

Literature Review and Grading			
<b>What is the Emergency Department Management of Patients with Angioedema Secondary to an ACE-inhibitor?</b> (11/12/2020) Update to the 2011 CPC statement.			
PUBLICATION	GRADE	QUALITY	COMMENTS
<p>1. Adebayo O, Wilkerson RG. Angiotensin-converting enzyme inhibitor-induced angioedema worsened with fresh frozen plasma.</p> <p>Am J Emerg Med. 2017 Jan;35(1):192.e1-192.e2. doi: 10.1016/j.ajem.2016.06.089. Epub 2016 Jun 28. No abstract available.</p>	E	OUTSTANDING	Case report on FFP
<p>2. Akinduro OO, Patel V, Thomas T, Ahmad FU. Two cases of severe angio-oedema and rationale for their response to icatibant.</p> <p>BMJ Case Rep. 2015 Dec 17;2015. pii: bcr2015213228. doi: 10.1136/bcr-2015-213228. No abstract available.</p>	E	ADEQUATE	Case 1: ACEi-induced angioedema that responded to icatibant. Case 2: patient on ACEi but the authors called it idiopathic and icatibant did not help
<p>3. Armengol G, Faisant C, Benhamou Y. Icatibant in ACE-inhibitor-induced angioedema.</p> <p>N Engl J Med. 2015 May 7;372(19):1867. doi: 10.1056/NEJMc1503671. No abstract available.</p>	F	UNSATISFACTORY	Letter to the editor. No methodology
<p>4. Bartal C, Zeldetz V, Stavi V, Barski L. The role of icatibant-the B2 bradykinin receptor antagonist-in life-threatening laryngeal angioedema in the ED.</p> <p>Am J Emerg Med. 2015 Mar;33(3):479.e1-3. doi: 10.1016/j.ajem.2014.08.055. Epub 2014 Aug 27.</p>	E	OUTSTANDING	Case report of 76F. Treated with icatibant. Dyspnea relieved within minutes. Swelling almost disappeared after 30m

<p>5. BaÅŸ M, Greve J, Stelter K, Havel M, Strassen U, Rotter N, Veit J, Schossow B, Hapfelmeier A, Kehl V, Kojda G, Hoffmann TK.</p> <p>A randomized trial of icatibant in ACE-inhibitor-induced angioedema.</p> <p>N Engl J Med. 2015 Jan 29;372(5):418-25. doi: 10.1056/NEJMoa1312524..</p>	A	Adequate	Industry-sponsored, multicenter, phase 2, double blind, double dummy design. 27 patients included in analysis. 8.0 hours vs 27.1 hours for median time to complete resolution
<p>6. Bernstein JA, Moellman JJ, Collins SP, Hart KW, Lindsell CJ.</p> <p>Effectiveness of ecallantide in treating angiotensin-converting enzyme inhibitor-induced angioedema in the emergency department.</p> <p>Ann Allergy Asthma Immunol. 2015 Mar;114(3):245-9. doi: 10.1016/j.anai.2014.12.007. Epub 2015 Jan 16.</p>	A	Adequate	Industry-sponsored, 2-center, phase 2, triple blind design. 50 patients included in analysis. Discharge criteria met in < 4 hours in 31% of ecallantide patients and 21% of placebo
<p>7. Bolton MR, Dooley-Hash SL.</p> <p>Angiotensin-converting enzyme inhibitor angioedema.</p> <p>J Emerg Med. 2012 Oct;43(4):e261-2. doi: 10.1016/j.jemermed.2011.03.029. Epub 2011 May 7. No abstract available.</p>	E	Poor	Case report of 76M. Treated with FFP. Nearly complete resolution over the next 2h
<p>8. Bova M, Guilarte M, Sala-Cunill A, Borrelli P, Rizzelli GM, Zanichelli A.</p> <p>Treatment of ACEI-related angioedema with icatibant: a case series.</p> <p>Intern Emerg Med. 2015 Apr;10(3):345-50. doi: 10.1007/s11739-015-1205-9. Epub 2015 Feb 10</p>	D.	Adequate	All patients received standard of care treatment. After treatment with icatibant symptom relief was reported at 30 min (IQR 27.5-70 min). Complete resolution of sx at 5h (IQR 4-7h). A comparison was made to to the 10

