Emergency Care Journal

Official Journal of the Academy of Emergency Medicine and Care **(AcEMC)**

eISSN 2282-2054

https://www.pagepressjournals.org/index.php/ecj/index

Emerg Care J 2024 [Online ahead of print]

To cite this Article:

Poggiali E, Pagani L, Pergolotti B, Vercelli A. **A slow and dangerous swelling of the tongue and the face.** *Emerg Care J* doi: 10.4081/ecj.2024.12373

A slow and dangerous swelling of the tongue and the face

Erika Poggiali,[1] Laura Pagani,[1] Benedetta Pergolotti,[2] Andrea Vercelli[1]

[1]Emergency Department, Guglielmo da Saliceto Hospital, Piacenza; [2]Intensive Care Unit, Emergency Department, Guglielmo da Saliceto Hospital, Piacenza, Italy

Correspondence: Erika Poggiali, Emergency Department, "Guglielmo da Saliceto" Hospital, Via Giuseppe Taverna 49, Piacenza, Italy.

Tel.: +39.0523.303044

E-mail: poggiali.erika@gmail.com

Key words: angioedema, angiotensin-converting enzyme inhibitor, anaphylaxis, Icatibant, bradykinin.

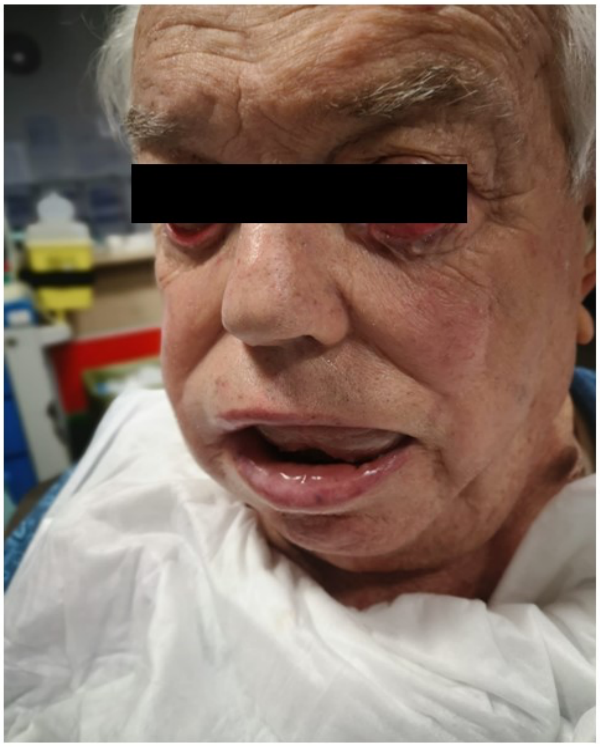
Contributions: EP and LP collected details of the case and drafted the manuscript. LP and BP cared for the patient. AV critically revised the manuscript. All the authors approved the final version.

Conflicts of interest: EP is a member of the editorial board of Emergency Care Journal. The authors declare no conflict of interest.

Availability of data and materials: All data underlying the findings are fully available upon reasonable request to Erika Poggiali, E.Poggiali@ausl.pc.it.

Ethics approval and consent to participate: As this was a descriptive case report and data was collected without patient identifiers, ethics approval was not required under our hospital's Institutional Review Board guidelines.

Informed consent: The patient provided consent for access to medical records at the time of admission.



Descriptive legend

A 91-year-old man presented at our emergency room complaining of sialorrhea and facial edema, especially around his lips and palpebral region. The symptoms started in the morning and got worse over two hours. He had a history of hypertension and hypokinetic ischemic cardiomyopathy treated

with ramipril, doxazosin, aspirin, furosemide, amiodarone, ranolazine, atorvastatin, and pantoprazole. He referred an allergy to clopidogrel. He did not introduce any novel medications or foods. His vital signs were BP 150/70, HR 57 bpm, sO2 97% in room ambient, RR 18/min, and BT 36.4 °C. He presented a severe edema of the tongue with tirage and cornage. He was immediately treated IV with hydrocortisone 1 g chlorpheniramine maleate 10 mg, and icatibant 30 mg SC and he was intubated through the nose.

Question: Given the patient's history, what is the most likely diagnosis?

1) cellulitis
2) angiotensin-converting enzyme inhibitor-induced angioedema (ACEI-AE)
3) acute urticaria
4) anaphylaxis

Answer: Considering the progressive, slow onset of the symptoms, the lack of urticaria, and the ACEI therapy, the correct diagnosis is ACEI-AE. After nasotracheal intubation, the patient was transferred to the ICU. Icatibant (30 mg sc) was repeated after six hours from the previous dose, and IV steroids and antihistamines were administered for ten days. After six days he was extubated, and he was discharged in good clinical condition two weeks later. The C1 esterase inhibitor resulted in the normal range (0.26 g/L, nv 0.21-0.38 g/L). C3 and C4 were 90 mg/dL (nv 93-188) and 22 mg/dL (nv 15-44), respectively.

