Anaphylactic reaction following administration of lignocaine hydrochloride infiltration. Case report

Christopher O. Ogunsalu, BDS, FRACDS*

Abstract
A case of progressive anaphylactoid reaction complicating a local anaesthetic agent administered to a dental patient is described. The management of the condition is discussed.

Key words: Anaphylactic reaction, local anaesthesia, case report.

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Introduction

Anaphylactoid reaction is a hypersensitivity reaction occurring after the administration of an anaphylactogen. The pathomechanism resembles that of anaphylaxis. It is a Type I hypersensitivity reaction mediated by IgE antibodies capable of releasing biologically active factors such as histamine, vasoactive amine, slow releasing substance of anaphylaxis (SRS-A; leukotriene L4 and D4), eosinophils chemotactic factor (leukotriene B4) and basophil kallikrein.

This case report describes a progressive anaphylactoid reaction presenting as angioedema of the face and neck associated with urticarial rash of the angle of the mouth in a patient who received lignocaine hydrochloride local anaesthetic solution for the first time prior to a dental extraction. Attention is drawn to the management of this unusual but potentially fatal complication. The constituents of this agent were 2% lignocaine hydrochloride solution with epinephrine 1:100 000, sodium chloride 6 mg/mL and sodium metabisulphite 0.5 mg/mL as a reducing agent. The solution did not contain a paraben.

Case repor t

A 14 year old female presented at the dental clinic with an extensive swelling of the left circumorbital, infraorbital, nasolabial and submandibular regions with associated urticarial rash at the angle of the left side of the mouth four days after extraction of teeth 24 and 27 (Fig. 1). An infiltration with one cartridge of local anaesthetic (lignocaine hydrochloride with epinephrine 1:100 000) was used to achieve anaesthesia of the posterior and middle superior alveolar nerves, and a greater palatine nerve block was also given. The procedure was uneventful and atraumatic.

Palpation of the face revealed a slightly tender soft swelling of the left side that had crossed the midline slightly to involve the right nasolabial and submandibular regions. The patient readily volunteered that rashes appeared the day after the dental extraction. She was immediately admitted to the observation ward and started on drug therapy based on the clinical diagnosis of anaphylaxis/anaphylactoid reaction. An intravenous line was established to expand blood volume because of her unstable blood pressure and pulse rate using 4.3% dextrose in normal saline: 500 mL was to run every 6 hours. Intravenous adrenaline 1:100 000 (1.0 mg/mL), 0.5 mL diluted in 10 mL normal saline was administered over 15 minutes.[1] Intramuscular chlorpheniramine maleate BP 10 mg 8 hourly combined with solucotef (hydrocortisone sodium succinate 100 mg) was given 8 hourly for 3 doses. The vital signs were frequently monitored and reassurance was given to the patient regarding the possible outcome of treatment. The adrenaline was repeated 30 minutes after the initial dose.

Review of the patient 24 hours after commencement of the regimen revealed a dramatic regression of the facial swelling (Fig. 2). The urticarial rashes had begun to crust. The patient was continued on intramuscular adrenaline 1:1000 (1.0 mg/mL 0.5 mL), chlorpheniramine maleate 10 mg and 100 mg hydrocortisone as above, 8 hourly for 3 doses. The patient was discharged on the third day following admission as the swelling had responded considerably to the therapy with no relapse. Because the patient was covered by prophylactic antibiotic (ampicillin 250 mg qds 6 hourly) immediately post extraction for one week — the last dose of which was taken on the day of discharge — a diagnosis of secondary infection such as acute infective osteitis (the so-called 'dry socket') was not favoured.

Discussion

Surgical emphysema following removal of alveolar bone with an air-rotor instrument could give the

*Senior Registrar, Department of Oral and Maxillofacial Surgery, Cornwall Regional Hospital, Montego Bay, Jamaica.