			patients who had previously had angioedema where complete resolution was at 54h (IQR 33-63h)
<p>9. Chan NJ, Soliman AM.</p> <p>Angiotensin converting enzyme inhibitor-related angioedema: onset, presentation, and management.</p> <p>Ann Otol Rhinol Laryngol. 2015 Feb;124(2):89-96. doi: 10.1177/0003489414543069. Epub 2014 Jul 24.</p>	D.	Outstanding	Retrospective analysis of 88 patients. Looked at Onset and symptoms. Minimal discussion regarding treatment
<p>10. Charmillon A, Deibener J, Kaminsky P, Louis G.</p> <p>Angioedema induced by angiotensin converting enzyme inhibitors, potentiated by m-TOR inhibitors: successful treatment with icatibant.</p> <p>Intensive Care Med. 2014 Jun;40(6):893-4. doi: 10.1007/s00134-014-3290-z. Epub 2014 Apr 16. No abstract available.</p>	E.	Poor	65F on quinapril and everolimus for breast cancer. Regression of swelling 1 hour after administration of icatibant
<p>11. Cheong E, Dodd L, Smith W, Kleinig T.</p>			52M on perindipril who received alteplase. Icatibant

<p>Icatibant as a Potential Treatment of Life-Threatening Alteplase-Induced Angioedema.</p> <p>J Stroke Cerebrovasc Dis. 2018 Feb;27(2):e36-e37. doi: 10.1016/j.jstrokecerebrovasdis.2017.09.039. Epub 2017 Oct 31.</p>	E.	Poor	<p>given. Upper airway edema visibly improved within 15 min complete resolution within 2 hours</p>
<p>12. Curtis RM, Felder S, Borici-Mazi R, Ball I. ACE-I Angioedema: Accurate Clinical Diagnosis May Prevent Epinephrine-Induced Harm.</p> <p>West J Emerg Med. 2016 May;17(3):283-9. doi: 10.5811/westjem.2016.2.29224. Epub 2016 Apr 26.</p>	D.	Poor	<p>Retrospective chart review of cases of AAE (includes ACEi and ARB induced angioedema) 2 patients who received epinephrine had morbidity</p>
<p>13. Fok JS, Katelaris CH, Brown AF, Smith WB. Icatibant in angiotensin-converting enzyme (ACE) inhibitor-associated angioedema.</p> <p>Intern Med J. 2015 Aug;45(8):821-7. doi: 10.1111/imj.12799.</p>	D.	Good	<p>13 patients received icatibant. 4 patients intubated</p>
<p>14. Gallitelli M, Alzetta M. Icatibant: a novel approach to the treatment of angioedema related to the use of angiotensin-converting enzyme inhibitors.</p> <p>Am J Emerg Med. 2012 Oct;30(8):1664.e1-2. doi: 10.1016/j.ajem.2011.09.014. Epub 2011 Nov 17.</p>	E.	Adequate	<p>76M with 3 previous presentations (4 total). On 4th presentation after getting icatibant his swelling almost resolved completely by 10 hours.</p>
<p>15. Greve J, Bas M, Hoffmann TK, Schuler PJ, Weller P, Kojda G, Strassen U.</p>			<p>Prospective case series of 10 subjects</p>

