Surgical excision of intra-oral dermoid cyst under local anaesthesia: a review of nine cases

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Abstract

Objective The purpose of this article is to highlight the effectiveness of local anaesthesia in the surgical excision of intra-oral dermoid cyst in the absence of available modern and efficient general anaesthetic options as experienced in our environment.

Patients and methods A retrospective review of nine patients with intra-oral dermoid cysts seen at the oral and maxillofacial surgery units of three specialist hospitals in eastern Nigeria was carried out between 1996 and 2007. We used simple clinical findings and the aspiration technique for our provisional diagnosis and treated our patients by using local anaesthesia, which contains 2% lignocaine hydrochloride in 1: 80,000 adrenaline.

Results Out of the nine cases seen, the male-to-female ratio was 2:1, representing six male and three female. The age range was 13–22 years, with a mean age of 19 years. The use of local anaesthesia was uneventful and despite the limited options of treatment and the absence of advanced imaging techniques we achieved total success and good results in all nine patients.

Conclusion The anaesthetic difficulties and uncertainties associated with the management of intra-oral dermoid cysts especially in an environment that lack modern general anaesthetic options can be avoided by the use of local anaesthesia. This may, therefore, be an effective alternative to difficult and sometime expensive general anaesthetic methods used in developed countries and could be emulated by oral and maxillofacial surgeons in poorer countries.

Keywords Intra-oral dermoid cysts · Surgical excision · Local anaesthesia

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Introduction

Dermoid cyst in the floor of the mouth is considered a rare finding and accounts for about 1.6% of all the dermoid cysts occurring in the body [1]. Clinically, the cyst is a painless slow-growing lesion with a doughy consistency and is often soft and well encapsulated without associated lymphadenopathy [2]. The three subclasses described in the literature are epidermoid (simple), dermoid (complex), and teratoid (complex) cysts [3]. Intra-oral dermoid cysts occur more in the floor of the mouth than at any other site in the oral cavity [1,5]. Other subtypes of dermoid cysts in the oral cavity are those found on the tongue. However, there are few cases of patients

with intra-lingual dermoid cysts described in the literature written in English [4]. Dermoid cysts of the floor of the mouth are thought to be caused by entrapment of germinal epithelium during the closure of the mandibular and hyoid branchial arches [6]. They usually present as a painless swelling in the floor of the mouth and may increase in size at the onset of puberty when there is an increase in the secretion of sebum from the sebaceous glands [7]. In Nigeria dermoid cysts of the floor of the mouth are very rare and so are rarely seen in our oral and maxillofacial centres. As such, the literature on sex and age distribution is scarce. In an established case of dermoid cyst of the floor of the mouth, preoperative assessment of patients before

surgical procedure is very important, as the choice of anaesthesia is influenced by the clinical findings and patients' sociodemographic data, especially in our environment. General anaesthesia is usually the anaesthetic method of choice employed in the treatment of this lesion, which makes literature on the use of local anaesthesia in surgery on dermoid cysts of the floor of the mouth rare [7–9]. In regard to the surgical procedure, the intra-oral approach is suggested [5,6,8,10–12]. These authors are of the opinion that with this technique it is possible to obtain adequate surgical access in cases of very large dermoid cysts involving simultaneously the floor of the mouth and the submental space. In this way a skin incision in the submental fold can

Fig. 1 The double-chin appearance caused by the presence of intra-oral dermoid cyst

Fig. 2 Enucleation of the intra-oral dermoid lesion under local anaesthesia

Fig. 3 The patient in figures 1 and 2 six months postoperative evaluation; the arrow shows normal attachment of lingual frenum with complete absence of the lesion

be avoided [8,5], which is an important consideration for Africans, who are prone to keloid. With this method, local anaesthesia can be employed with good surgical results [5].

The purpose of this article is to highlight the effectiveness of local anaesthesia in the surgical excision of intra-oral dermoid cyst in the absence of modern and efficient general anaesthetic options.

Patients and methods

A retrospective review was carried out of nine patients who had intra-oral dermoid cysts of the floor of the mouth surgically removed under local anaesthesia. These surgeries took place at the oral and maxillofacial surgery units of three specialist centres in south-eastern Nigeria over a 12-year period from January 1996 to December 2007. The hospitals are the Annunciation Specialist Hospital and Ntasiobi Specialist Hospital, both found in Enugu State, and Federal Medical Centre Abakaliki, Ebonyi State. The patients were referred to the units by dental surgeons, medical practitioners and health centres in the catchments area of these hospitals. The catchments areas are the south-eastern states, the Delta State and the Benue State of the Federal Republic of Nigeria.

