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Unusually rapid development of a lateral neck mass: Diagnosis and treatment of a branchial cleft cyst. A case report

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ABSTRACT

INTRODUCTION: Branchial cleft cysts are benign lesions caused by anomalous development of the branchial cleft. Cases that arise in the lateral neck region are often misdiagnosed, resulting initially in inappropriate management.
CASE PRESENTATION: We describe a 32-year-old woman with a swelling on the right side of her neck and no pain during palpation or neck motion.
DISCUSSION: The patient was evaluated using fine-needle aspiration cytology (FNAC), ultrasound, and magnetic resonance imaging (MRI) scans. The MRI showed a right-sided cervical mass with hyperintense content, well-defined margins, and no evidence of infiltration into surrounding structures, while FNAC found a yellow, pus-like fluid, keratinised anuclear cells, squamous epithelium, and a matrix of amorphous debris.
CONCLUSION: Based on the images and the patient's symptoms, a surgical intervention was performed.

1. Introduction

Branchial anomalies are uncommon, benign lesions that result from altered development of the branchial apparatus during embryogenesis, between the second and seventh weeks of foetal life. Persistence of branchial remnants can lead to the development of cysts, sinuses, fistulas, and islands of cartilage [1]. Anomalies of the second branchial cleft are the most common cause of neck masses of this type, accounting for ~90% of all cases [2].

To date, various cases originating in the lateral neck region have been reported. However, none was of the size of this case or showed rapid development. In 1955, Proctor [3] described four classes of branchial cleft cyst, revising the first classification of Baley (1929):

- type I: deep to the **platysma**, anterior to the sternocleidomastoid (SCM).
- type II: abutting the **internal carotid artery and adherent to the internal jugular vein (most common).**
- type III: **extending between the internal and external carotid arteries**
- type IV: **abutting the pharyngeal wall and potentially extending superiorly to the skull base.**

Here, we report a case, with a particular focus on the histopathological, radiological, and clinical aspects.

2. Case report

A 32-year-old woman was referred to the outpatient unit of the Maxillo-Facial Surgery Department, with a right-sided neck swelling of 15 days duration, no limitation on mouth opening, and no pain aggravated by palpation of the region. There was no history of trauma or any other event contributing to the onset of the symptoms.

A physical examination did not reveal nerve paralysis, or hearing, facial, or neck sensation disturbances, but a mobile, not tender but compressible mass was detected in the right neck region with normal skin overlying the swelling (Fig. 1). There was no dysphagia, dysphonia, or dyspnoea.

Ultrasound, which is the first-line imaging method of choice for defining the nature of a benign cystic lesion, revealed a mass of about 7 × 4 cm, a sharply demarcated lesion with posterior acoustic enhancement associated with imperceptible walls; the cyst was hypoechoic with internal debris. The cervical lymph nodes were not pathologic. The relation between the mass and the vascular

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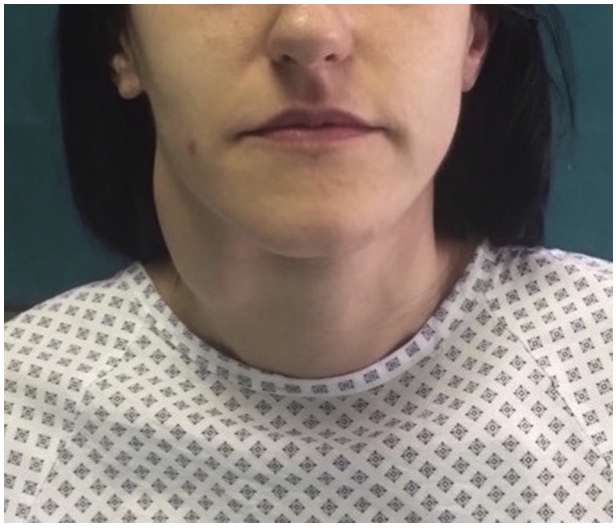

Fig. 1. Clinical view of the patient.