<p>Effect of C1-Esterase-inhibitor in angiotensin-converting enzyme inhibitor-induced angioedema.</p> <p>Laryngoscope. 2015 Jun;125(6):E198-202. doi: 10.1002/lary.25113. Epub 2015 Jan 13.</p>	C.	Adequate	<p>compared to historical cohort of 47 patients. Compared treatment with C1-INH concentrate. 10.1 hours vs 33.1h</p>
<p>16. Hahn J, Trainotti S, Hoffmann TK, Greve J. Drug-Induced Inhibition of Angiotensin Converting Enzyme and Dipeptidyl Peptidase 4 Results in Nearly Therapy Resistant Bradykinin Induced Angioedema: A Case Report.</p> <p>Am J Case Rep. 2017 May 25;18:576-579.</p>	E.	Adequate	<p>83F on ACEi and DPP-IV. Treated with C1-INH and icatibant with slow response</p>
<p>17. Hannoodi F, Sabbagh H. ACE Inhibitor-Induced Angioedema following Cervical Spine Surgery.</p> <p>Case Rep Cardiol. 2017;2017:4268962. doi: 10.1155/2017/4268962. Epub 2017 Mar 1.</p>	E.	Good	<p>54F on ACEi who was intubated for neck surgery. Unable to be extubated due to edema at the level of the arytenoids. Treated with dexamethasone for 4 days. After Acei stopped she was extubated the next day.</p>
<p>18. Hassen GW, Kalantari H, Parraga M, Chirurgi R, Meletiche C, Chan C, Ciarlo J, Gazi F, Lobaito C, Tadayon S, Yemane S, Velez C. Fresh frozen plasma for progressive and refractory angiotensin-converting enzyme inhibitor-induced angioedema.</p> <p>J Emerg Med. 2013 Apr;44(4):764-72. doi: 10.1016/j.jemermed.2012.07.055. Epub 2012 Oct 28. Review.</p>	E.	Outstanding	<p>7 cases of presumed ACEi-induced angioedema that all improved in temporal association to administration of FFP.</p>

<p>19. Howarth D.</p> <p>ACE inhibitor angioedema - a very late presentation.</p> <p>Aust Fam Physician. 2013 Dec;42(12):860-2.</p>	E.	Good	77M intubated after failing steroids, antihistamines and epi
<p>20. Illing EJ, Kelly S, Hobson JC, Charters S.</p> <p>Icatibant and ACE inhibitor angioedema.</p> <p>BMJ Case Rep. 2012 Aug 30;2012. pii: bcr2012006646. doi: 10.1136/bcr-2012-006646.</p>	E.	Adequate	62M with tongue swelling. Tx with hydrocortisone, chlorphenamine with no improvement. Given epi nebs and then a single dose of icatibant. Intubated. Extubated 48 hours later.
<p>21. Jackeviciute J, Pilvinis V, Pilviniene R.</p> <p>Fatal outcome of late-onset angiotensin-converting enzyme inhibitor induced angioedema: A case report.</p> <p>Medicine (Baltimore). 2018 Aug;97(31):e11695. doi: 10.1097/MD.00000000000011695.</p>	E.	Adequate	89F intubated. Extubated. Reintubated with difficulty. ETT narrow due to edema. Cardiac arrest. ROSC. Blood clot at distal end of tube removed. FFP given with no improvement. Angioedema resolved 13 days later. Death at 24 days
<p>22. Jacob J, Bardes I, Palom X, Carrizosa M, Fuentes E.</p>			Letter to the editor about Fok article. 10 patients treated

