

Case Report

Removal of a broken needle in the pterygomandibular space: a case report

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Received: 29/11/2011. Accepted: 26/01/2012. Published online: 26/01/2012.

Abstract Needle breakage following inferior alveolar nerve block is an unusual yet alarming complication in contemporary dental practice. We report a case of surgical retrieval of a broken needle in the pterygomandibular space following an inferior alveolar block in a 21 years old male. The postoperative recovery was uneventful and no complications were observed. Prompt removal of a broken needle is advisable to avoid complications.

Keywords: Inferior alveolar nerve, injection, needle, pterygomandibular.

Introduction

The incidence of needle breakage during administration of local anaesthesia is quite low in contemporary dentistry. This is mainly due to the use of flexible stainless steel disposable needles (Ethunandan *et al.*, 2007). This complication, however, continues to be reported infrequently and is thought to be due to poor practice, unexpected patient movement and needle manufacturing defects (Bedrock *et al.*, 1999). Needle breakage has most frequently been reported in relation to an inferior alveolar nerve block (Faura-Solé *et al.*, 1999). We report surgical management of a patient with a broken needle in the pterygomandibular space following an inferior alveolar nerve block.

Case report

A 21-year-old male was referred by his dentist to the maxillofacial department for management of a broken needle following

administration of an inferior dental nerve for the removal of the lower right second molar. The patient presented four hours after the incidence and complained of discomfort at the injection site. The discomfort was more severe when the patient attempted to open his mouth. His intraoral examination was unremarkable and the needle was not clinically visible or palpable (Fig. 1). Dental panoramic and postero-anterior views of the mandible were taken which confirmed the presence of the needle in the pterygomandibular space (Fig. 2 and Fig. 3).

The patient was reassured and offered surgical retrieval of the needle under a general anaesthetic to which he consented. A vertical incision was made along the ascending ramus, which extended approximately 2.5 cm along the external oblique ridge. A subperiosteal sub-periosteal plane was established to avoid bleeding. The lingual and inferior dental nerves were identified and protected. Blunt dissection through the periosteum was carried out which allowed



Fig. 1 Preoperative intraoral view with the needle not clinically visible.



Fig. 2 Preoperative postero-anterior view of mandible showing the presence of the broken needle (arrow) in the right mandibular ramus area.



Fig. 3 Preoperative OPT of mandible showing the presence of the broken needle (arrow) in the right mandibular ramus area.



Fig. 4 Intra-operative view showing surgical exposure and retrieval of the broken needle.

identification of the broken needle supra-periosteally (Fig. 4). The needle was retrieved in one piece without any damage to local vital structures. The postoperative phase was uneventful and no complications were observed.

Discussion

Inferior alveolar nerve blocks are administered routinely for a variety of dental and oral surgical procedures.

Although needle breakage is uncommon nowadays, it can be a stressful event for the patient and dentist alike and this report serves as a reminder.

In the event of needle breakage, every effort should be made to retrieve the needle immediately. The use of a fine hemostat may be useful if the broken end of the needle is visible intra orally. If the needle disappears completely and is non-retrievable prompt referral to a maxillofacial unit is required. Immediate

recovery of the broken needle may relieve symptoms of pain or discomfort and eliminates the risk of damage to vital structures following migration of the needle (Zeltser *et al.*, 2002). The psychological and medico legal implications also merit attention. However, asymptomatic patients may decline immediate surgical intervention.

A variety of methods have been described to locate a broken needle in the pterygomandibular space. Plain radiographs taken at right angles to each other (dental panoramic radiograph and postero-anterior view of the mandible) are often the initial investigation of choice. However reformatted 3 D CT scans may provide a more precise assessment. Generally two surgical approaches have been advocated for surgical exploration (Ethunandan *et al.*, 2007; Bhatia and Bounds, 1998). The first method involves a vertical mucosal incision on the medial aspect of the mandibular ramus with blunt supra-periosteal dissection. The second method relies on an incision along the external oblique ridge followed by sub-

periosteal dissection. The broken needle may then be explored by blunt supra-periosteal dissection. The latter technique helps identify and protect the inferior alveolar and lingual nerves and was employed for this case.

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