Displaced polishing discs: two case reports

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Routine dental treatment is not without its hazards. Two cases of trauma to the buccal soft tissues caused by displaced polishing discs are reported and suggestions made regarding the long-term use and maintenance of dental instruments.

A potential risk associated with providing daily dental care is the aspiration or swallowing of foreign bodies.¹ The literature states that a high percentage of aspirated or swallowed objects have a direct or indirect dental origin.^{2,3} In addition, the oral mucosa is frequently traumatised during dental procedures with injuries to the lips, tongue, floor of mouth and cheeks caused by instruments and sudden untoward movements by patients. Many cases of foreign bodies in the maxillary antrum are reported ranging from airgun pellets,⁴ pieces of glass and match sticks⁵ to teeth, dental materials,⁶ and dental instruments.^{7,8} These cases report the loss of polishing discs deep into the tissues of the buccal pad of fat and in close relation to the parotid duct and papilla following routine restorative care.

Case report 1

A 30-year-old female was referred to the maxillofacial surgeons in the Department of Stomatology at the University of Otago in Dunedin by her general dental practitioner who was working some considerable distance from the nearest maxillofacial unit. She had been having routine conservative care carried out under local anaesthetic which involved the polishing of a restora-

In brief

- Routine dental treatment is full of potential hazards
- Misplaced foreign bodies must be accounted for
- Repeated use of instruments results in wear and tear, and requires continual maintenance/replacement
- Correct full documentation in the patient's notes is essential

tion placed in the buccal aspect of an upper left second molar UL7 (27). Whilst the procedure was being carried out the composite polishing disc came off the mandrel, lacerated the buccal mucosa and disappeared. The procedure was stopped and a search made for the disc. As she had no respiratory distress it was suggested that the disc might be in one of three places: 1) in her alimentary canal; 2) in the suction line; or 3) and most likely, it was impacted into the tissues. A search was made of the suction apparatus which revealed no disc. As some of the buccal pad of fat had herniated through

Fig. 1 Buccal and periorbital swelling

the laceration in the buccal mucosa, this area was further explored by extending the wound but there was still no sign of the disc. Various intra-oral radiographs were taken but none were able to locate the disc.

The GDP placed the patient on a course of amoxycillin 500 mg tds with a loading dose of 1 g and advised her to use ice-packs to reduce swelling. She was also prescribed a non-steroidal anti-inflammatory for analgesia. She was sent home and arrangements made for review the next day. Later that afternoon the practitioner was called by the local hospital to be informed that the

Fig. 2 Orthopantomogram showing misplaced disc

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Fig. 3 Axial CT scan showing disc in soft tissue of left cheek

patient had been admitted owing to the swelling which was now involving the left orbit. She had been placed on intravenous Augmentin (SmithKline Beecham (NZ) Ltd), 1.2 g and tenoxicam 20 mg. This failed to control the pain and she was prescribed intramuscular pethidine with good result.

The following day, following a request from the GDP to the maxillofacial surgeons, she was transferred to Dunedin. Clinical examination revealed a sutured laceration in the left buccal mucosa superior to the parotid papilla. She had partial trismus and extensive buccal and periorbital swelling. (Fig. 1). The disc could not be palpated. An orthopantomogram revealed the disc to be lying in the tissues above the apices of the maxillary left second molar (Fig. 2). A computed tomography (CT) scan was arranged for axial and coronal views to accurately locate the disc. This also showed a significant amount of surgical emphysema (Fig. 3 and Fig. 4). She was continued on the intravenous Augmentin (SB) 1.2 g and additionally commenced on intravenous metronidazole 500 mg tds.

Arrangements were made to explore the area and remove the disc under general anaesthesia and this was carried out the next day. Access was gained using the existing laceration and by extending it anteriorly to give improved visualisation. The disc was located in the buccal fat tissue — a large amount of which was necrotic. This, together with the disc was removed (Fig. 5). The parotid papilla was probed with blunt lacrimal dilators and the duct found to be intact. The area was irrigated with copious amounts of sterile normal saline and a corrugated silicone drain sutured into position. She was returned to the ward and reviewed the following morning. At this stage the swelling was remarkably reduced

with no orbital involvement and the drain was therefore removed and the patient discharged home with a continuation of the antimicrobial therapy to be taken orally. She was reviewed 2 days later and continued to make good progress with no problems associated with either the site of trauma or her parotid duct. Three months following the surgical removal of the disc, the patient has no post-operative problems and has had no incidence of parotid swelling. The surgical site and laceration have healed well. She will be reviewed finally in a further 6 months.