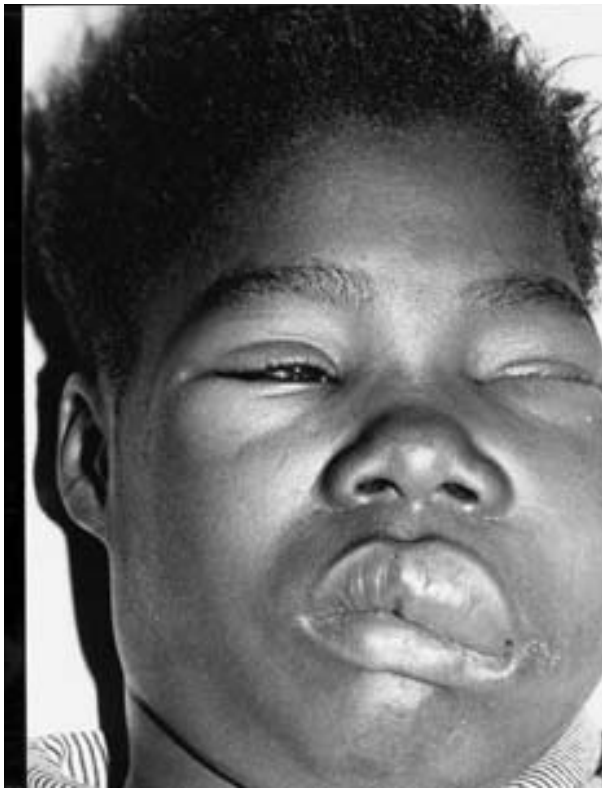

Fig. 1.—Massive oedema with urticarial rash at the left angle of the mouth.

Fig. 2.—Twenty-four hours post-treatment.

clinical picture in Fig. 1. But in the case under discussion the extraction was absolutely uneventful without the use of air-rotor instrumentation to remove bone in order to retrieve root fragments.

All dental practitioners should be aware of the diagnosis and management of emergencies such as anaphylactoid reaction or anaphylaxis that may arise from the use of local anaesthetic agents. Resuscitative drugs such as antihistamine, adrenaline and corticosteroids should be available at chairside for immediate use. All patients must be warned prior to local anaesthetic agent administration of the possible danger that follows its use. They should be told to report back immediately to the clinic if a rash should develop. Anaphylaxis may develop immediately and is usually immediately life-threatening due to respiratory embarassment. Early symptoms and signs include a sensation of warmth, itching especially in the axilla and groin, and a feeling of anxiety and panic. These may progress into an erythematous or urticarial rash, oedema of the face and neck, bronchospasm and laryngeal oedema. The severe state of anaphylactoid reaction may lead to wheezing and dyspnoea — hypertension, arrythmia and cardiac arrest may occur.

Lignocaine solution contains sodium bisulphite that may cause serious allergic type reactions in certain persons although the overall incidence of sulphite sensitivity in the general population is low. It has been frequently seen in asthmatic or atopic non-asthmatic persons. For this reason the author recommends, as a precautionary method, that this group of 'at risk' patients should be placed on an appropriate dose of antihistamine prior to injection of a local anaesthetic agent solution containing sulphite and for some time thereafter depending on the clinical situation.

The mainstay of treatment of anaphylactoid reaction is adrenaline.[1] Corticosteroids and antihistamines could be used in conjunction with adrenaline to help reduce the overall duration of the reaction and may prevent relapse. They should never be used to the exclusion of adrenaline in the management of anaphylaxis/anaphylactoid reaction. It can be administered subcutaneously, intravenously, or intramuscularly, depending on the clinical situation. It is safe and effective. The use of adrenaline intravenously in this case was to counteract an incipient hypotensive state which could have terminated in cardiac arrest.

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Reference

1. Medicine Digest. Medical management of anaphylactoid reaction. Aust Prescriber 1988;14:20.

Address for correspondence/reprints:
Mr Christopher Ogunsalu,
Department of Oral and Maxillofacial Surgery,
Cornwall Regional Hospital,
Montego Bay, Jamaica, West Indies.