<p>Angiotensin-converting enzyme inhibitor-induced angioedema and icatibant: a new hope.</p> <p>Intern Med J. 2015 Oct;45(10):1093-4. doi: 10.1111/imj.12849. No abstract available.</p>	F.	Unsatisfactory	with icatibant who improved within 12 hours
<p>23. Javaud N, Achamlal J, Reuter PG, Lapostolle F, Lekouara A, Youssef M, Hamza L, Karami A, Adnet F, Fain O.</p> <p>Angioedema Related to Angiotensin-Converting Enzyme Inhibitors: Attack Severity, Treatment, and Hospital Admission in a Prospective Multicenter Study.</p> <p>Medicine (Baltimore). 2015 Nov;94(45):e1939. doi: 10.1097/MD.0000000000001939.</p>	C.	Outstanding	prospective, multicenter, observational study in 4 French hospitals and call center. 62 patients enrolled. Symptom relief occurred significantly earlier in patients receiving specific treatment than in untreated patients (0.5 [0.5–1.0] versus 3.9 [2.5–7.0] hours)
<p>24. Kaufman MB.</p> <p>ACE Inhibitor-Related Angioedema: Are Your Patients at Risk?</p> <p>P T. 2013 Mar;38(3):170-2.</p>	E.	Adequate	All 4 cases treated with standard therapy
<p>25. Korzeniowska K, Cielewicz A, Pawlaczyk M, Motowidlo K, Andrys-Wawrzyniak I, Jablecka A.</p> <p>ANGIOEDEMA AFTER ANGIOTENSIN-CONVERTING ENZYME INHIBITORS.</p> <p>Acta Pol Pharm. 2017 May;74(3):983-986.</p>	E.	Adequate	2 cases. Treated with steroids and antihistamines
<p>26. Krogh Nielsen T, Bygum A, Rye Rasmussen E.</p>			60F. Neither adrenaline inhalations, intravenously

<p>Life-threatening angio-oedema after the first dose of an ACE inhibitor-not an anaphylactic reaction.</p> <p>BMJ Case Rep. 2016 May 26;2016. pii: bcr2016214364. doi: 10.1136/bcr-2016-214364.</p>	E.	Adequate	<p>administered corticosteroids, atropine nor furosemide were effective and the patient soon become bradycardic. A tracheotomy was performed and the patient was placed on a ventilator.</p>
<p>27. Kuhlen JL Jr, Forcucci J. Angiotensin-converting enzyme inhibitor-induced unilateral tongue angioedema.</p> <p>Am J Med Sci. 2012 Nov;344(5):416-7. doi: 10.1097/MAJ.0b013e318258317f.</p>	E.	Good	<p>62M. Unilateral tongue angioedema. Improved then worsened. Tx with steroids and antihistamines. Intubated.</p>
<p>28. Leibfried M, Kovary A. C1 Esterase Inhibitor (Berinert) for ACE Inhibitor-Induced Angioedema: Two Case Reports.</p> <p>J Pharm Pract. 2017 Dec;30(6):668-671. doi: 10.1177/0897190016677427. Epub 2016 Nov 11.</p>	E.	Adequate	<p>2 cases of ACEi-Induced Angioedema. Treated with berinert. Case 1 treated with antihistamine, methylprednisolone, epinephrine, and fresh frozen plasma. When symptoms did not resolve, intravenous C1 peptide esterase inhibitor (C1INH) was administered, with clinical improvement. Four hours later, symptoms returned and the patient underwent emergency</p>



			tracheostomy. Case 2: received conventional treatment. Endotracheal tube placement was unsuccessful. While the patient was undergoing intubation in the operating room, intravenous C1INH was administered resulting in quick improvement of symptoms.
<p>29. Leung E, Hanna MY, Tehami N, Francombe J. Isolated unilateral tongue oedema: the adverse effect of Angiotensin converting enzyme inhibitors.</p> <p>Curr Drug Saf. 2012 Nov 1;7(5):382-3.</p>	E.	Adequate	Female with ACEi-angioedema. Tx with meds
<p>30. Lewis LM, Graffeo C, Crosley P, Klausner HA, Clark CL, Frank A, Miner J, Iarrobino R, Chyung Y.</p> <p>Ecallantide for the acute treatment of angiotensin-converting enzyme inhibitor-induced angioedema: a multicenter, randomized, controlled trial.</p> <p>Ann Emerg Med. 2015 Feb;65(2):204-13. doi: 10.1016/j.annemergmed.2014.07.014. Epub 2014 Aug 30.</p>	A.	Outstanding	multicenter, phase 2, double-blind study with subjects randomized to receive a single subcutaneous dose of ecallantide (10, 30, or 60 mg) or placebo plus physician-directed conventional therapy. discharge eligibility endpoint was met by 72% of the placebo group and 85%, 89%, and 89% of the ecallantide 10-, 30-, and 60-mg

