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Case Report

PSEUDOANEURYSM OF SUPERIOR THYROID ARTERY FOLLOWING A TRANSESOPHAGEAL ECHOCARDIOGRAPHY: A CASE PRESENTATION

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ABSTRACT

The pseudo-aneurysm is an encapsulated hematoma of post-traumatic origin which is in communication with the lumen of the artery of relevance. We present a rare case of pseudo-aneurysm occurring after superior thyroid trans-esophageal echocardiography (TEE) and external cardioversion. Singular occurrence in otolaryngology, if not recognized early a pseudo-aneurysm can result in dramatic events such cataclysmic bleeding or acute occlusion of the upper airway .

1. Introduction

Pseudoaneurysm is a pulsating hematoma that results from a tangential injury to an arterial vessel wall and could represent a complication after trauma. In the head and neck region pseudoaneurysm is rare but can have catastrophic consequences; therefore, must be identified speedily in order to prevent events such as hemorrhage or acute occlusion of the airway. A pseudoaneurysm arising from superior thyroid artery (STA) has been reported in only three cases in the literature, one after ultrasonographically guided chemical parathyriodectomy, one after radiotherapy for hypopharyngeal cancer and the last after fine needle aspiration biopsy (FNAC) of thyroid nodule. We report a case of STA after transesophageal echocardiography guided cardioversion.

2. Case presentation

A 62-year-old man was admitted to our Otolaryngology Department presenting sore throat, dysphagia and mild dyspnea after a transesophageal echocardiography guided cardioversion performed 3 days earlier. The endoscopic examination of upper aerodigestive tract showed a diffuse soft edema of arytenoids and pharyngolaryngeal tract without airway obstruction. A corticosteroid therapy was started and the symptoms quickly improved, but two days later, the patient suddenly presented a haemorrhage from the superior aerodigestive tract. The endoscopic examination revealed a swelling of the left lateral wall of the hypopharynx and a haemorrhage from the apex of the swelling which stopped spontaneously after a few minutes. A CT scan of the neck revealed active arterial bleeding with pseudoaneurysmal dilatation of 1,2 cm in diameter arising from a fine branch of external carotid artery and a well-defined homogeneously enhancing mass, 9,5 x 3,2 cm diameter in left neck spaces extending superiorly to parapharyngeal spaces, inferiorly to hypopharinx displacing hyoid bone, thyroid cartilage, posteriorly to crycoid cartilage displacing cervical esophagus and laterally to subcutaneous tissue displacing sternocleidomastoid muscle (Figure 1). The mass was suggestive of hematoma. The angiography revealed a pseudoaneurysm with active bleeding of the terminal tract of the superior thyroid artery (STA) (Figure 2). An endovascular procedure was performed with a superselective microcateter and an endovascular occlusion by coil embolization of STA with exclusion of the pseudoaneurysm demonstrated at the end of the procedure (Figure 3). The symptoms resolved one day from the endovascular procedure.

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The patient was discharged after two days without evidence of bleeding and an endoscopic control after 4 weeks revealed that swelling had disappeared.

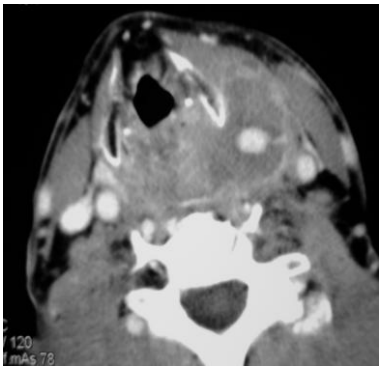

Figure 1 - Axial CT scan illustrating pseudoaneurysmal dilatation arising from a fine branch of external carotid artery

