Symptomatic Arteriovenous Malformation of The Thyroid/Parathyroid glands: A case report

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Introduction

Arteriovenous malformations (AVMs) are complex vascular lesions most commonly found in the brain and infrequently seen in the head and neck spaces. They are characterized by a leash of vessels allowing flow shunting through the nidus. Various treatment approaches are available, including surgical resection or endovascular embolization. The presence of an AVM in the thyroid is quite rare. Very few cases in the literature reported AVMs within the thyroid region [2-6]. When present, they are mostly asymptomatic, but they can present with compressive symptoms, a sensation of vibration, and laryngeal globus sensation [3,4] . Up to the best of our knowledge, no reported cases in the literature of an AVM within the para-thyroid gland.

Here, we report a case of a 32-year-old male patient who presented complaining of painful pulsating left neck swelling and dysphagia for one year, which turned out to be an AVM alongside left thyroid gland treated by embolization using Onyx on two sessions. The patient has been free of symptoms since then.

Case Report

A 32-year-old male smoker with no known medical comorbidities was referred to our center for left neck painful swelling for one year, causing mild dysphagia. The pain was intermittent, increased with time, and pulsating in nature. The pain intensity increased when lying supine, provoking him to wake up. It also increased when the patient experienced vigorous physical activity or became stressed or angry. There was no change in weight, increased sweating, or fatigue. There was no change in voice or difficulty breathing. Upon examination, the patient had a barely palpable non-tender soft mass over the left thyroidal lobe with no overlying skin changes. There were no palpable lymph nodes or cranial nerve deficits. A CT scan from the referring center showed a collection of engorged dilated blood vessels in the left side of the neck just lateral to the left thyroidal anterior lobe to the major neck vessel with a clear nidus representing an arteriovenous malformation of the left thyroid gland **Fig1**.

After undergoing a full assessment from a multidisciplinary team, the decision was to treat by staged endo-embolization. The diagnostic angiogram showed the large high-flow, arteriovenous malformation with multiple feeders mainly from left superior and inferior thyroid arteries and a small contribution from the right inferior thyroid artery with two draining veins ventral and dorsal to the nidus into the ipsilateral external and internal jugular veins, respectively **Fig 2**. Then, embolization using a non-adhesive agent so known as Onyx 18 was successfully injected into the AVM revels complete obliteration without evidence of residual components **Fig 3**. The patient tolerated the procedure well without post-procedural complications. During the hospital course, he has a rapid resolution of the compressive symptoms. Then, he discharged free of symptoms with 6-months interval follow up visits.

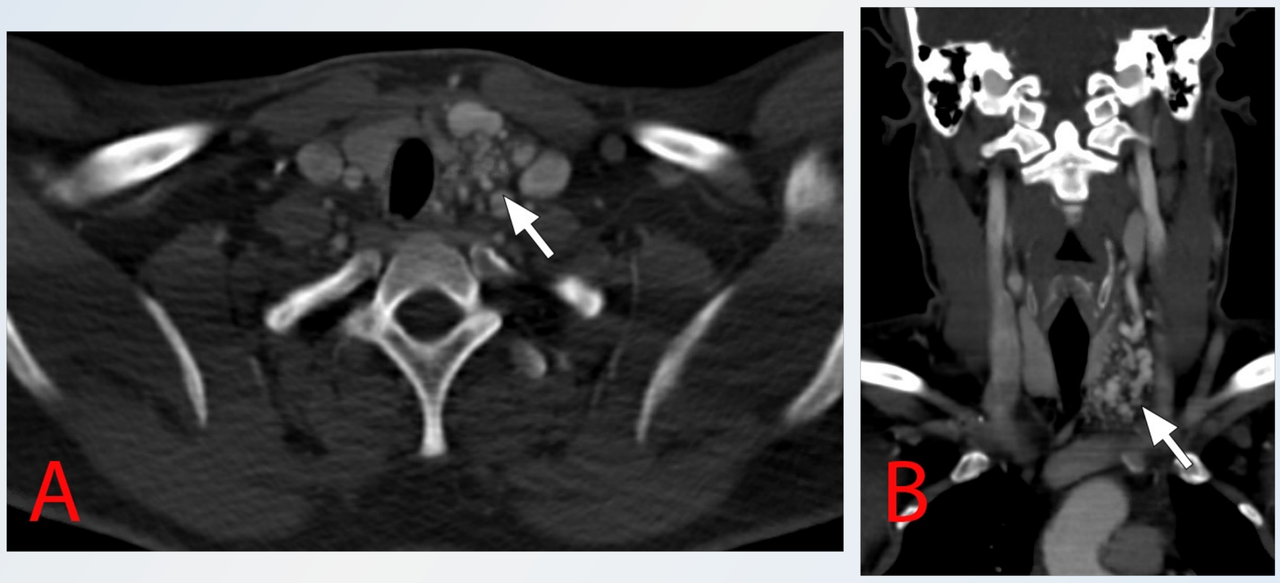

Figure 1 (A) Axial and (B) Coronal enhanced CT show multiple engorged arteries at the left lower neck (arrows) involving the thyroid/parathyroid region giving appearance of (bag of worms).