			groups, respectively.
<p>31. Lipski SM, Casimir G, Vanlommel M, Jeanmaire M, Dolhen P.</p> <p>Angiotensin-converting enzyme inhibitors-induced angioedema treated by C1 esterase inhibitor concentrate (Berinert<sup>®</sup>): about one case and review of the therapeutic arsenal.</p> <p>Clin Case Rep. 2015 Feb;3(2):126-30. doi: 10.1002/ccr3.171. Epub 2014 Dec 5.</p>	E.	Good	<p>77F tongue angioedema administered 125 mg of methylprednisolone and 0.5 mg of epinephrine subcutaneously. Fresh frozen plasma was administered but there was no improvement after 4 h. Berinert four ampoules were injected (20 UI/Kg). In less than an hour, the swelling was absorbed and the patient remained in hospital for 48 h observation</p>
<p>32. Millot I, Plancade D, Hosotte M, Landy C, Nadaud J, Ragot C, Graffin B, Drouet C, Kanny G.</p> <p>Treatment of a life-threatening laryngeal bradykinin angio-oedema precipitated by dipeptidylpeptidase-4 inhibitor and angiotensin-I converting enzyme inhibitor with prothrombin complex concentrates.</p> <p>Br J Anaesth. 2012 Nov;109(5):827-9. doi: 10.1093/bja/aes371. No abstract available.</p>	E.	Adequate	<p>67M on ACEi and DPP-4. 3rd presentation for angiodema. treated with epinephrine aerosols, i.v. dexchlorpheniramine 5 mg, and methylprednisolone 120 mg. The patient showed no improvement in the next hour. AVK antagonist, Kanokadw (LFB, France) 1500 IU, was administered. Dyspnoea and dysphonia regressed within</p>

			20 min, and symptoms completely disappeared within 8 h. Further episodes treated with berinert and icatibant.
<p>33. Okumu M, Ochola F, Bodo C, Apuoyo K, Odhiambo N, Ng'ong'a A.</p> <p>Enalapril-Induced Angioedema: Two Case Reports in a Rural Health Facility in Kenya.</p> <p>Cureus. 2018 May 2;10(5):e2572. doi: 10.7759/cureus.2572.</p>	E.	Adequate	<p>Case 1: 58F. Given IV dose of hydrocortisone and a 20 mg stat dose of intravenous chlorpheniramine were administered and the patient was observed for one hour. The edema was noted to subside</p> <p>Case 2: 55M. 4 mg intravenous dexamethasone injection and monitored for one hour. A gradual decrease in the swelling was observed about two hours after</p>
<p>34. Pucar PA, O'Sullivan M, Goudie A, Marr T, Bruschi A.</p> <p>Successful treatment of ACE inhibitor-induced angioedema with icatibant, a bradykinin B2 receptor antagonist.</p> <p>Med J Aust. 2015 Jun 15;202(11):596-7. No abstract available.</p>	E.	Adequate	<p>65F. Treated with icatibant. On repeat FNE 10 minutes later, there was a significant improvement in her condition.</p>

