

## Recurrent Anaphylaxis in a Patient Undergoing Redo Aortic Surgery for a Large Pseudoaneurysm: Allergic to the Anesthesiologist?

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**Case Report:** A 67 year old man who was 13 years post resection of an ascending aortic aneurysm presented for redo sternotomy to repair a seven centimeter ascending aortic pseudoaneurysm. He reported no known allergies.

**First Attempt:** Preoperatively he developed itching and a pruritic rash presumed to be from his chlorhexidine skin prep. Anesthesia was induced with midazolam, propofol, and fentanyl, and tracheal intubation was facilitated with rocuronium. Maintenance included sevoflurane. A nine French right internal jugular introducer was placed without difficulty in preparation for floating a pulmonary artery catheter (PAC). Immediately prior to PAC placement the patient became tachycardic and severely hypotensive requiring CPR. Circulation was restored with ephedrine, phenylephrine, epinephrine, and two liters of rapidly administered fluids. He had no bronchospasm, or worsening rash, or elevated airway pressures. Antihistamines and corticosteroids were administered. The patient stabilized rapidly, recovered consciousness, and the trachea was extubated in the operating room. Serum tryptase and histamine levels were obtained. (See Table 1).

Table 1.

	Anesthetic	Medications	Tryptase*
1	Day 0	Midazolam, Fentanyl, Propofol, Rocuronium	68.2 mcg/L
2	Day 17	Midazolam, Alfenta, Ketamine, Propofol, no nmb or antibiotic	25.6 mcg/L
3	Day 46	Methadone, Cisatracurium, Etomidate, no antibiotic	38.4 mcg/L
			*Tryptase NL < 10.9 mcg/L

**Second Attempt:** Following consultation with an allergist, a second anesthetic was attempted two weeks later with an aggressive premedication plan. Allergy testing was deferred due to concern that testing in the 4-6 week post-anaphylaxis recovery phase would be inaccurate (1). Furthermore, the risk of rupture of the large pseudoaneurysm was a pressing concern. Rocuronium was suspected to have caused the anaphylactic reaction. He was pretreated with corticosteroids and antihistamines, and betadine was used for the skin prep. Anesthesia was induced with midazolam, fentanyl, and propofol. Twenty minutes after induction severe hypotension occurred which resolved with the administration of ephedrine, epinephrine, phenylephrine, and fluid. No paralytic or antibiotic had been given, and a latex free foley catheter had been inserted. Serum tryptase and histamine levels were drawn and the case aborted. See Table 1. Allergy skin testing was positive to chlorhexidine and propofol and negative to rocuronium, midazolam, and lidocaine. Serum IgE testing was negative for latex.

**Third Attempt:** Following pretreatment with corticosteroids and antihistamines a pre-induction arterial line was placed and he was induced with dexmedetomidine, etomidate, and methadone. Cisatracurium was used to facilitate intubation. Prior to PAC placement he became significantly hypotensive. Boluses of epinephrine, phenylephrine a rapid volume administration of fluid and an infusion of norepinephrine rapidly restored his circulatory status to normal. Serum tryptase was again significantly elevated (Table 1). Additional allergy testing is pending.

**Discussion:** This patient had elevated tryptase levels during all three anesthetics suggesting a mast cell mediated allergic reaction. Pretreatment for the second and third anesthetics attenuated but did not prevent the reaction. Anaphylaxis occurs in 1:4,000 to 1:20,000 anesthetics (1). Although the neuromuscular blocking agents are most frequently implicated, antibiotics and a variety of other agents, including propofol and volatile anesthetics (2), are reported to induce anaphylaxis. Allergists suggest waiting four to six weeks following an episode of anaphylaxis to allow full immune recovery thereby reducing the number of false negative tests (3). The exact triggering agent during the third anesthetic remains elusive. Thirty to fifty percent of patients have no definable cause for their anaphylactic reactions (4). Of interest in 2014 Lee reported the successful use of anti-ICE globulin in a patient with a history of six episodes of intraoperative anaphylaxis (5). The only personnel common to all the anesthetics was the faculty anesthesiologist.

**References:**

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