Clinical Case Report

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Atheroma of the facial artery mimicking a parotid gland tumor

A case report

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Abstract

Introduction: Atheroma of the facial artery is an extremely rare disease.

Clinical Findings/Patient Concerns: Herein, we report an extremely rare case of an atheroma arising from the facial artery, mimicking a parotid gland tumor.

Diagnoses: The preoperative diagnosis was a right-sided parotid gland tumor.

Interventions: We performed removal of the right parotid gland tumor, via a modified face-lift incision.

Outcomes: Histological examination of the specimen revealed an atheroma of the facial artery.

Conclusion: Clinicians should consider atheroma in the differential diagnosis of tumors arising around the parotid gland.

Abbreviations: CT = Computed tomography, CVA = cerebrovascular accident.

Keywords: atheroma, facial artery, parotid gland

1. Introduction

Atheroma with calcification usually occurs from an atherosclerotic plaque.[1] In the head and neck region, an atheroma can occur either in the common carotid artery at the bifurcation of the internal carotid artery and the external carotid artery or in their branches.[1] There have been few reports of an atheroma associated with calcification mimicking tumors[2–5]; however, to the best of our knowledge, this is the first report of an atheroma mimicking a parotid gland tumor. Herein, we report an extremely rare case of an atheroma arising from the facial artery, mimicking a parotid gland tumor.

2. Case report

A 43-year-old female presented with a complaint of a right infra-auricular mass of 3 years' duration. The patient's medical and familial history was unremarkable. She was not getting alcohol and tobacco. All admission laboratory tests were within normal limits. She denied any fever, chills, pain, or tenderness. Upon physical examination, a firm, 2.0 cm sized mass was palpated in the right parotid space. Neck computed tomography (CT) scans demonstrated a 2.1 cm sized well-defined, poorly enhancing mass with calcification in the right parotid space, without invasion of the adjacent structures (Fig. 1). Ultrasound-guided fine needle aspiration cytology of the right parotid mass was performed several times; however, an adequate cell harvest was not obtained because of the hardness of the mass.

On the basis of these observations, the preoperative diagnosis was a right-sided parotid gland tumor in the parotid tail or accessory parotid gland. We performed removal of the right parotid gland tumor, via a modified face-lift incision under general anesthesia. After making an incision, intraoperative exploration revealed a hard, black colored tumor underneath the facial nerve branch in front of the parotid gland (Fig. 2). Operation revealed that the mass originated from the facial artery. After ligation of the facial artery, the mass was completely excised without causing facial nerve damage. Histological examination of the specimen revealed an atheroma with calcification (Fig. 3). The postoperative course was uneventful. At the last follow-up, there has been no recurrence, and the patient remains asymptomatic. This study was approved by the institutional review board of the Chonnam National University Hwansun Hospital. Informed consent was given by the patient.

3. Discussion

Cardiovascular disease caused 14 million deaths per year in the world.[6] At least 20% of ischemic strokes are thromboembolism from an atherosclerotic plaque at the carotid bifurcation or internal carotid artery.[6] Some authors suggested that atheroma is a neoplasm, consisting of smooth muscle cells derived from the tunica media of an artery.[1,5] Similar signaling proteins and

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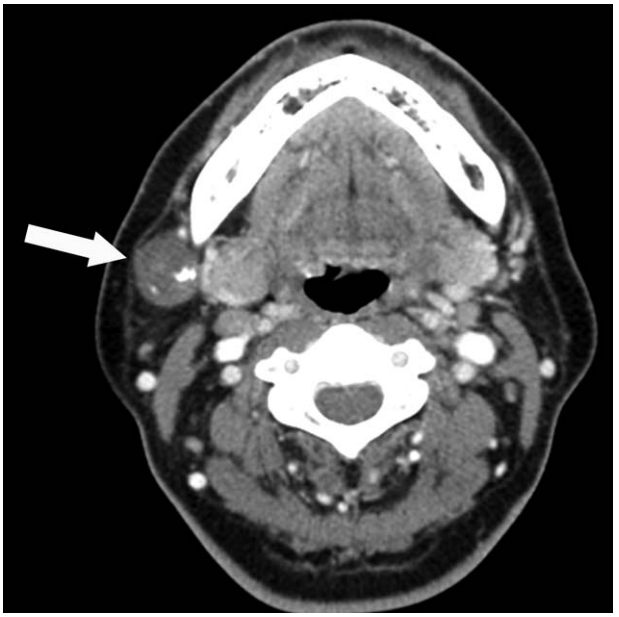

Figure 1. Neck CT scans show a 2.1 cm sized well-defined, poorly enhancing mass (arrow) with calcification in the right parotid space, without invasion of the adjacent structures.