<p style="text-align: center;">35. Rasmussen ER, Mey K, Bygum A.</p> <p>Isolated oedema of the uvula induced by intense snoring and ACE inhibitor.</p> <p>BMJ Case Rep. 2014 Aug 21;2014. pii: bcr2014205585. doi: 10.1136/bcr-2014-205585.</p>	<p>E.</p>	<p>Adequate</p>	<p>50M. received complement C1-inhibitor concentrate ~ 15 units/kg injected intravenously over 10 min. Within about 40 min significant improvement of the oedema was observed and the patient's voice had normalised</p>
<p style="text-align: center;">36. Rasmussen ER, Bygum A.</p> <p>ACE-inhibitor induced angio-oedema treated with complement C1-inhibitor concentrate.</p> <p>BMJ Case Rep. 2013 Oct 4;2013. pii: bcr2013200652. doi: 10.1136/bcr-2013-200652.</p>	<p>E.</p>	<p>Adequate</p>	<p>63M. He was treated with drugs for anaphylaxis (epinephrine, antihistamine and corticosteroid), but the angio-oedema progressed and also began to involve the soft palate and uvula. 1000 units (11 units/kg) of Berinert (complement C1-inhibitor concentrate) had already been administered intravenously over 10 min and the angio-oedema had regressed significantly.</p>

<p>37. Raval P.</p> <p>A case report looking at ACE inhibitors as the cause of angioedema during dental treatment.</p> <p>Br Dent J. 2014 Jan;216(2):73-5. doi: 10.1038/sj.bdj.2014.2.</p>	<p>E.</p>	<p>Adequate</p>	<p>77M. Adrenaline and an antihistamine were administered to the patient</p>
<p>38. Shahani L.</p> <p>ACE inhibitor-induced intestinal angio-oedema: rare adverse effect of a common drug.</p> <p>BMJ Case Rep. 2013 Jul 22;2013. pii: bcr2013200171. doi: 10.1136/bcr-2013-200171.</p>	<p>E.</p>	<p>Adequate</p>	<p>50F. Hx of Crohns presenting with abdo pain. Lisinopril was discontinued and the patient was treated with antihistamines</p>
<p>39. Sinert R, Levy P, Bernstein JA, Body R, Sivilotti MLA, Moellman J, Schranz J, Baptista J, Kimura A, Nothaft W; CAMEO study group..</p> <p>Randomized Trial of Icatibant for Angiotensin-Converting Enzyme Inhibitor-Induced Upper Airway Angioedema.</p> <p>J Allergy Clin Immunol Pract. 2017 Sep - Oct;5(5):1402-1409.e3. doi: 10.1016/j.jaip.2017.03.003. Epub 2017 May 25.</p>	<p>A.</p>	<p>Outstanding</p>	<p>phase III, 2-armed, randomized double-blind clinical trial was conducted at 59 centers severity of the ACE-leinduced angioedema attack was determined by the subject's worst severity rating at baseline among 4 clinical domains (difficulty breathing, difficulty swallowing, voice changes, and tongue swelling) Conventionally administered drugs, namely, antihistamines, corticosteroids, and epinephrine,</p>

