

A Buccal Haematoma Following Administration of an Inferior Alveolar Nerve Block – A Case Report

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Abstract

Inferior alveolar nerve blocks are one of the most commonly used anaesthetic techniques in general dental practice. Although mostly successful in achieving anaesthesia they can be associated with local complications and high failure rates. In this report, we discuss the case of an urgent referral to the Oral and Maxillofacial Department made by a general dental practitioner following the administration of a routine inferior alveolar nerve block. The patient in question had rapidly developed a facial swelling following the nerve block. The report aims to highlight the presentation and management of such cases.

Keywords: *Haematoma; Inferior Alveolar Nerve Block; Ecchymosis, Anaesthesia*

Abbreviations

IANB: Inferior Alveolar Nerve Block; GDP: General Dental Practitioner; ICP: Intercuspal Position

Introduction

It is unusual that such a common medical technique, used daily in a primary care setting can be associated with significant failure rates and rare but significant complications. Failure and complication rates have been quoted as high as 37 - 47% [1]. The most common issues associated with inferior alveolar nerve blocks are [2]:

- Failure of anaesthesia
- Prolonged paraesthesia
- Facial palsy
- Trismus
- Haematoma formation

We describe an unusual case of a complication following an inferior alveolar nerve block in which we aim to highlight the correct management, follow-up and techniques which can be used to minimise future issues.

Case Report

An urgent call was received by the on-call Oral and Maxillofacial Core Trainee at Basildon and Thurrock University Hospital from a local general dental practitioner. A 54-year-old patient had rapidly developed a facial swelling following administration of a routine inferior alveolar nerve block for a lower left wisdom tooth restoration. The swelling continued to increase in size for 30 minutes and she had developed limited mouth opening. The patient also reported immediate pain at the site of injection but there was no airway risk and the patient was otherwise stable.

The patient’s medical history was clear. On clinical examination, there was a well-defined fluctuant buccal space swelling measuring 4cm X 4cm (Figure 1a). The overlying skin was normal in colour but very tender to palpation. She had marked limited mouth opening at 20 mm and pain on opening. The distribution of the inferior alveolar nerve was completely anaesthetised on presentation. Intra-oral examination was unremarkable with no defined swelling (Figure 1b).



Figure 1a: Showing left side buccal space swelling immediately post-operatively.



Figure 1b: Intraoral view of anaesthetic site.

Based on the history and clinical examination, a buccal space haematoma following perforation of the inferior alveolar blood vessels was diagnosed. No urgent treatment was required, however, a one week review was scheduled and the patient was sent for medical photographs. At review, the swelling had reduced but there was now marked ecchymosis tracking to the left anterior triangle of the neck (Figure 2). She also had prolonged paraesthesia along the inferior alveolar nerve distribution.



Figure 2: Showing left side ecchymosis extending to the neck.

Given the extent of ecchymosis and paraesthesia a further 4-week follow-up was arranged. At that appointment, the swelling and ecchymosis had completely resolved, however, she still had lasting but improving numbness. The patient was seen at a three-month review at which stage the swelling and ecchymosis had resolved completely. Given the fact that the sensation was returning she was discharged back to her dentist who was asked to monitor the situation.

Discussion

A haematoma is caused by penetration of a blood vessel by a needle resulting in damage to the vessel wall and subsequent bleeding into the surrounding tissues. Haematomas resulting from attempts at intraoral anesthesia are most commonly caused by rupture of the posterior superior alveolar and infraorbital vessels [3], however, we believe that this haematoma resulted in damage to the inferior alveolar artery which lies in close proximity to the inferior alveolar nerve.

When faced with an unexpected complication following an IANB, the clinician should immediately stop administration of the local anaesthetic and withdraw the needle. It is important to recognize the signs and symptoms of each potential complication and manage appropriately. Short term management would include reassurance and explanation of the situation. For specific complications such as a buccal haematoma formation, medical photographs may be useful. Longer term management would include regular follow-up as no surgical intervention is usually required. Should a persistent swelling remain or if there are signs of an infection then advice and referral to an Oral and Maxillofacial Department would be advisable.

To avoid such complications, it is important to have a clear understanding of anatomy and techniques required for effective anaesthesia. This can include knowledge of anatomical landmarks, achieving a negative aspirate and to try and avoid relocating the needle while in the vicinity of the inferior alveolar bundle.

Should there be persistent issues with the use of a traditional IANB then the following techniques can be employed on a patient specific basis:

The Gow-Gates Technique

The Gow-Gates technique involves deposition of anaesthetic solution in a more superior position compared to the standard IANB technique. Maximum mouth opening is required and an imaginary line is drawn from the commissure of the mouth to the inter-tragic notch.

The site of penetration is achieved by advancing the needle along a plane from the contralateral canine and passing through the palatal cusps of the ipsilateral upper second molar until bone is felt.

The Akinosi Technique

In comparison to the Gow-Gates technique, this method uses a closed-mouth approach and is useful for patients with limited mouth opening when conventional methods of anaesthesia have failed [4].

With the patient in ICP the needle is advanced along a plane parallel to the occlusal plane of the maxillary teeth at the height of the mucogingival junction. The needle is advanced until the barrel is adjacent with the distal surface of the maxillary first and second molars.

Conclusion

This case report demonstrates the rapid development of a haematoma after incorrect delivery of an inferior alveolar nerve block. Although a relatively uncommon consequence, it is important for practicing dentists to recognize and be able to manage such incidents.

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