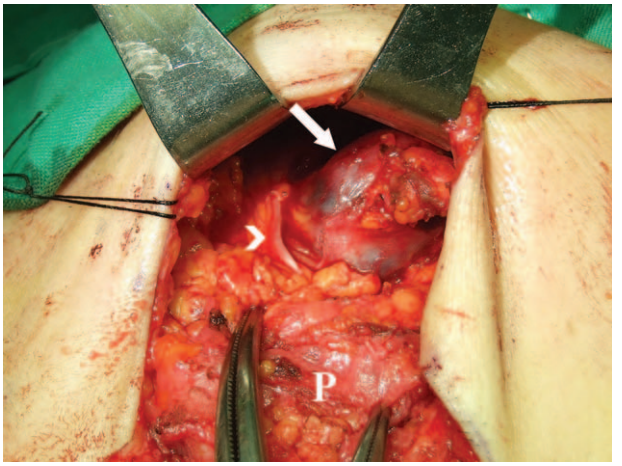

Figure 2. Intraoperative exploration revealed a hard, black colored tumor (arrow) underneath the facial nerve branch (arrowhead) in front of the parotid gland (P).

proteinases may be involved in dysregulation of angiogenesis and disruption of normal basement membranes in the progression of both atheroma and cancers.[5]

Carotid artery atheroma occurs secondary to mature atherosclerotic plaque formation and is associated with an increased risk of cerebrovascular accident (CVA).[1] Therefore, a patient with carotid artery atheroma should be thoroughly investigated to rule out the possibility of risk of CVA.[1] In this case, the patient had no other risk factors and signs of CVA. The pathogenesis of atheroma remains unclear; however, current research suggested that cytokines and chemokines may develop the atheroma.[5] Further studies are necessary to provide a better understanding of the atheroma.

The imaging modalities for carotid artery atheroma are carotid ultrasound, CT, magnetic resonance imaging (MRI), and angiography.[1,3] Ultrasound technology has made high-resolution imaging of atherosclerosis in the artery possible.[3] Especially, the use of contrast-enhanced ultrasound has become an accurate, safe, noninvasive imaging tool in the diagnosis of atherosclerosis.[7] Angiography has been known to underestimate the presence and severity of atherosclerosis.[5] CT is a useful and reliable imaging method for providing anatomic imaging from the aortic arch to the circle of Willis.[1,3] CT is generally considered as the gold standard imaging modality before surgical intervention.[1] In addition, CT angiography is used in clinical practice for the assessment of atherosclerotic plaque and degree.[6] Recently, MRI has used to identify high-risk carotid plaque characteristics.[6] In this case, we performed ultrasound and CT scans. However, despite performing these radiologic examinations, the atheroma was mistaken for a parotid gland tumor.

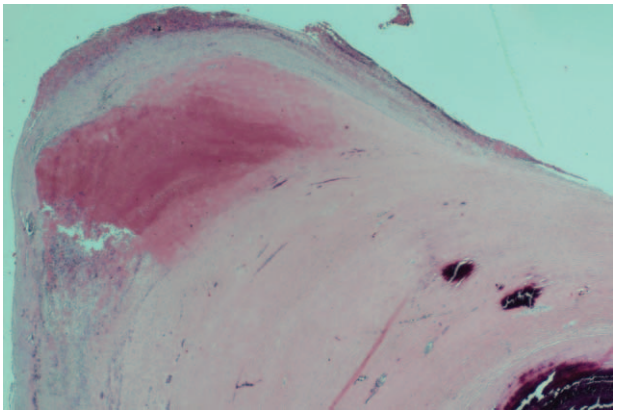

Figure 3. Histological examination of the specimen showed that the vascular lumen is obliterated by an atherosclerotic plaque. The atheroma showed a necrotic area with scattered inflammatory cells and fibrous thickening with calcification. (hematoxylin and eosin stain, ×10).

The optimal treatment method for atheroma and atherosclerotic plaques remains unclear.[3] In some cases, anticoagulation treatment may prevent thrombus formation and cerebral embolism.[3] However, we suggest that in some cases, surgical removal may be an appropriate procedure for diagnosis and treatment of an external carotid artery atheroma, as in our patient.

In conclusion, atheroma of the facial artery is an extremely rare disease, and it can be confused with a parotid gland tumor. Clinicians should consider atheroma in the differential diagnosis of tumors arising around the parotid gland.

4. Conclusion

We report an extremely rare case of an atheroma arising from the facial artery, mimicking a parotid gland tumor. Clinicians should consider atheroma in the differential diagnosis of tumors arising around the parotid gland.

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