

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/radcr

Case report

Retromandibular vein ectasia : A parotid mass mimicker[☆]

Hanae Ramdani, MD^{*}, Khadija Benelhosni, MD, Nabil Moatassim Billah, MD, Ittimade Nassar, MD

Radiology department, Ibn Sina University Hospital Center, Lamfadel Cherkaoui St, Rabat, MA 10170, Morocco

ARTICLE INFO

Article history:

Received 19 September 2021

Revised 3 October 2021

Accepted 6 October 2021

Keywords:

Retromandibular vein

Venous ectasia

Doppler ultrasound

Computed tomography

MRI

ABSTRACT

Retromandibular venous ectasia is a rare lesion that may imitate a parotid gland mass. Accurate radiological diagnosis prevents unnecessary invasive procedures. We present the case of a 69-year-old male patient presenting a right-sided, painless, compressible parotid region mass, fluctuating in size with head position and Valsalva maneuver. No thrill was palpable on physical examination. Doppler ultrasound demonstrated an anechoic compressible intra-parotid lesion, with luminal color filling, and venous spectral waveform.

Contrast-enhanced computed tomography and Magnetic resonance angiography of the neck revealed an ectatic retromandibular vein. The patient was conservatively managed and regularly followed up. No complications occurred. Cervical region venous ectasias are rare and commonly misdiagnosed. They should be considered in the soft neck masses differential diagnosis. Imaging plays a key diagnostic role.

© 2021 The Authors. Published by Elsevier Inc. on behalf of University of Washington.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Introduction

Retromandibular vein ectasia is a rare lesion that may mimic a parotid mass [1]. It is commonly misdiagnosed and should be considered in the differential diagnosis of neck masses. Pertinent radiological investigations allow accurate diagnosis and avoid unnecessary invasive procedures [2]. We report the case of a 69-year-old patient with intermittent, positional, right parotid region swelling, whose ultrasound, computed tomography, and magnetic resonance angiography indicated retromandibular vein ectasia.

Case presentation

A 69-year-old-male patient with no past medical nor surgical history and no history of trauma presented to our radiology department for exploration of a right-sided painless, compressible, parotid region mass, fluctuating in size with head position and Valsalva maneuver. The swelling was not visible while sitting or erect, and became more prominent in the right lateral position. The swelling was non-tender, soft-surfaced, compressible, and non-pulsatile. No thrill was palpable on physical examination. Color Doppler ultrasonography demonstrated an anechoic compressible intra-parotid le-

[☆] Competing Interests: The authors have declared that no competing interests exist.

^{*} Corresponding author. H. Ramdani.

E-mail address: hanaeramdani@hotmail.fr (H. Ramdani).

<https://doi.org/10.1016/j.radcr.2021.10.019>

1930-0433/© 2021 The Authors. Published by Elsevier Inc. on behalf of University of Washington. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