Case report 2

A 24-year-old female patient who was 24 weeks pregnant but with no other relevant medical history, attended the emergency dental clinic in the School of Dentistry, University of Otago, complaining of pain

associated with a pericoronal infection of her lower right third molar LR8 (48). Clinical examination revealed a partially erupted lower, right third molar LR8 (48) with pericoronal inflammation associated with occlusal trauma from the upper right second molar UR7 (17) and associated cervical lymphadenopathy. Because of her apprehension regarding dental treatment, the decision was taken to alleviate her acute pain by reducing the cusps on the opposing upper right second molar UR7 (17) thereby relieving any occlusal trauma and irrigation of the inflamed operculum on the lower third molar LR8 (48). This was carried out with a sandpaper disc on a friction grip, square mandrel. Unfortunately, when the disc contacted the tooth the patient abruptly closed her mouth. The disc was displaced from the mandrel, lacerated the buccal mucosa and disappeared from view. Intra-oral examination revealed a laceration in the buccal mucosa and no obvious sign of the disc.

A periapical and postero-anterior radiograph, with lead apron protection, revealed the disc lying in the soft tissues at the level of the occlusal plane (Fig. 6 and Fig. 7). At this point the oral and maxillofacial surgeons were contacted with a view to removing the disc. Despite being 24 weeks

Fig. 4 Coronal CT scan showing displaced disc with surrounding surgical emphysema

Fig. 5 Retrieved polishing disc

pregnant and after long consultations with the surgeon and anaesthetist regarding the possible implications for her unborn child and the ease of removal of the disc, the patient refused any treatment unless anaesthetised. Under general anaesthesia later that day the wound was explored, the disc removed and the area thoroughly irrigated and closed using resorbable sutures (Vicryl 3/0; Ethicon).

She was placed on a course of oral antibiotics and arrangements made for review the following morning. The patient discharged herself from hospital some 90 minutes after leaving the operating theatre. Following repeated telephone calls the next day she appeared for review 1 week post-operatively. At that time the surgical site was seen to be healing well and there was no disruption of her parotid duct or gland.

Fig. 6 Intra-oral periapical radiograph showing misplaced disc

Fig. 7 Postero-anterior extra-oral radiograph showing position of disc

Discussion

It is not unusual for the oral soft tissues to be traumatised during conservative dental procedures however this is the first time that the authors have come across incidents where a polishing disc has come off a friction grip mandrel with sufficient force to lacerate the buccal mucosa and penetrate deep into the underlying submucosa. Perhaps the discs had been incorrectly seated on the mandrels or the mandrels themselves were worn and therefore did not provide a secure housing. This is probably the case with the plastic mandrels found in some of the polishing kits which are repeatedly used. In these instances, is there a case to be made for single use only to prevent wear on the plastic allowing the discs to become detached? With the advent of critical focus upon asepsis techniques, instrument failure is a likely sequela as repeated autoclaving, dry-heat applications or exposure to caustic cold sterilisation and surface disinfectants increases the wear of instruments, handpieces and burs. Before use instruments, handpieces and burs should be routinely examined for signs of wear or corrosion. Instrument manufacturers should be contacted for instrument care and sterilisation guidelines, as well as the projected longevity of the instrument if their sterilisation recommendations are followed. This will undoubtedly contribute to the rising cost of care as the protocol for maintain-

ing asepsis will mean more frequent replacement of instruments. In addition proper isolation of the teeth and protection of the surrounding soft tissues must be paramount when carrying out any dental procedure. Finally, if a foreign body is misplaced it must be accounted for as soon as possible and if need be an immediate referral to hospital made for radiographic examination in order to localise the instrument. In the case of aspiration or swallowing early localisation will help determine the most appropriate approach to treatment and the medical specialty which should take care of the patient. In our first case, immediate referral to a maxillofacial surgeon would have lessened the patient's distress and discomfort.

As a last consideration, the patient's notes should include the date and time of the incident, the object involved, the circumstances surrounding the incident ie sudden movement by the patient etc, and any actions taken at the time to remove the foreign body.^{9,10} Further documentation should report the on-going management and eventual outcome together with copies of any radiographic reports confirming the position of the object.^{9,10}

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