

## Propofol Anaphylaxis: Is it common? Case Report

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### Abstract

During general anesthesia polypharmacy is used and all drugs have the tendency to produce allergic reactions leading to anaphylaxis, although rare. Sometimes typical clinical picture of anaphylaxis may not be manifested producing the scenario complicated and if not timely intervened, may be lethal. Propofol (2, 6 di-isopropyl phenol) is commonly used as induction agent in modern anesthesia practice and its anaphylactic incidences being reported<sup>1</sup>. Here we report a case of Propofol anaphylaxis who underwent functional endoscopic sinus surgery (FESS) didn't show typical features of anaphylaxis and timely resuscitation lead to complete recovery.

**Key words:** Anaphylaxis, Propofol, FESS

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### Introduction

During general anesthesia polypharmacy is used and all drugs have the tendency to produce allergic reactions leading to anaphylaxis, although rare. Sometimes typical clinical picture of anaphylaxis may not be manifested producing the scenario complicated and if not timely intervened, may be lethal. Propofol (2, 6 di-isopropyl phenol) is commonly used as induction agent in modern anesthesia practice and its anaphylactic incidences being reported<sup>1</sup>. Here we report a case of Propofol anaphylaxis who underwent functional endoscopic sinus surgery (FESS) didn't show typical features of anaphylaxis and timely resuscitation lead to complete recovery.

### Case report

A 24 year old boy without any co-morbidity was scheduled for nasal polypectomy by FESS as day care procedure. His pre-operative check-up showed normal investigations and had no past history of allergy to drugs or food. In his past surgical illness, had undergone appendectomy once under general anesthesia which was uneventful. On arrival in the operation theatre, all standard monitoring were attached showing vital parameters within normal limit.

Patient was premedicated with Fentanyl 100 µg and induced with Propofol 150 mg. Tracheal intubation done with Vecuronium 6mg and connected to ventilator after confirming bilateral air entry. After positioning the patient in extended neck position, suddenly monitor

showed bradycardia (heart rate 30/min) and hypotension (blood pressure 60/30) and peripheral oxygen saturation (SpO<sub>2</sub>) dropped to 85%. Immediately patient was ventilated with 100% Oxygen, although chest was clear bilaterally without any added sounds and normal airway pressure. Crisis was managed with immediate bolus infusion of Adrenaline 1mg, Hydrocortisone 100 mg and crystalloids 500 ml over 15 minutes. There was no response to this initial treatment and after 10 minute, 1mg Adrenaline repeated with infusion of 0.05 µg/kg/min and blood pressure improved rapidly to 90mm Hg and heart rate increased to 65/min. At no time there were signs of bronchospasm and skin rash. Immediately surgery was abandoned and shifted to ICU on ventilator and kept on ventilator for 6 hours.

As there were no overt signs of anaphylactic reaction, it was thought that some cardiac event might happened during surgery and cardiological consultation sought. ECG, Chest X-ray, 2-D echocardiography done revealed normal reports and myocardial infarction was excluded. Blood samples were also sent for Tryptase level and IgE in view of anesthetic drug induced anaphylaxis, which showed elevated results (tryptase-50µg/L, normal: 0-13.5 µg/L and IgE – 150ng/ml, normal: <50ng/ml), which proved it to be anaphylactic reactions to some of the anesthetic drugs used. The patient underwent prick test 6 weeks after and showed a positive response to Propofol 1:1000 dilutions thus confirming our suspicion of anaphylaxis. The patient underwent FESS after 2 month with Thiopentone sodium as induction agent with balanced anesthesia technique and were uneventful and patient was discharged next day.

### Discussion

Anaphylactic reactions during anesthesia is uncommon but not rare, incidences in the range of 1:10,000 to 1:20,000. Among the drugs producing

anaphylaxis, muscle relaxants represented 69.2% and hypnotic agents 3.7% of the incidences<sup>2</sup>. Propofol anaphylaxis attributed to 1.2% of cases of perioperative anaphylactic shock<sup>3</sup>. Propofol is an alkyl phenol derivative (2,6 di-isopropyl phenol) marketed as an oil water emulsion using soybean oil (10%) and egg lecithin (1.2%) as the emulsifying agent. Lecithin is highly purified phosphatide found in egg yolk, but is not the allergic determinant<sup>4</sup>. The few documented IgE mediated anaphylactic reactions to Propofol have been shown to be elicited by isopropyl or phenol groups rather than the lipid vehicle<sup>5,6</sup>. Allergic reactions to Propofol on first exposure are usually due to isopropyl group that may act as epitopes and is present in various cosmetics and medicines<sup>6</sup>. Allergic reactions to Propofol upon re-exposure are usually due to the Phenol molecule<sup>7,8</sup>. Our patient had past history of exposure of general anesthetic drugs, but was uneventful and history of anesthetic drugs used was not available.

Clinical features of typical anaphylactic reactions characterized by broncho-constriction, urticarial rashes, tachycardia, and hypotension may not be present in some cases and our patient also didn't show any signs of those typical manifestations. Bradycardia could be due to physiologic reflex to hypoxia. Most anaphylactic reactions usually respond to single dose of Adrenaline, but in some cases may need intermittent dosing and continuous infusion as in our case<sup>9</sup>. In refractory cases,  $\alpha$ -adrenergic agonists and sometimes Vasopressin may be used<sup>10</sup>.

In our case, suspicion of anaphylactic reactions are based on the acute onset of hypotension not responding to initial bolus dose of Adrenaline having in a patient with no structural heart disease. Confirmatory tests includes mast cell tryptase and presence of IgE antibodies<sup>11</sup>. Both the tests were done in our patient showing increased level proving it to be of anaphylactic origin. Skin prick test remains the gold standard for diagnosing allergic reactions and ideally it should be done 4-6 weeks after the event to avoid false positive results. In our patient we did it 6 weeks and showed positive results with Propofol in 1:1000 dilutions proving the culprit drug.

In conclusion, this case report taught us that patient may develop anaphylactic reactions without the traditional signs of bronchospasm, urticarial skin rash, tachycardia and hypotension. That's why it is recommended to send blood samples for tryptase estimation if any patient collapses hemodynamically unexpectedly during anesthesia. Adequate haemodynamic support with prompt detection of such crisis can save life.

**Conflict of Interest: None**

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