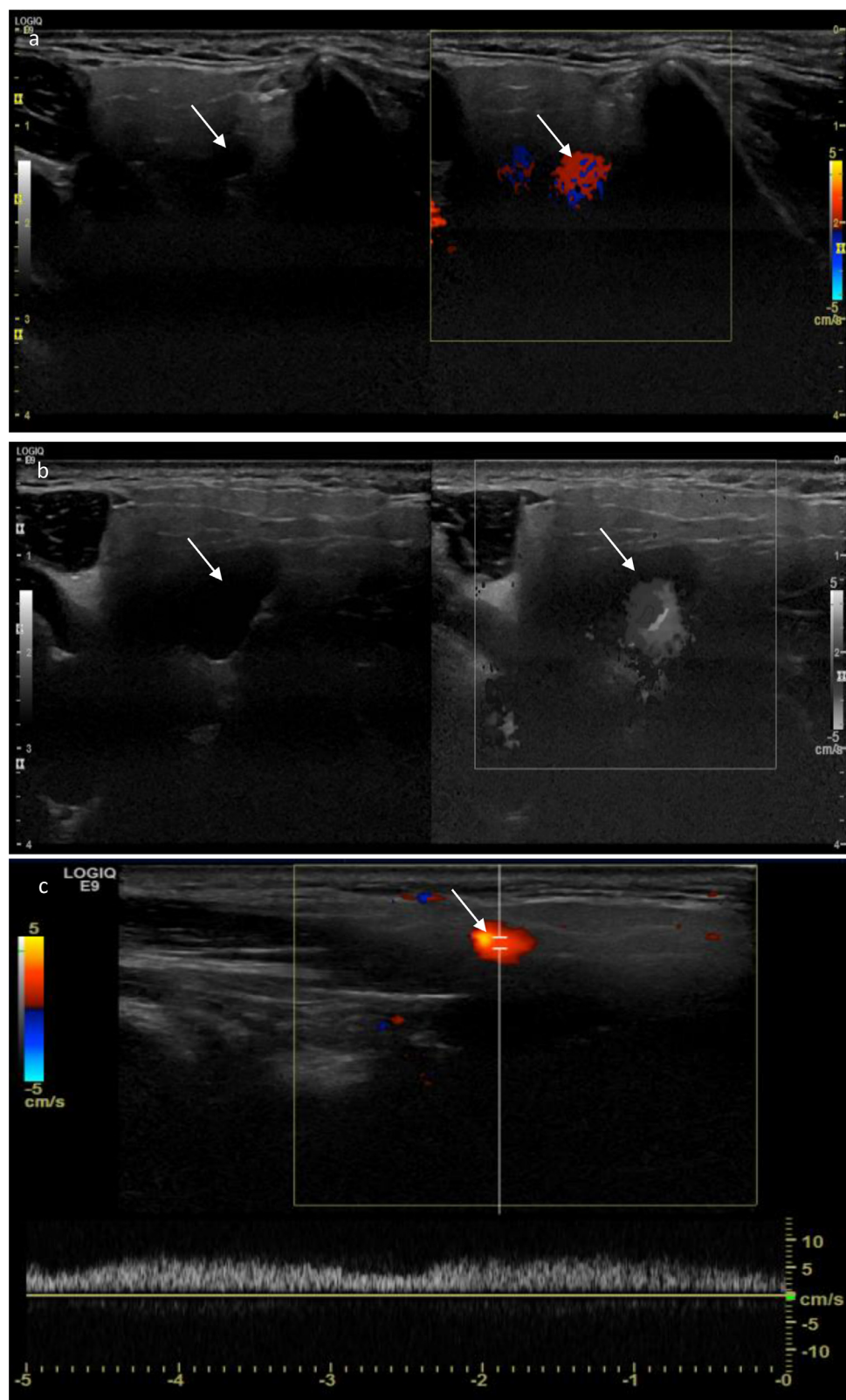


Fig. 1 – Axial ultrasound images showing an anechoic thin-walled cystic intra-parotid lesion (white arrow), augmenting in size with Valsalva maneuver (B), with luminal color filling (A-B), and venous spectral waveform (C).

sion, with luminal color filling, and venous spectral waveform (Fig. 1).

Neck contrast-enhanced computed tomography revealed a venous dilatation in the right retromandibular vein region, near its confluence with the facial vein, associated with ectatic ipsilateral external and internal jugular veins (Fig. 2).

Neck magnetic resonance angiography demonstrated a well-circumscribed right parotid gland lesion, hyperintense on T1, T2, and T2 fat-sat weighted images with focal signal voids related to a phase-encoded motion artifact indicative of flow. Strong enhancement was noted in the post-contrast study. Three-Dimensional Tricks subtraction images revealed a dilated venous structure in the retromandibular vein region (Fig. 3).

Blood investigations revealed no abnormalities. The patient was conservatively managed and periodically followed up with no change in size.

Discussion

The retromandibular vein is formed by the union of the superficial temporal, middle temporal, and maxillary veins and continues as a tributary of the external jugular vein [2]. Retromandibular venous ectasia is an uncommon focal dilatation of the retromandibular vein developed without thrombosis nor proximal veins obstruction [3,4].

The classification system of the International Society for the Study of Vascular Anomalies distinguishes 2 vascular anomalies categories: vascular neoplasms and malformations [3]. Vascular malformations are classified as low-flow malformations (capillaries, veins, and lymphatic vessels), high-flow malformations (arterial malformations, arteriovenous malformations, and arteriovenous fistulas), and combined malformations (venolymphatic malformations) [3]. According to this classification, retromandibular venous ectasia is considered a low-flow vascular malformation [5]. It is extremely rare with a limited number of case reports in the literature [1].

Venous ectasia is characterized by the structural weakening of the vessel wall. Several plausible causes are suggested: local trauma, inflammation, congenital weakness, localized degenerative changes, and elevated venous pressure [1].

Cervical venous ectasias usually have a benign course and are generally asymptomatic [5]. They may present with an intermittent neck swelling, enlarged by the Valsalva maneuver, easily compressible, with no palpable thrill [6]. Dempsey et al. described a specific clinical sign, the “turkey wattle sign” which is the swelling of the mass with the head bent downward [1].

Possible complications are aesthetic, thromboembolic events, and rupture [7].

Retromandibular vein ectasia’s differential diagnosis includes soft neck masses: parotid masses, lymph nodes, lymphangiomas, branchial cysts, cystic hygromas, hemangiomas, laryngoceles, and thyroglossal duct cysts ... [5]. It is important to differentiate between venous malformations and soft neck masses to prevent unnecessary invasive procedures [2].

