

Case Report

Hypersensitivity to Aerosol Spray Dressing

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Abstract

We report case of a 12-year-old girl who had undergone surgical correction for Lenke's Type 1A right-sided adolescent idiopathic scoliosis in the spine unit of our hospital. Postoperatively, secondary suturing was required due to wound dehiscence. After the secondary suturing, an aerosol spray dressing in the form of polyvinyl polymer 2.52% w/w + benzocaine 0.36% w/w + cetrimide 0.50% w/w + propellant solvent 100% w/w was applied topically on the day of discharge. On the same day at home, the patient developed a hypersensitivity reaction in the form of erythema, rash, and blebs at the site of application along the suture line and adjacent areas. It was diagnosed as a hypersensitivity reaction to the aerosol dressing spray. The patient was started on tablet prednisolone 10 mg TID tapered over a period of 9 days with topical fusidic acid and Betnesol[®] ointment. She recovered in about 10-12 days and had uneventful further followups in the clinic.

Keywords: Aerosol propellant, benzocaine, hypersensitivity

INTRODUCTION

Local anesthetics are medications commonly used in surgical procedures such as debridement, dental surgeries, and wound suturing. Topical creams, gels, injections, and aerosol sprays are few of the available formulations. They reversibly block nerve conduction near their site of administration, thereby producing temporary loss of sensation in a limited area. Nerve impulse conduction is blocked by the inhibition of sodium channels. Hypersensitivity to local anesthetics contributes to approximately 0.1% of all drug allergies.^[1] There have been very few reports regarding skin reactions to benzocaine preparations. Allergy to aerosol preparation is also rare. Hypersensitivity may also be attributed to certain propellants such as sulfides rather than active ingredients. There has been no reported incident of hypersensitivity to aerosol spray dressing (polyvinyl polymer 2.52% w/w + benzocaine 0.36% w/w + cetrimide 0.50% w/w + propellant solvent 100% w/w) in literature. This spray is commonly used as an aerosol spray dressing for local use after suture removal. Here, we put forth a case of hypersensitivity to the spray that was notified in our hospital.

CASE REPORT

We present the case of a 12-year-old girl, whose consent has been obtained. She had visited the orthopedic outpatient

department with complaints of a progressive deformity in the back for a period of 1 year. She had a history of occasional dull and nonradiating backache. There were no other complaints. The antenatal, natal, and postnatal history were unremarkable. Local examination revealed a right-sided convexity of the thoracic spine. Magnetic resonance imaging spine revealed Lenke's Type 1A right-sided adolescent idiopathic scoliosis. She underwent scoliosis correction wherein posterior instrumentation and fusion was done using titanium pedicle screws and rods under the guidance of fluoroscopy and neuromonitoring system. Surgery was uneventful, surgical site closure was performed by standard closure technique, and skin closure was done using continuous subcuticular absorbable sutures. Postoperatively, she was fitted with a custom-made spinal brace. She required secondary suturing as there was wound dehiscence. We applied the aerosol spray dressing (polyvinyl polymer 2.52% w/w + benzocaine 0.36% w/w + cetrimide 0.50% w/w + propellant solvent 100%

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Figure 1: Skin lesions seen after removing the brace at home

w/w) locally on the day of discharge. On reaching home, she complained of some burning sensation at the surgical site. On removal of the brace and inspection, erythema, rash, and blebs at the site of spray were noted [Figure 1].

The patient called the treating physician to report the same. The patient was advised to start on tablet prednisolone 10 mg TID and tapered slowly over 9 days. Fusidic acid with Betnesol[®] ointment was suggested to be applied locally. The lesion started to resolve gradually. It almost completely healed in about 10–12 days of treatment [Figure 2]. However, some rash of the surrounding skin persisted for few more days.

DISCUSSION

Adverse drug reactions are a serious health concern.^[2] As mentioned, the incidence of hypersensitivity to local anesthetics is low. They have proven to be an effective delivery system with a high safety margin in most cases.^[3] Additives and preservatives added to local anesthetics may cause allergic reactions.^[4] Allergic reactions may range from skin rashes, contact dermatitis, severe anaphylactic reactions to delayed Type IV hypersensitivity in the form of eczema. Systemic toxicity again not very often may be seen affecting mainly the central nervous system and the cardiovascular system. The incidence is high with the use of local anesthetic injections in surgeries. Dermatitis may be seen with topical application of gels, creams, and lotions. The local anesthetics with ester group are more prone to allergies. The allergenic trigger was found to be para-aminobenzoic acid, which is generated as an intermediate metabolite on ester hydrolysis. Local anesthetics are too small (<300 Da) to be antigenic, but may bind to plasma or tissue proteins as a hapten that possesses antigenic properties.^[5] Because there are no previous reports of hypersensitivity to this aerosol spray, owing to rarity and seriousness of this reaction, it is imperative to report the same. It will also increase awareness in physicians and patients alike and make them more vigilant toward possible reactions. According to the WHO causality assessment scale, the drug is probably related to the incident.^[6]



Figure 2: Well-resolved lesion around the surgical scar by 12 days. Some rash of the surrounding skin persisted for few more days

CONCLUSION

This case report highlights the need to test for hypersensitivity to local anesthetic preparations, given their widespread use in medical practice. Because allergic reaction to drugs is a major health concern, careful elicitation of history regarding previous exposure to the concerned drug is of utmost importance.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given his consent for images and other clinical information to be reported in the journal. The guardian understands that names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Thyssen JP, Menné T, Elberling J, Plaschke P, Johansen JD. Hypersensitivity to local anaesthetics – Update and proposal of evaluation algorithm. *Contact Dermatitis* 2008;59:69-78.
2. Patil N, Rao KN, Avinash A, Kunder SK, Hande HM, Ahmed T. Dilemma in the diagnosis of povidone-iodine hypersensitivity. *Online J Health Allied Sci* 2015;14:19.
3. Desai C, Wood FM, Schug SA, Parsons RW, Fridlender C, Sunderland VB. Effectiveness of a topical local anaesthetic spray as analgesia for dressing changes: A double-blinded randomised pilot trial comparing an emulsion with an aqueous lidocaine formulation. *Burns* 2014;40:106-12.
4. Malinovsky JM, Chiriac AM, Tacquard C, Mertes PM, Demoly P. Allergy to local anesthetics: Reality or myth? *Presse Med* 2016;45:753-7.
5. McLure HA, Rubin AP. Review of local anaesthetic agents. *Minerva Anestesiologica* 2005;71:59-74.
6. World Health Organization. The use of the WHO-UMC system for standardized case causality assessment. Uppsala: The Uppsala Monitoring Centre 2005. https://www.who.int/medicines/areas/quality_safety/safety_efficacy/WHOcausality_assessment.pdf. Last accessed: 2020 Aug 2.