

(CASE REPORT)



## A case report: Anaphylactic reaction to chlorprocaine in a patient with mastocytosis and lidocaine allergy

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### Abstract

This case report presents a 53-year-old woman with a history of mastocytosis and reported lidocaine allergy who experienced an anaphylactic reaction following administration of chlorprocaine during a breast biopsy procedure. The patient was promptly treated with epinephrine, methylprednisolone, famotidine, and diphenhydramine, leading to stabilization. She was subsequently transferred to the intensive care unit (ICU) for observation and discharged after 24 hours. This case highlights the importance of vigilance and preparedness for managing anaphylactic reactions in patients with mastocytosis and known allergies to local anesthetics.

**Keywords:** Chlorprocaine; Mastocytosis; lidocaine; Anaphylactic reaction.

### 1. Introduction

Mastocytosis is a tissue malady defined by an aggregation of mast cells affecting many organs and organ systems such as the skin, the liver, the gastrointestinal tract and the bone marrow. Mastocytosis is further divided into classifications: systemic mastocytosis (SM) and cutaneous mastocytosis (CM) [1,2]. Patients with mastocytosis may present with anaphylaxis, a rare, but extreme allergic reaction [3].

Lidocaine, a commonly used local anesthetic, is reported to cause allergic reactions in some individuals. Chlorprocaine, an alternative local anesthetic, has been considered safe for patients with lidocaine allergy due to its distinct chemical structure [4]. Here, we present a case of anaphylaxis to chlorprocaine in a patient with mastocytosis and a reported lidocaine allergy.

### 2. Case Presentation

A 53-year-old female patient diagnosed with idiopathic angioedema and a history of vocal cord dysfunction, mastocytosis, and a permanent tracheostomy had a planned breast biopsy. She was pre-medicated with diphenhydramine and steroids at home, starting 13 hours prior to the appointment and up to 30 minutes before arrival, due to her severe lidocaine allergy. During the procedure, chlorprocaine was used as an alternative anesthetic. However, about 6 minutes after chlorprocaine administration, the patient developed symptoms consistent with an allergic reaction, starting with nausea and progressing to swelling and difficulty breathing.

The rapid response team was called, and the patient received epinephrine 0.3 mg, diphenhydramine 50 mg, famotidine 40 mg, and methylprednisolone 125 mg. She was transferred to the emergency department due to continued difficulty

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breathing and throat swelling. Additional treatment included another dose of diphenhydramine, epinephrine 0.3 mg, racepinephrine, and tranexamic acid 1000 mg intravenously. Approximately 10 minutes after receiving these treatments, the patient experienced relief of symptoms. However, about three hours later, she required another dose of epinephrine 0.3 mg as symptoms began to return.

While under observation, the patient experienced lip swelling once again, leading to administration of methylprednisolone 40 mg and diphenhydramine 25 mg. The patient was ultimately discharged the next day without further significant events.

### 2.1. Outcome

Prompt recognition of the anaphylactic reaction led to immediate administration of epinephrine, methylprednisolone, famotidine, and diphenhydramine. The patient responded well to treatment, with resolution of symptoms and stabilization of vital signs. As a precautionary measure, she was transferred to the progressive care unit (PCU) for close observation. Over the next 24 hours, the patient remained stable without recurrence of symptoms and was subsequently discharged home with instructions for follow-up care.

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## 3. Discussion

Local anesthetics are routinely utilized to assist patients in providing comfort and allowing tolerability to procedures [8,9, 10]. Generally categorized as esters or amides due to its chemical structure [5,11], local anesthetics are largely used for procedures as it has a favorable safety profile and is available in multiple strengths. Chlorprocaine, an ester anesthetic, is often used as an alternative to lidocaine for patients intolerant to or have a history of anaphylaxis to ester anesthetics [10]. Although anaphylaxis to local anesthetics is infrequent [6,7], the potential for reactions still exist [6].

Mastocytosis is defined as mast cell neoplasm [1,12]. Some patients with mastocytosis who are to receive procedures may present with an increased risk of hypersensitivity reactions.

Anaphylaxis, a severe hypersensitivity reaction that may affect several organs and be fatal, is the product of IGE molecule degranulation [6, 9].

Due to the rarity of such allergies and the lack of literature in IgE reactions to amides [5, 13], this case presents a unique situation as our patient presented with a known history of mastocytosis and idiopathic angioedema, in addition to a true allergy to lidocaine. Our patient's complex medical and allergy history further complicated treatment modalities in this individual. While our patient was properly pre-medicated and precautions taken to administer an amide instead of an ester, the patient still developed anaphylaxis.

Treatment, such as epinephrine, must be specific to the reaction and administered quickly [13]. Premedication in cases of anaphylaxis in mastocytosis is also often suggested [13].

Vigilance and preparedness for managing anaphylactic reactions are essential in clinical practice, especially when administering medications to patients with underlying mast cell disorders and reported allergies. This case underscores the importance of thorough patient history-taking, allergy assessment and prompt intervention in preventing adverse outcomes associated with anaphylaxis.

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## 4. Conclusion

This case report highlights the occurrence of anaphylactic reaction to chlorprocaine in a patient with mastocytosis and a reported lidocaine allergy undergoing a breast biopsy procedure. Prompt recognition and management of anaphylaxis, including administration of epinephrine and supportive care, led to successful resolution of symptoms and favorable outcome. Healthcare providers should remain vigilant for potential allergic reactions, particularly in patients with mast cell disorders and known allergies, to ensure safe and effective care delivery.

## Compliance with ethical standards

### *Disclosure of conflict of interest*

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### *Statement of ethical approval*

This case report did not require an ethical board approval because it describes this case receiving usual care.

### *Statement of informed consent*

The patient gave oral and written informed consent for this case report paper.

### *Availability of data and material*

The data are shown within the paper.

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