Imaging is the key to diagnosis [5]. Doppler ultrasound combined with the Valsalva maneuver is the first modality



Fig. 2 – Contrast-enhanced computed tomography of the neck
(A) Axial image showing ectasia of the retromandibular vein (*).
(B) Coronal reconstruction showing ectasia of the retromandibular vein (*), and the internal jugular vein (thin black arrow).
(C) Sagittal reconstruction showing ectasia of the retromandibular vein (*), the facial (thick white arrow), and the external jugular vein (thick black arrow).

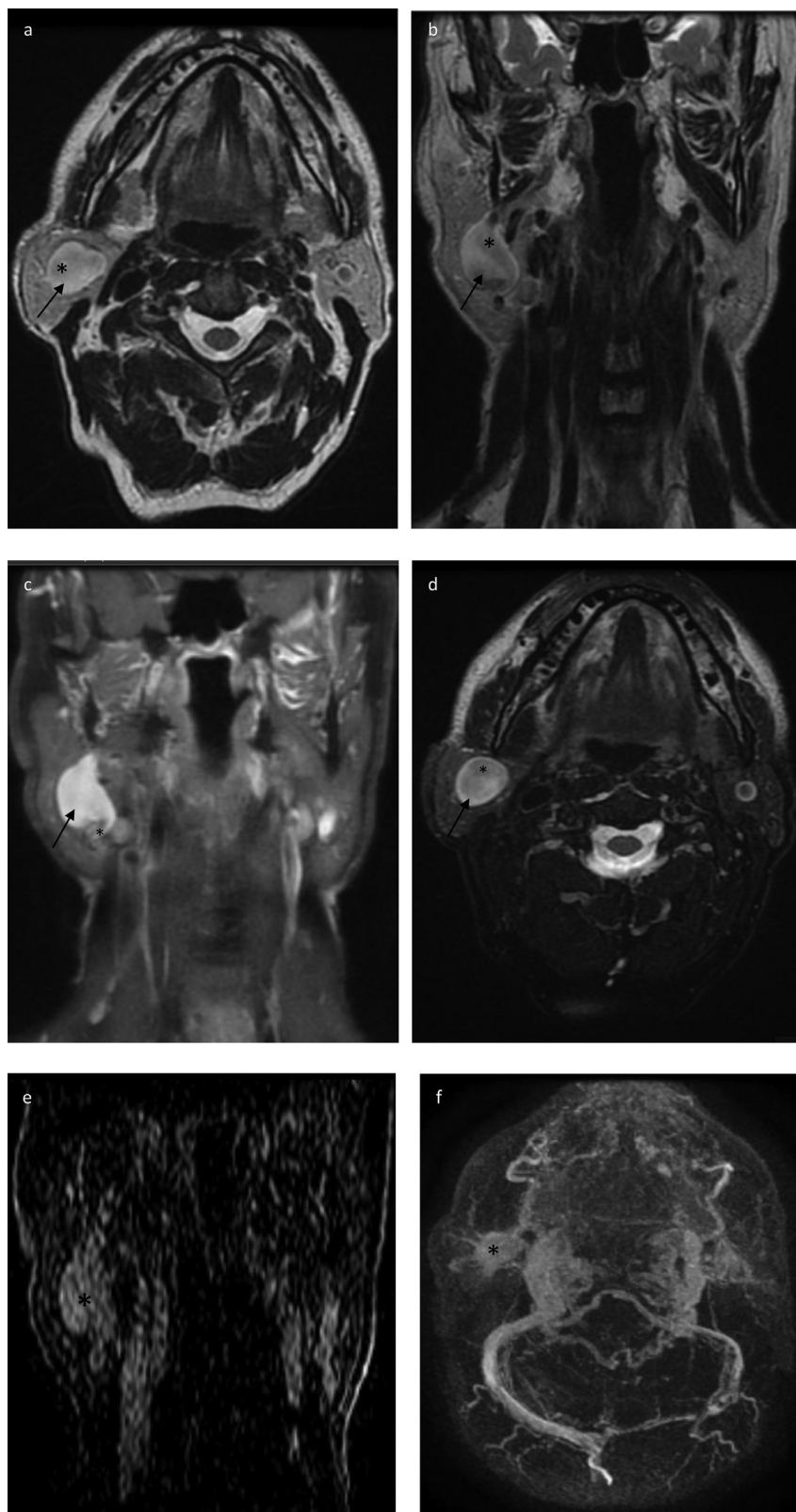


Fig. 3 – Neck magnetic resonance angiography

Axial T2 (A), coronal T2 (B), coronal T1 (C), and axial T2 Fat-saturated (D) weighted images showing a hyperintense well-defined nodular right parotid gland lesion (black arrow) with a phase-encoding artifact (*) indicating flow.

