atypical Branchial Cyst or Cystic Lymph Node Metastasis?

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We report the case of a 66-year-old man with a cervical neck mass located behind the left sternocleidomastoid muscle. To exclude malignancy, a full workup, including clinical, radiological, and cytological examination, was performed but failed to provide a definitive diagnosis. Histological analysis following excisional biopsy revealed a benign epithelial cyst, consistent with an atypically located branchial cyst. We describe an approach to the management of these neck masses and discuss several theories of the etiology of branchial cysts and how they may come to be abnormally located.

1. Case Presentation

A 66-year-old man was referred to our department with a 2-day history of a painless left cervical neck mass. He denied any other symptoms and reported that he only occasionally drank alcohol and had stopped smoking some 30 years ago with a total of 10 pack years. Clinical examination revealed a well-defined, painless neck lump, posterior to the sternocleidomastoid muscle close to the mastoid. The lump was some 5 centimeters in size, roughly oval, and not fixed to adjacent structures. There were no surrounding skin changes or other associated findings. Intraoral examination and transnasal fiber-endoscopy were normal. Cervical ultrasound showed an irregularly walled mass, 5 cm in diameter, with hyperechogenic reflections in an echo-poor center. The other neck structures were sonographically normal. Magnetic resonance imaging (MRI) showed a cystic lesion with an irregular wall lateral and posterior to the sternocleidomastoid muscle (neck level five; see Figures 1 and 2). Repeated fine-needle aspiration cytology (FNAC) revealed squamous epithelial cells without signs of malignancy, consistent with a branchial cleft cyst. However, given the patient’s age and the atypical localization, the differential diagnosis included a metastasis of a well-differentiated squamous cell carcinoma (SCC). We therefore recommended the patient to undergo panendoscopy and extirpation of the mass with intraoperative frozen section analysis of the specimen. The patient agreed with neck dissection in case of malignancy. Panendoscopy revealed no extra findings, and both intraoperative frozen section and definitive histology of the excisional biopsy confirmed a branchial cleft cyst. The patient recovered well after surgery and was discharged from follow up 12 months later.

2. Discussion

In patients older than 40 years, especially with risk factors for malignant disease, it is prudent to consider all cystic lesions of the neck as malignant until proven otherwise. In patients younger than 40 years, clinicians should be aware of a metastasis of a papillary thyroid carcinoma [1]. After a careful history and thorough clinical examination further investigations should include ultrasonography of the neck including FNAC and 3-dimensional imaging either with computed tomography (CT) or MRI. Ultrasound-guided FNAC is often diagnostic but its sensitivity drops from >95%
The aetiology of benign cervical cysts is also unclear. The most popular, but still controversial, theory is the branchial apparatus theory first described by Von Ascherson in 1832. If FNAC fails to provide a definitive diagnosis, we recommend further diagnostic steps including panendoscopy of the upper aerodigestive tract and excision of the cyst with intraoperative frozen section.

In terms of malignant lesions, squamous cell carcinoma (SCC) of Waldeyer’s ring (e.g., palatine and lingual tonsils) and papillary thyroid cancers have a predilection for cystic lymph node metastases [2, 8, 9]. However, the exact mechanism for the development of cystic lymph node metastases is unclear. Tumor necrosis forming a pseudocyst has been found as well as true cystic cavities lined by neoplastic epithelium. Indeed, the expression of cytokeratin 7 has led some to hypothesize that a subset of SCC of Waldeyer’s ring might originate from excretory ducts of minor salivary glands and therefore show the tendency to form cystic lesions [10].

3. Conclusion

The diagnosis of a branchial cyst should—especially in patients older than 40 years—only be considered once malignancy has been excluded and should not be discounted because of an atypical location. Whilst in older patients metastatic SCC is more likely, in younger patients metastatic papillary thyroid cancer should be considered. Several theories exist as to the aetiology of branchial cyst formation, and some, such as the inclusion theory, are better able to explain abnormal locations.

Conflict of Interests

The authors declare no conflict of interests.
References