All the lesions were characterised by the same spectrum of painless fluctuant mass in the floor of the mouth and a corresponding protrusion of the submental region, depicting a double chin in appearance (Fig. 1). Radiological investigations revealed an intact and normal skull and jaw bones in all nine patients. Simple needle aspiration biopsy of all the

lesions yielded no aspirate. A provisional diagnosis of dermoid cyst was made in each of these cases. All the patients were informed of the risks and benefits of the operation, after which they signed consent documents for the operation. Thereafter, we carried out surgical excision of the lesions under local anaesthesia. The standard surgical procedure was the same in all cases and was performed by the same surgeons. Thirty minutes before the commencement of the surgery, 10mg diazepam was administered orally. The patients were seated in a relaxed position in a dental chair, adjustment being made when necessary to facilitate surgery. Local anaesthesia of the inferior alveolar nerve, lingual nerve and terminal infiltration of buccal fold for the long buccal nerve was performed on both sides with a 27-gauge hypodermic needle, 3.5cm long. With this method, complete anaesthesia was achieved. In each case, an incision made along the free edge of lingual frenum from just behind the tip of the tongue, down to its attachment to the mandible. After the cystic wall had been exposed, the lesion was carefully and successfully enucleated intact using the finger ends (Fig. 2).

Results

The surgeries were uneventful as no sizable bleeder that needed ligation or diathermy was encountered. Out of the nine cases treated, the male-to-female ratio was 2:1, representing six male and three female. The age range was 13–22 years, with a mean of 19 ± 5.2 . The use of local anaesthesia was uneventful and, despite the absence of advanced imaging techniques and limited

options for treatment, we achieved good results in all nine patients. Six-weeks to two-year follow-up assessment in each case showed normal frenal attachment at the site of the incisions (Fig. 3). No recurrences of the lesions were observed during the follow-up periods.

Discussion

Intra-oral dermoid cysts occur more frequently in patients between the ages of 15 and 35, but can be seen in all age ranges with an incidence of 3.6% of all the cysts in the oral cavity [6]. Longo et al. [8] in their ten-year study observed that males were affected more than females (male-to-female ratio of 3:1), while the patients' ages ranged from 5 to 51 years (mean age of 27.8). In our study we observed a male-to-female ratio of 2:1 with a mean age of 19. Differential diagnosis of dermoid cyst includes lymphoepithelial cyst, thyroglossal cyst, ranula, cystic hygroma, lymphangioma and soft tissue abscess. Histologically, the contents of the cyst are often keratinous, caseous, sebaceous, hairs, nails, fat globules and even cartilaginous [6]. This differentiates ranula from a dermoid cyst. Magnetic Resonance Imaging (MRI), Computer Tomography (CT) scan and ultrasonography are helpful in establishing the differential diagnosis [6,7,8,10]. The use of plain radiographs or orthopantomogram may not be so useful unless a radiopaque medium is injected into the lesion [10]. Cramer et al. [11] advocate the use of Fine Needle Aspiration biopsy (FNA) as the first choice of procedure for the clinical diagnosis of dermoid cyst. We relied on the use of simple needle aspiration and clinical judgment for the provisional

diagnosis because of a lack of modern diagnostic equipment. This method is not as accurate as a CT scan or MRI for making a precise diagnosis of dermoid cyst. However, it is a simple, cost-effective and time-saving method that provides a working diagnosis prior to histopathological examination [5].

The surgical excision of dermoid cyst of the floor of the mouth is usually done under general anaesthesia. In our patients we resorted to the use of local anaesthesia for several reasons, one of which was an experience where we almost lost a patient in an attempt to intubate under general anaesthesia. Most of the anaesthetic reviews have suggested tracheostomy as the best way to secure the airway because of difficulties in endotracheal intubation. Although tracheostomy is one of the most common ways of securing the airway, especially in cases of intra-oral dermoid cyst, it is not without its own hazards, even when carried out by an experienced surgeon [13]. The literature reports 14–45% morbidity and 1.6–16% mortality rate from tracheostomy [14,15]. In addition to the possible adverse effects of tracheostomy, one must also bear in mind that we work in a generally poor environment where patients and their relatives might not be able to afford the expensive process of general anaesthesia. The success of our method therefore depended largely on patients' selection, motivation, the prevailing situation as the time and conviction to accept the use of local anaesthesia.

We do not have the means for an objective measurement of pain and the psychological status of the patient during the surgical procedure but all our patients were very co-operative throughout the procedure. Seah et al. [7] suggested decompressing the cyst when the airway is compromised, which allows for routine intubation and eases the need for tracheostomy. Opinions vary;

however, the fact remains that in a poor environment, we used a less risky and more beneficial method of achieving anaesthesia in the surgical management of intra-oral dermoid cysts. Although this method may not follow the surgical theory used in developed countries, it remains an effective anaesthetic alternative that could be emulated by maxillofacial surgeons in poorer countries.

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