Subtraction 3D TRICKS coronal reconstruction (E) and axial MIP (F) images showing a dilated retromandibular vein (*).

of investigation. It is noninvasive, low-cost, and lacks ionizing radiations use [8,9]. It shows a fusiform or saccular anechoic lesion with a venous flow. Contrast-enhanced computed tomography evaluates the lesion alongside adjacent deeper structures, namely bones [10]. Contrast-enhanced MRI is the preferred imaging modality for pre-procedure diagnosis, interventional planning as well as post-procedure assessment. Magnetic resonance angiography is useful in mapping the venous system and has supplanted conventional angiography's diagnostic role in many instances [11,12]. Three-Dimensional reconstruction is superior to CT [13]. MRI findings of retromandibular venous ectasia are a well-defined lesion located in the parotid superficial lobe, and originating from the retromandibular vein, with a homogeneous or heterogeneous internal structure, a high signal on T2-weighted images, a low signal on T1-weighted images, strongly enhancing after contrast administration, with a possible phase-encoded motion artefact or flow voids. Dynamic contrast MR angiography increases MRI specificity to 95 % [13]. Angiography remains an adjunct imaging modality and is important for therapeutic interventions [13].

Both conservative and surgical management have been attempted depending on symptoms. Considering the risk of thromboembolic events, rupture, and cosmetic problems: ligation, partial parotidectomy, and endovascular embolization can be performed [14].

Conclusion

Retromandibular vein ectasia is an uncommon and usually misdiagnosed condition. It should be considered among neck masses differential diagnosis. Clinically, a postural intermittent neck swelling that enlarges with Valsalva maneuver is suggestive. Imaging plays a key role in diagnosis and prevents unnecessary invasive procedures. US and MRI are the 2 central imaging techniques. Management is conservative when there are no significant symptoms and risks. Lesions with severe symptoms and potential complications can undergo surgical resection or embolization.

Patient consent

Informed consent was obtained for publication.

REFERENCES

- [1] Well DS, Berman PD, Som P. Radiological case: retromandibular vein ectasia. *Appl Radiol* 2014.
- [2] Sayit AT, Çelenk Ç. Retromandibular venous ectasia mimicking a parotid mass: a rare case report with computerized tomography imaging findings. *Istanbul Med J* 2020;21(3):228–9.
- [3] Lowe LH, Marchant TC, Rivard DC, Scherbel AJ. Vascular malformations: classification and terminology the radiologist needs to know. *Semin Roentgenol* 2012;47:106–17.
- [4] Kaya N, Muhammed P, Berrin E. Venous ectasia mimicking intraparotid mass: MRI findings case report "J. Clin Rev Case Rep. 2017;1(2).
- [5] Kaushal D, Nair NP, Goyal A, Sharma V, Mohan V. Venous ectasia of retromandibular and common facial veins: a rare clinical entity. *Turk Arch Otorhinolaryngol* 2020;58(4):282–5. doi:10.5152/tao.2020.5506.
- [6] Schulman NH, Carothers A, Gould WJ. Parotid venous ectasia. *Am J Otolaryngol* 1981;2:59–61.
- [7] Ilica AT, Senturk S, Kertmen M, Bukte Y, Bilici A, Atasoy MM. Facial veinaneurysm associated with sialadenitis. *J Clin Ultrasound* 2012;40:319–21.
- [8] Legiehn GM, Heran MK. Venous malformations: classification, development, diagnosis, and interventional radiologic management. *Radiol Clin North Am* 2008;46:545–97 vi.
- [9] Verma RK, Kaushal D, Panda NK. External jugular vein aneurysm with thrombus presenting as a painful neck mass: a case report. *Oman Med J* 2013;28:278–80.
- [10] Desai SJ, Rajan S, Jain T. Anterior jugular vein aneurysm: diagnosis by CT angiography. *Indian J Radiol Imaging* 2002;12:369–70.
- [11] Herborn CU, Goyen M, Lauenstein TC, F Debatin J, G Ruehm S, Kröger K. Comprehensive time-resolved MRI of peripheral vascular malformations. *AJR Am J Roentgenol* 2003;181:729–35.
- [12] Bosshardt TL, Honig MP. Congenital internal jugular venous aneurysm: diagnosis and treatment. *Mil Med* 1996;161:246–7.
- [13] Behraves S, Yakes W, Gupta N, Naidu S, Chong B W, Khademhosseini A, et al. Venous malformations: clinical diagnosis and treatment. *Cardiovasc Diagn Ther* 2016;6(6):557–69.
- [14] Wali GN, Mawby TAR, Sheerin F, Milford CA. Varix of the retromandibular vein within the parotid gland: case study. *J Laryngol Otol* 2013;127:825–7.