

Case report

Caution in diagnosing angioedema as anaphylaxis

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SUMMARY

Angioedema is one of the commonest life-threatening conditions with good outcome timely definitive treatment. However, failure to recognise the common presentation of an uncommon bradykinin-mediated angioedema in time may lead to fatal outcome in the emergency department (ED). We report a case of a 79-year-old male patient who presented to ED with features of ACE inhibitor-induced angioedema which was identified and resuscitated by the emergency physician with use of fresh frozen plasma (FFP) leading to prompt recovery and good outcome.

BACKGROUND

Patients presenting with angioedema are often labelled as anaphylaxis, as both can have similar manifestation. However, failure to recognise this common presentation of an uncommon bradykinin-mediated angioedema in time may lead to fatal outcome in the emergency department (ED) due to delay in definitive treatment. Treatment like icatibant, ecallantide and C1-inhibitor concentrate are effective for ACE inhibitor (ACEi)-induced and hereditary angioedema, but these are expensive and rarely available in resource poor settings. We report a case of elderly man with features of angioedema with good outcome with early recognition and resuscitation by emergency physician.

CASE PRESENTATION

A 79-year-old male patient presented to the ED at 05:00 with complaints of swelling of the tongue and facial region since night 02:00. He was unable to protrude his tongue and close his mouth (figure 1). Swelling was acute in onset and progressively increasing in size associated with difficulty in deglutition. There was no complain of fever and respiratory difficulty. There was no history of any insect bite or sting, ingestion of meat, nuts, fish, milk or eggs, no history of any trauma and any allergic disorder. There was no other pertinent

social or family history. He was conscious, had a respiratory rate of 18/min and saturation of 99% on room air. Results of his systemic examination were normal. On local examination of facial region, there was tongue swelling along with secretions. There was no fluctuation, local rise of temperature and tenderness over swelling. There was no stridor although there was change in voice. Initially, the patient was treated in line of anaphylaxis with intravenous epinephrine, hydrocortisone and diphenhydramine, but no clinical response was. At 08:00 during morning shift because of the progressively increasing size of the swelling, the patient was shifted to high-dependency area in view of threatened airway, surgical cricothyroidotomy set and difficult airway equipment were kept ready nearby. On further probing, the patient revealed that he had experienced a similar episode about 2 years back where he had mild swelling which resolved spontaneously within a few hours. Patient was hypertensive and was taking ramipril 5 mg/day. Hence, a provisional diagnosis of ACEi-induced angioedema was made.

TREATMENT

Four units of fresh frozen plasma were arranged immediately and transfused within an hour.

OUTCOME AND FOLLOW-UP

Swelling started subsiding and the patient's speech improved (figure 2). After 6 hours, swelling completely subsided, and the patient had a normal speech (figure 3). The patient was then admitted under geriatric medicine for further evaluation and observation. The next day, the patient was planned for discharge with change in antihypertensive drugs.

DISCUSSION

ACEi induced angioedema has a reported incidence of 0.1%–1.6%, with frequency increasing above the age of 40 years.^{1–3} However, failure to recognise the common presentation of an uncommon bradykinin-mediated angioedema in time may lead to fatal outcome in the emergency department (ED).⁴ For appropriate treatment, it is essential to diagnose the specific type of angioedema⁵; however, it may be difficult to distinguish different types of angioedema in the emergency and manage them, particularly the less common presentations.⁶ Angioedema presents as painful, non-itchy oedema of the deep dermis and subcutis, or mucous membranes, which are not well demarcated. Angioedema appears as skin-coloured or slightly red swellings and they develop



Figure 1 Patient with angioedema initial presentation. (A) Unable to protrude his tongue. (B) Unable to close his mouth.



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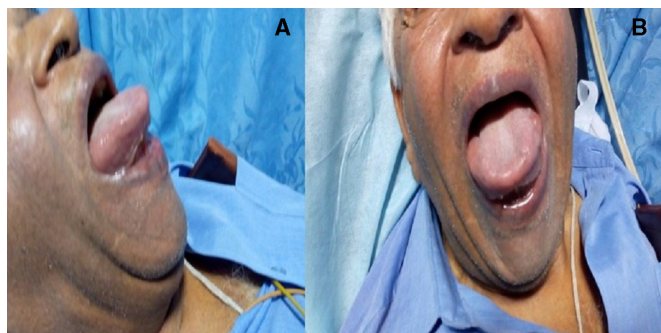


Figure 2 Patient after 1 hour of receiving fresh frozen plasma (FFP). (A) Opens his mouth. (B) Protrudes his tongue.

slowly when compared with wheals and may persist for several days.⁷ Angioedema is mediated by broadly two mechanisms, histamine and bradykinin. Histamine-mediated angioedema (allergic angioedema) is an immunoglobulin E-mediated hypersensitivity immune response of mast cell degranulation. Previous sensitisation to allergens such as insect stings, foods and drugs is needed to cause reaction.⁸ Our patient did not have any features of allergic angioedema.

Bradykinin-mediated angioedema comprises three distinct types: hereditary angioedema (HAE), ACEi-induced angioedema and acquired angioedema. Inhibition of ACEs that degrades bradykinin can cause its accumulation leading to angioedema.⁹ ACEi-induced angioedema usually involves the face or upper aerodigestive tract, causing erythema (without itching) lasting 24–72 hours, followed by spontaneous remission.¹⁰ There has been published reports of rare abdominal involvement.¹¹ Our patient presented with history of facial and upper aerodigestive tract involvement suggestive of ACEi-induced angioedema.

Angioedema of face requires urgent evaluation and management as it may obstruct airway and can be life threatening. Securing the airway early can prevent catastrophic airway compromise. They are usually treated on the lines of anaphylaxis, only when there is no response alternate causes are thought off. Use of fresh frozen plasma has been described for treating coagulopathies and factor deficiencies, but it plays a major role

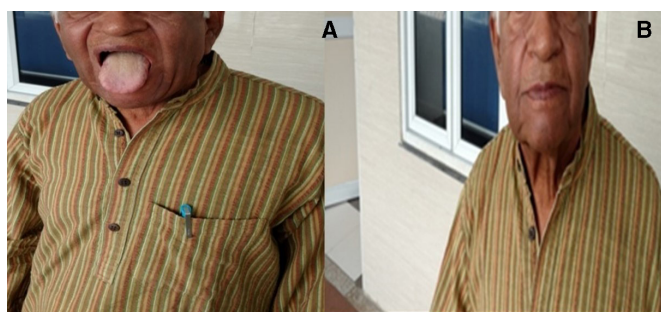


Figure 3 Patient after 6 hours of fresh frozen plasma (FFP) therapy swelling completely subsides. (A) Protrudes his tongue. (B) Closes his mouth.

Learning points

- ▶ Angioedema and anaphylaxis are not interchangeable terms.
- ▶ Keep high degree of suspicion if patient does not respond to initial doses of antihistaminic and epinephrine.
- ▶ Fresh frozen plasma is readily available and cheap alternative for treatment.
- ▶ Always take a good drug history.

for emergency physician in setting of angioedema in patients with C1 esterase deficiencies.

Early recognition and timely resuscitation by ED physician with appropriate diagnostic algorithm as described by Bernstein *et al* is key to good outcomes in ACEi-induced angioedema.¹²

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