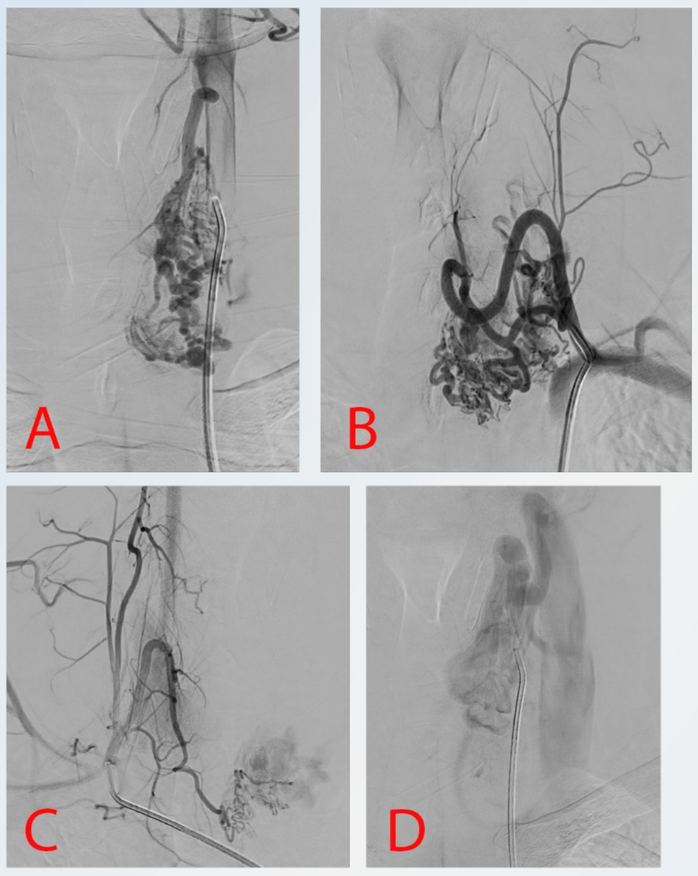

Figure 2 Diagnostic angiogram reveals a large high-flow arteriovenous malformation along the left lower neck adjacent to the left thyroid lobe with arterial feeders primarily through the left superior (A) and inferior (B) thyroidal arteries. (C) There is a small feeder artery arises from on the right inferior thyroid artery. Significant shunting is noted (D) filling of the at least two large draining veins into the left internal jugular vein. No intra-nidal aneurysm is seen.

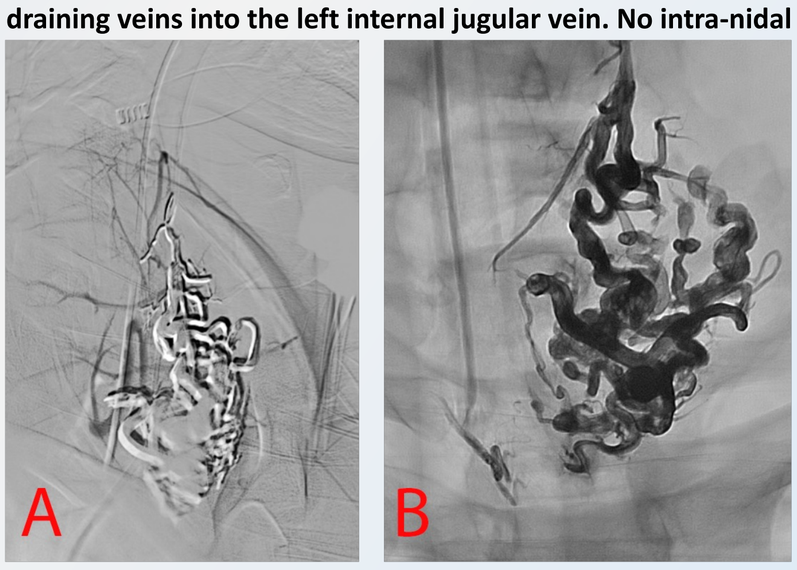

Figure 3 (A) Digital subtracted image and (B) X-ray image post embolization by Onyx 18, demonstrating complete obliteration of the AVM.

Discussion

The presence of an AVM within the thyroid gland bed was first reported as an association with Wyburn-Mason syndrome having multiple craniofacial arteriovenous malformations [7]. An isolated non-syndromic AVM of the thyroid was later on reported by Lizarralde et al [2]. They have reported the presence of AVMs in two cases undergoing diagnostic workup for a thyroid nodule after multiple undiagnostic Fine Needle Aspirations (FNAs) [2]. Moreover, incidental finding of an AVM within a thyroid nodule was also reported after leading to intra-operative bleeding [5]. Similar to our case, Borchert et al. reported a recurrent case of thyroidal AVM post-excision presenting with dysphagia and dyspnea with vibrating sensation [6].

Our case, the patient presented complaining of pain worsening with stressful situations. In contrast to thyroidal AVMs reported in the literature being discovered incidentally or presenting mainly with compressive symptoms [2,3,5]. Embolization is a common treatment modality for head and neck vascular malformation. For either preoperative preparation before surgical excision or as the primary treatment modality [1].

Thyroid/Parathyroid arteriovenous malformations are rare vascular lesions and mostly asymptomatic. However, the patients may complain of compressive symptoms. The appropriate diagnostic modality is DSA. Once the diagnosis is established, treatment by embolization proved to be an excellent management option considering its safety, efficacy as well as avoiding surgical trajectory.

References

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