Angioedema secondary to amlodipine and lisinopril: a documented progression

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DESCRIPTION

A 50-year-old man with a polycystic kidney disease, awoke from sleep with unilateral jaw swelling. As demonstrated in the accompanying figure 1, the oedema progressed over a period of 6 hours to involve his lips and tongue. On involvement of his tongue and development of slurred speech, he presented to an emergency department and required emergent intubation for airway protection. Prompt administration of steroids, epinephrine, ranitidine and diphenhydramine had no effect. Pertinent clinical findings on presentation included oedema of the jaw, lips, tongue and eyelids. Rash, urticaria, flushing and bronchospastic breath sounds, typical of an allergic reaction, were absent. Notably, the patient and his father had a history of unexplained jaw swelling which would self resolve within hours to days. The patient could not recall when the intermittent swelling had started but noted increased frequency over the last 4–6 months, during which time he was started on amlodipine. Additional medications include lisinopril, allopurinol, venlafaxine

and talvaptan. Given the patient's presenting features in combination with lack of therapeutic response, the presumptive diagnosis of angioedema was made. Complement factor 1, 3, 4 and as well as complement factor 1 inhibitor levels were normal, essentially ruling out hereditary angioedema. The patient's lisinopril and amlodipine, the likely causative agents, were subsequently discontinued with notable improvement of facial oedema over the next 4 days.

The presentation of non-hereditary, non-allergic angioedema is often attributed to medications such as ACE inhibitors.¹ Excess bradykinin, causes increased vasodilation and capillary permeability, resulting in the presenting oedema. ACE inhibitors block the ACE, preventing the secondary function of bradykinin degradation. More recently, calcium channel blockers have also been implicated in angioedema; however, the mechanism is still unknown.^{2,3} Given the increased frequency of this patient's facial oedema, following introduction of amlodipine his angioedema was attributed to a combination of two precipitating agents and mechanisms: amlodipine and lisinopril. Two months after discharge, the patient expired from unrelated causes. There had been no recurrence of angioedema.

Figure 1 A timelapse of angioedema using pictures provided by the patient to the care team. Pictures show progression of the presentation starting at 1.5 hours, 2.5 hours, 5.5 hours, 11 hours and following return to baseline after 5 days. As described in the case symptoms were not responsive to therapy with epinephrine, steroids, ranitidine and diphenhydramine; but improved with gradually following discontinuation of amlodipine and lisinopril.

Learning points

- ▶ While angioedema has similarities to an anaphylactic reaction, it can be distinguished by its lack of rash, urticaria, bronchospastic breath sounds and poor response to treatment.
- ▶ Angioedema can have a delayed presentations months to years after the starting the inciting agents, and can present with progressive and recurrent symptoms.
- ▶ Although ACEi are a well characterised cause of angioedema other medications have been attributed such as calcium channel blockers and dipeptidyl peptidase 4 (DDP-4) inhibitors.

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