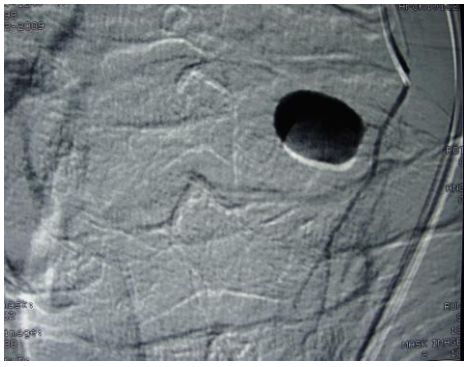

Figure 2 - Angiography illustrating the pseudoaneurysm with active bleeding of the terminal tract of superior thyroid artery (STA)

Figure 3 - Angiography illustrating endovascular occlusion by coil embolization

3. Discussion

Pseudoaneurysm, also called "false aneurysm", is a hematoma contained by adventitia or perivascular tissue communicating with an arterial vessel that results from a tangential injury to the vessel (1,2). Most often it is secondary to blunt and penetrating trauma (1,3,4) or surgery (5-7) and is a well-known iatrogenic complication of vascular catheterization (8,9) or percutaneous biopsy of solid organs (10).

Pseudoaneurysm of head and neck are quite rare events but could lead to catastrophic complications. Clinical manifestations can include pulsating mass in the neck, dysphagia, dyspnea, pain in the neck, bleeding from oral cavity and cerebravascular symptoms. The differential diagnosis of an expansive cervical mass include branchial cleft cyst, neck abscess and cervical adenitis. Other cervical masses such as tumors, lymphadenopathy or neurinomas can be excluded by timing the growth of the mass. Many imaging techniques are available to differentiate the diagnosis. Color Doppler ultrasound is an excellent technique to detect the presence of an aneurismal sac and the presence of active bleeding. MRI and CT scan of the neck give information regarding the involvement of neck anatomical structures. Angiography is the best technique to investigate the morphology of the vessel involved and the source of the aneurismal sac.

Management options for psedoaneurysm include conservative measures with or without sonographically guided compression therapy (10,12), surgical repair (13), transarterial coil embolization (14) and percutaneous thrombin or alcohol injection (15). There is no standard treatment protocol because of the rarity of neck psedoaneurysm and therefore, appropriate treatment is determined on a case-by-case basis.

The rapid development of an expanding mass under the angle of the mandible or in lateral pharyngeal wall after surgical procedure of the neck, percutaneous biopsy and neck trauma should always raise the suspicion of an extracranial arterial pseudoaneurysm.

To our knowledge only three cases of pseudonaeurysm of superior tyroid artery have been reported previously. The first case was a pseudoaneurysm occurring after ultrasonographically guided chemical parathyroidectomy (16). The diagnosis was made by angiograpy and treated by selective coil embolization. The second case reported a pseudoaneurysm in a patient with hypopharyngeal squamous cell carcinoma during simultaneous radiotherapy and chemotherapy (14). The diagnosis was made by a CT scan and treated using selective coil embolization. The third case reported a pseudoaneurysm after ultrasonographically guided biopsy of a thyroid nodule (10). The diagnosis was made after ultrasonographic and color Doppler examination and treated waiting spontaneous thrombosis.

In our patient the pseudoaneyrysm occurred after a transesophageal echocardiography guided cardioversion (TEE-guided). The diagnosis was made by a computed tomography scan and treated by selective coil embolization. Transesophageal echocardiography guided cardioversion with short-term anticoagulation con be considered safe and clinically effective for patients with atrial fibrillation. Complications reported after TEE-guided procedure include bleeding events. We describe a unique case of superior thyroid artery pseudoaneurysm after TEE-guided.

Pseudoaneurysm in the neck is quite a rare event but a rapidly growing expanding mass in the neck after surgical procedure of the neck, percutaneous biopsy and neck trauma or transoral procedures should

always raise the suspicion of an extracranial arterial pseudoaneurysm (17). A rapidly growing mass in the neck can led to an acute airway obstruction and quick diagnosis and treatment is required in order to prevent catastrophic consequences.The literature so far details no protocols for diagnosis and treatment. In our opinion CT scan for differential diagnosis and visualization of anatomical structures involved and a transarterial coil embolization can be considered safe and effective diagnostic and treatment procedures.

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