AN UNUSUAL COMPLICATION AFTER SUBARACHNOID BLOCK IN A CESAREAN SECTION PATIENT: LIDOCAINE ALLERGIC CONTACT DERMATITIS

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ABSTRACT
Type I hypersensitivity reactions to lidocaine are infrequent, whilst type IV - delayed hypersensitivity reactions are rare, with only a few reported cases in the literature. A proper diagnosis is essential to differentiate between the two for appropriate management. As local anaesthetic agents are routinely used for various invasive procedures, it is imperative to be familiar with the presentation and management of such allergic reactions. We present a case of a morbidly obese obstetric patient who developed allergic contact dermatitis (ACD) after receiving subcutaneous lidocaine before subarachnoid block. The patch test was positive for lidocaine, and a positive intradermal challenge test confirmed the diagnosis.

KEYWORDS lidocaine, allergic contact dermatitis, case report, lidocaine hypersensitivity, patch test

Introduction
True allergic reactions to local anaesthetics (LA) are extremely rare, and the incidence is less than 1% of the entire spectrum of LA adverse reactions [1]. These reactions can be attributed to several factors like the LA compound itself or the addition of preservatives like methylparaben, propylparaben, and metabisulphite [2]. A true allergy includes Type-I hypersensitivity, the immediate anaphylactic reaction mediated by IgE antibodies, and Type-IV hypersensitivity, which is the delayed reaction due to sensitised lymphocytes. Approximately 80% of all true allergies are ascribed to the latter, mainly manifesting as contact dermatitis at the contact site with the allergen [3]. There is a limited number of reported cases of lidocaine hypersensitivity in dentistry and dermatology [4-7]. Herein, we report a rare case of lidocaine contact dermatitis after subarachnoid block in an obstetric patient who underwent an emergency cesarean section. A thorough search of the relevant literature did not yield any similarly reported case.

Case report
A 33-year-old morbidly obese (weight of 134 kgs and height of 165 cms) primigravida patient reported to the obstetric operating room (OR) of the tertiary care hospital in early labour for emergency cesarean section the setting of meconium-stained liquor. The medical history revealed hypothyroidism and pregnancy-induced hypertension (PIH), with no history of previous surgeries or drug allergies. Airway examination revealed adequate mouth opening, Mallampati class III, and short neck. She had a full meal 2.5 hours back. A subarachnoid block was planned with the patient in a sitting position. Under all aseptic precautions, the skin of the back was sequentially prepared with 10% povidone-iodine (aqueous solution) and 2% chlorhexidine with 80% ethanol.

Meanwhile, the drugs for administration were prepared. After drying the skin at the injection site, 2 ml 2% lidocaine (42.6 mg) was injected for local anaesthesia of the skin and subcutaneous tissues using a 21-gauge (G) needle in L3–4 interspaces. This was followed by insertion of 25G Whitacre needle through the 20G introducer and injection of 0.5% hyperbaric bupiva-
caine in a volume of 2.2 ml, along with 25 µg fentanyl after cerebrospinal fluid (CSF) aspiration. After about 12 hours of subarachnoid injection, she complained of itching and a burning sensation in the back. Pruritic, erythematous and vesicular eruptions were noted at the puncture site on examination. These vesicles progressed to bullae over the next 24 hours (Image 1). No other skin eruptions were noted in any other part of the body. Vitals remained stable during this entire postoperative period. Dermatology consultation was sought, and contact dermatitis was made a provisional diagnosis. Fusidic acid cream was advised, along with the padding of the blisters as povidone-iodine and chlorhexidine were applied to a large area of the back from the lower border of the scapula to below the iliac crests and on the surgical site; their role as the causative agents was ruled out. Allergy due to lidocaine was suspected, and a patch test with a eutectic mixture of local anaesthetics prilocaine and lidocaine (EMLA) cream was applied on the forearm. Twenty-four hours later, a positive reaction in the form of pruritic erythema was seen at the patch site. Next, an intradermal injection (ID) of 0.1ml of preservative-free 1% lidocaine was administered on the patient’s forearm. The rubber stopper was removed before loading the drug from the vial. A pruritic, erythematous rash was noted after about 36 hours at the ID injection site (Image 2). This confirmed the diagnosis of type-4 hypersensitivity reaction of the patient to lidocaine in the form of contact dermatitis. However, the patient refused further testing of other local anaesthetics for allergy. The allergy status was mentioned on her discharge summary, and she was advised to consider using a medical alert bracelet.

Discussion

Local anaesthetics are primarily classified as amino amides and amino esters. The amino ester group includes procaine, tetracaine, benzocaine, oxybuprocaine and butoform. Lidocaine, bupivacaine, mepivacaine, prilocaine, etidocaine, ropivacaine and dibucaine form the amino amide group. Conventionally, allergic contact dermatitis (ACD) was more frequent with the ester group LAs than amides due to the para-aminobenzoic acid (PABA) metabolite. Allergy to the amide group is attributed to the preservative methylparaben, added for its bacteriostatic activity [8]. Nevertheless, the increasing use of lidocaine in topical over-the-counter (OTC) medicaments has become a potential source of sensitisation, leading to an increase in lidocaine ACD

ACD is a Type IV delayed-type of hypersensitivity reaction that usually takes 24-72 hours to manifest and can occur after both subcutaneous and topical use of lidocaine. The hypersensitivity response may not become apparent on the first exposure to the allergen drug, with most patients having had previous exposures with either no or mild reaction. Although the indexed patient denied a history of use of any such topical medication, either OTC or prescription, the possibility of a previous exposure cannot be ruled out.

Skin testing is strongly suggested in all patients requiring LA agents. However, it becomes difficult to practice in patients presenting for emergency surgeries with a full stomach and anticipated difficult airways, like the present patient. In patients who develop signs and symptoms of allergy with a positive patch test, true allergy should be confirmed using subcutaneous and intradermal tests. Moreover, eliciting a detailed medical history, including drug history, can be pivotal in preventing any untoward consequences. Patients with a pre-operative history suggestive of LA hypersensitivity, multiple drug hypersensitivity reactions (DHR) to drugs other than LA, and uncontrolled asthma and hay fever are candidates for LA sensitivity skin tests [10]. Those with controlled asthma with no prior history of LA allergy may not be routinely pretested for LAs [11]. Cross-reactivity has been reported between ester group LAs, although less commonly between esters and amides, and within the amide group [12,13]. Therefore, other LAs should be tested, and a list of those with negative skin tests should be provided to the patient for future reference. This was not possible in the indexed

Figure 1: Delayed hypersensitivity reaction to lidocaine after 24 hours of subarachnoid injection.

Figure 2: Erythematous rash after 36 hours of intradermal test.
patient as she refused further testing of other LAs. In the event of ACD, topical corticosteroids should be used. Anaphylaxis is not a concern in these patients.

Conclusion

As LA agents are routinely used in clinical practice for outpatient and inpatient procedures, it is imperative to be familiar with the presentation and management of their allergic reactions. These reactions may range from acute life-threatening complications to delayed cutaneous reactions. In addition, regional anaesthesia could be used in case of emergency procedures in patients with no previous history of LA hypersensitivity, whereas general anaesthesia can be more perilous. Nonetheless, the anaesthetist should be mindful of the possibility of LA allergy at all times, with preparedness for emergency measures in case of anaphylaxis.

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Conflict of interest

There are no conflicts of interest to declare by any of the authors of this study.

References