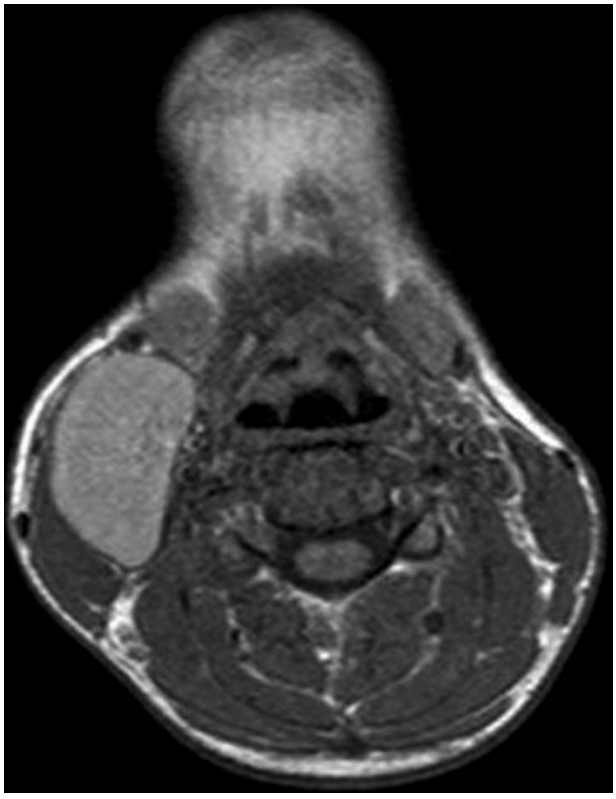

Fig. 2. Magnetic resonance imaging coronal and axial views of the lesion.

bundle was not clear. To plan the surgical procedure, magnetic resonance imaging (MRI) was performed. This revealed a cystic lesion, the content of which was hyperintense in T2-weighted sequences and mildly hyperintense in T1-weighted sequences. The lesion appeared extrinsic to the SCM and showed no sign of infiltrating nearby structures (Fig. 2). The mass caused posterior displacement of the SCM and pressure on the vascular bundle, compressing it. Fine-needle aspiration cytology (FNAC) was performed, revealing a pus-like fluid, with keratinised anuclear cells, squamous epithelium, and a matrix of amorphous debris. Because ultrasound, MRI imaging and FNAC all indicated a benign lesion, no exploratory biopsy was performed.

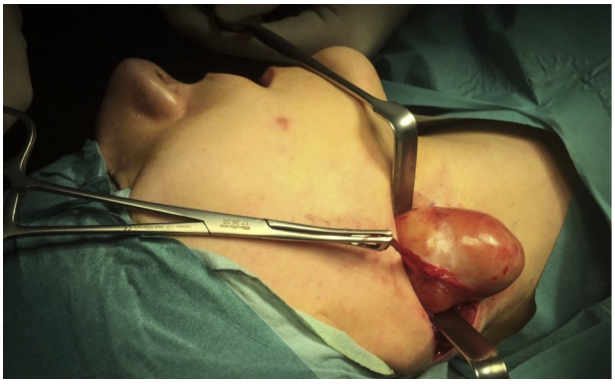

Fig. 3. Intraoperative view of the cervical approach during removal of the lesion.

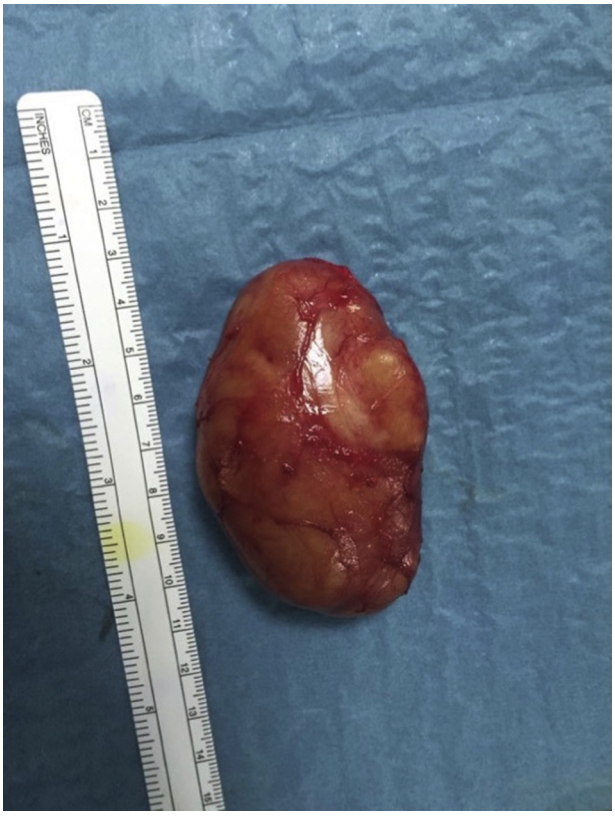

Fig. 4. Macroscopic image of the lesion.

A surgical intervention was performed under general anaesthesia using a right transverse cervical approach. Incision was followed by exposure of the platysma with careful dissection of the surrounding structures (Fig. 3). The lesion was removed completely.

Macroscopically, the specimen showed an oval form of 7 × 4 cm (Fig. 4). When cut, the lesion was found to contain a brownish, creamy material and have smooth inner walls. Microscopy showed that the lesion had a cyst wall with a stroma of the lymphoid type, covered by squamous epithelium without atypia (Fig. 5a–f). These histopathological findings resulted in a diagnosis of a branchial cyst and, due to its position, we deemed it a second-class cyst. The follow-up period is currently 18 months.

3. Discussion

A branchial cleft cyst is a common cause of soft tissue swelling in the neck of a young adult; it generally occurs unilaterally and