AE is a clinical heterogeneous entity defined as self-limiting edema localized in the deeper layers of the skin or the upper respiratory or gastrointestinal mucosa and lasting for several days. Firstly described by Heinrich Quincke in 1882, it is often referred to as Quincke edema.[1] AE can occur at any age[2] and in any location. It is characterized by a vascular reaction of deep dermal, subcutaneous, mucosal, or submucosal tissues with localized increased permeability of blood vessels resulting in tissue swelling, affecting the face, lips, mouth, throat, larynx, uvula, extremities, and genitalia, with an asymmetric presentation.[3]

AE can be mediated by two different vasoactive peptides: bradykinin (nonhistaminergic AE) or histamine (histaminergic AE).[4] Clinical presentations may be similar, but the treatment is different. Urticaria is suggestive of histaminergic AE, whereas itching may not be present. Swelling can occur within minutes in the case of histaminergic AE and usually subsides within 24 – 48 hours, but relapses are common and unpredictable, in contrast with a typically slower and more progressive onset in bradykinin-mediated AE,[5] which usually reverts within 48-72 hours, although it can persist for up to five days.[6] Both the two forms can lead to an imminent upper airway obstruction and a life-threatening emergency. When the bowel wall is involved, AE can mimic an acute abdomen.[7,8] Histaminergic AE resolves with antihistamines, steroids, and epinephrine, while bradykinin-mediated AE is unresponsive to those treatments and can be successfully treated with plasma-derived human-C1INH concentrate or icatibant.

Patients with recurrent AE have a lower quality of life. For recurrent AE without urticaria, it is strongly recommended to rule out hereditary angioedema, ACEI-AE, and acquired C1 esterase inhibitor deficiency angioedema (C1-INH-AAE).9 Only C1-INH-AAE is directly associated with other systemic diseases, such as multiple myeloma, chronic lymphocytic leukemia, rectal carcinoma, and non-Hodgkin lymphoma.[10] ACEI-AE is the most common form of AE typically presenting in the emergency department.[11] Diagnosis is based on the patient's medical history. ACEIs cause a reduction in bradykinin degradation. ACEI-AE most commonly involves the

orofacial region, and up to 39% of the cases may involve the upper airway. It can develop years after the beginning of the treatment.[12] Despite the discontinuation of the ACEI, recurrent AE can occur over weeks to months. Additional therapies reported with various efficacies for the treatment of ACEI-AE include fresh frozen plasma, ecallantide, icatibant, tranexamic acid, and C1 inhibitor concentrate.[3]

References

1. Reshef A, Kidon M, Leibovich I. The Story of Angioedema: from Quincke to Bradykinin. Clin Rev Allergy Immunol 2016;51:121-39.
2. Saini S, Shams M, Bernstein JA, Maurer M. Urticaria and Angioedema Across the Ages. J Allergy Clin Immunol Pract 2020;8:1866-74.
3. Kesh S, Bernstein JA. Isolated angioedema: A review of classification and update on management. Ann Allergy Asthma Immunol 2022;129:692-702.
4. Zuberbier T, Aberer W, Asero R, et al. The EAACI/GA²LEN/EDF/WAO guideline for the definition, classification, diagnosis and management of urticaria. Allergy 2018;73:1393-414.
5. Bernstein JA, Moellman J. Emerging concepts in the diagnosis and treatment of patients with undifferentiated angioedema. Int J Emerg Med 2012;5:39.
6. Caballero T, Baeza ML, Cabañas R, et al. Consensus statement on the diagnosis, management, and treatment of angioedema mediated by bradykinin. Part II. Treatment, follow-up, and special situations. J Investig Allergol Clin Immunol 2011;21:422-3.
7. Parreira R, Amaral R, Amaral L, et al. ACE inhibitor-induced small bowel angioedema, mimicking an acute abdomen. J Surg Case Rep 2020;2020:rjaa348. Erratum in: J Surg Case Rep 2020;2020:rjaa568.
8. Mumneh N, Tick M, Borum M. Angioedema with severe acute abdominal pain: Think of hereditary angioedema. Clin Res Hepatol Gastroenterol 2021;45:101702.

9. Zuraw BL, Bernstein JA, Lang DM, et al. A focused parameter update: hereditary angioedema, acquired C1 inhibitor deficiency, and angiotensin-converting enzyme inhibitor-associated angioedema. J Allergy Clin Immunol 2013;131:1491-3.
10. Kazandjieva J, Christoff G. Angioedema as a systemic disease. Clin Dermatol 2019;37:636-43.
11. Pedrosa M, Prieto-García A, Sala-Cunill A; Spanish Group for the Study of Bradykinin-Mediated Angioedema (SGBA) and the Spanish Committee of Cutaneous Allergy (CCA). Management of angioedema without urticaria in the emergency department. Ann Med 2014;46:607-18.
12. Sánchez-Borges M, González-Aveledo LA. Angiotensin-converting enzyme inhibitors and angioedema. Allergy Asthma Immunol Res 2010;2:195-8

Submitted: 9 February 2024

Accepted: 22 February 2024

Early access: 11 March 2024