			<p>were allowed at any time before or after study drug administration.</p> <p>primary efficacy end point was time to meeting discharge criteria, defined as time from study drug administration to earliest time that difficulty breathing and difficulty swallowing were absent (rating of 0 out of 4), and voice change and tongue swelling were mild or absent (0 or 1).</p> <p>Between December 2013 and August 2015, 121 subjects with presumed ACE-leinduced angioedema were randomized at 31 of 59 opened sites.</p> <p>no statistically significant differences between the 2 treatment groups in the primary efficacy end point of time to meeting discharge criteria (P 1/4 .63), the key secondary end point of TOSR (P 1/4 .57), or any other secondary end point</p>
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<p>40. Stewart M, McGlone R.</p> <p>Fresh frozen plasma in the treatment of ACE inhibitor-induced angioedema.</p> <p>BMJ Case Rep. 2012 Aug 24;2012. pii: bcr2012006849. doi: 10.1136/bcr-2012-006849.</p>	E.	Good	<p>2 cases of angioedema that temporally improved with administration of FFP</p>
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<p>41. Urnoski E, Grillo A, Rosini JM.</p> <p>Use of C1 Inhibitor for Angiotensin-Converting Enzyme (ACE) Inhibitor-Induced Angioedema Decreases Mechanical Ventilation Time.</p> <p>J Emerg Med. 2015 Dec;49(6):e173-5. doi: 10.1016/j.jemermed.2015.06.076. Epub 2015 Sep 26.</p>	E.	Good	<p>41M. treated initially with diphenhydramine 25 mg i.v., methylprednisolone 125 mg i.v., and ranitidine 50 mg i.v. His edema rapidly progressed with left lip and further tongue swelling. An airway alert was called and nebulized lidocaine started for anticipated intubation. The patient was ordered C1 inhibitor 1500 units (17 mg/kg) i.v. Intubated prior to receiving C1-INH. Received C1-INH at approximately 6:00 PM, the patient responded with marked decreased angioedema. The angioedema was</p>
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			noted to resolve symmetrically
<p>42. Volans A, Ferguson R.</p> <p>Using a bradykinin blocker in ACE inhibitor-associated angioedema in the emergency department.</p> <p>BMJ Case Rep. 2013 Jan 31;2013. pii: bcr2012008295. doi: 10.1136/bcr-2012-008295.</p>	E.	Good	<p>Case 1: Intravenous chlorpheniramine and steroids were given shortly after arrival without apparent effect.</p> <p>Case 2: Intravenous chlorpheniramine was given, followed by tranexamic acid and nebulised epinephrine. Following epinephrine, she suffered tachycardia mild chest pain which settled with oxygen and showed no ischaemic change on ECG. both patients were offered 'off licence' icatibant</p> <p>At 20min after injection, both were able to close their mouths and swallow saliva. Case 1 had a return of his voice at 30 min and case 2 patient's tongue had settled to only half the tongue being swollen. By 4 h both were symptom-free</p>



<p>43. Wagner JG, Bench EM, Plantmason L.</p> <p>An Unusual Case of Angiotensin-Converting-Enzyme Inhibitor-Related Penile Angioedema with Evolution to the Oropharynx.</p> <p>West J Emerg Med. 2015 Dec;16(7):1185-7. doi: 10.5811/westjem.2015.8.28061. Epub 2015 Nov 18.</p>	<p>E.</p>	<p>Good</p>	<p>52M. Penile angioedema that progressed to involve oropharynx. given diphenhydramine 50mg IV, famotidine 40mg IV, and methylprednisolone 125mg IV for possible allergic reaction versus acute onset of angioedema. He was observed in the ED for six hours, without progression or significant improvement in symptoms, and discharged home</p>
<p>44. Nishad AAN, Arulmoly K, Priyankara SAS, Abeyesundara PK.</p> <p>A Forgotten Cause of Allergy at ER That Is Still Difficult to Diagnose and Treat at Poor Resource Setting: Angioedema after Using Angiotensin Converting Enzyme Inhibitors for 4 Years.</p> <p>Case Reports Immunol. 2019 Jan 2;2019:1676391. doi: 10.1155/2019/1676391. eCollection 2019.</p>	<p>E.</p>	<p>Good</p>	<p>68M treated with intramuscular Adrenaline 0.5 mg stat and intravenous hydrocortisone 200 mg. Discharged on prednisone.</p>

<p style="text-align: center;">45. Patel H, Kant S, Chow R.</p> <p>A rare presentation of angioedema with isolated retropharyngeal and supraglottic involvement.</p> <p>J Community Hosp Intern Med Perspect. 2019 Feb 11;9(1):36-39. doi: 10.1080/20009666.2018.1562855. eCollection 2019.</p>	<p style="text-align: center;">E.</p>	<p style="text-align: center;">Good</p>	<p>52M. 0.5 mg of 1:1000 Epinephrine IM, 120 mg Methylprednisolone IV, 25 mg Diphenhydramine IV, and 20 mg Famotidine IV. Fiberoptic laryngoscopy showed severe edema of the supraglottic and glottic larynx with 90% obstruction of airway along with no visualization of true vocal cords due to severe edema. emergency cricothyrotomy was performed to secure the patient's airway.</p>