

C-07 Management of Atypical Intraoperative Anaphylaxis in the Ambulatory Surgery Center

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Objective

After completion of this session, the participant will be able to:

- Demonstrate the recognition and management of intraoperative anaphylaxis in a freestanding ambulatory surgery center.

Case Stem Question

A 37-year-old female with metastatic breast cancer is scheduled for a right lumpectomy and sentinel lymph node biopsy at your freestanding ambulatory surgery center. Her past medical history is significant for childhood asthma, GERD, and chemotherapeutic treatment of her breast cancer. She denies any drug allergies.

General anesthesia with a supraglottic airway is induced with 2 mg of IV versed, 200 mg of IV propofol, and 75 mcg of IV fentanyl. Soon after induction, 5 mL of isosulfan blue, 7.5 mL of 1% lidocaine, and 7.5 mL of 0.5% of bupivacaine are injected into the breast by the surgical team. The patient is placed on volume control ventilation. Peak inspiratory pressure is between 13-16 cm H₂O Hg.

The surgical team starts with the lumpectomy portion of the case. Ten minutes later, peak inspiratory pressures are noted to be elevated, close to 40 cm H₂O. Oxygen saturation is 97% on 100% FiO₂.

Guiding Questions for Discussion

1. What is your differential diagnosis?
2. What other signs or symptoms would you look for to differentiate possible causes?

The patient's skin is erythematous. Her blood pressure is 80's/50's with a normal heart rate.

3. What is the likely diagnosis?
4. What are the likely culprits of anaphylaxis?
5. What are your next steps?
6. What medications do you administer?
7. Do you intubate the patient? Why or why not?

You inform the surgical team, and they abort the lymph node portion of the surgery. Medications are given to treat presumed anaphylaxis and the patient is intubated. The vocal cords are noted to be swollen during intubation.

8. What is the next step in treating this patient?
9. What labs do you draw? Why?

You administer additional IV epinephrine, and you start to see ST elevations on the monitor. Her blood pressure is 200/100 with a heart rate of 110.

10. Why did her EKG change? How could this have been avoided?
11. What are your cardiac concerns postoperatively?
12. What will be your postoperative management? Why?

References

1. Dewachter P, Savic L. Perioperative anaphylaxis: pathophysiology, clinical presentation and management. *BJA Educ.* 2019;19(10):313-320. doi:10.1016/j.bjae.2019.06.002
2. Cardona V, Ansotegui IJ, Ebisawa M, et al. World allergy organization anaphylaxis guidance 2020. *World Allergy Organ J.* 2020;13(10):100472. Published 2020 Oct 30. doi:10.1016/j.waojou.2020.100472
3. Campbell RL, Bellolio MF, Knutson BD, et al. Epinephrine in anaphylaxis: higher risk of cardiovascular complications and overdose after administration of intravenous bolus epinephrine compared with intramuscular epinephrine. *J Allergy Clin Immunol Pract.* 2015;3(1):76-80. doi:10.1016/j.jaip.2014.06.007
4. Vanden Hoek T, Morrison L, Shuster M, et al. 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation.* 2 Nov 2010;122:S829–S861. <https://doi.org/10.1161/CIRCULATIONAHA.110.971069>
5. Laroche, Dominique*; Gomis, Philippe†; Gallimidi, Emmanuel‡; Malinovsky, Jean-Marc§; Mertes, Paul Michel?. Diagnostic Value of Histamine and Tryptase Concentrations in Severe Anaphylaxis With Shock or Cardiac Arrest During Anesthesia. *Survey of Anesthesiology* 59(2):p 84, April 2015. | DOI: 10.1097/SA.000000000000122
6. Shaker MS, Wallace DV, Golden DBK, et al. Anaphylaxis-a 2020 practice parameter update, systematic review, and Grading of Recommendations, Assessment, Development and Evaluation (GRADE) analysis. *J Allergy Clin Immunol.* 2020;145(4):1082-1123. doi:10.1016/j.jaci.2020.01.017
7. Gonzalez-Estrada A, Campbell RL, Carrillo-Martin I, Renew JR, Rank MA, Volcheck GW. Incidence and risk factors for near-fatal and fatal outcomes after perioperative and periprocedural anaphylaxis in the USA, 2005-2014. *Br J Anaesth.* 2021;127(6):890-896. doi:10.1016/j.bja.2021.06.036
8. Nazir S, Lohani S, Tachamo N, Ghimire S, Poudel DR, Donato A. Takotsubo cardiomyopathy associated with epinephrine use: A systematic review and meta-analysis. *Int J Cardiol.* 2017;229:67-70. doi:10.1016/j.ijcard.2016.11.266
9. Misir Šitum S, Korecic Zrinjšcak I, Pecvarac M, Šoštar A, Žaja A, Tot T. Case report: Atypical anaphylactic reaction to Patent Blue V dye during breast cancer surgery. *Front Oncol.* 2022;12:979393. Published 2022 Sep 16. doi:10.3389/fonc.2022.979393