

# Intraoral route for excising a large dermoid cyst of the floor of mouth: A discussion

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## Abstract

Surgical excision is an effective treatment for a dermoid cyst (DC) of the floor of the mouth (FOM). A dichotomy of opinions exist regarding the appropriate approach to surgical excision. In this study, we discuss our experience with excising a large DC via an intraoral route. An 18-year-old female presented with swelling of the submental region for one year. Under general anesthesia, an incision was conducted in the mucosa of FOM. By removing some contents, the cyst was delivered in toto. While some studies have stressed that the location of origin and size of the DC influence the route of excision, other authors have pointed out that by the time both median genioglossal and geniohyoid cysts become large enough to produce symptoms, both the muscles are splayed out and thus, the cysts are more amenable to excision by intraoral approach. This case highlights a dichotomy of opinion regarding the existing literature and to educate the clinicians about the benefits of the intraoral route of excision.

**Keywords:** Dermoid cyst, Mouth floor, Cysts, Submental, Intraoral, Extraoral

## Introduction

Dermoid cyst (DC) of the floor of the mouth (FOM) is an uncommon entity, and surgical excision is the only effective treatment for DC. A classical study described 1495 cases of DC, in which only 1.6% were located in the FOM [1]. There is a dichotomy of opinion regarding the appropriate approach to surgical excision. Some surgeons prefer the extraoral approach, via a submental incision; whereas others favor the intraoral route, via the mucosal incision. From our experiences, the extraoral approach leads to a visible submental scar or even worse, a hypertrophic scar. We prefer excising all submental DCs, even large ones via the intraoral route [2, 3]. We present our experience in the case below.

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### Informed Consent

The authors stated that the written consent was obtained from the patient presented with images in the study.

### Conflict of Interest

No conflict of interest was declared by the authors.

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### Case presentation

An 18-year-old female presented with painless diffuse swelling of the submental region over the last year, giving her a “double chin” appearance (Figure 1, 2). The swelling slowly increased in size, and for the last two months, it had started to protrude in the FOM (Figure 3). On bimanual palpation, a well-defined, non-tender, cystic swelling of approximately 8 x 6 x 6 cm in size was detected in the midline, which was free from the mandible.

Figure 1: View of submental swelling



Figure 2: Lateral view showing the submental swelling



Figure 3: Intraoral view showing the submental swelling



Magnetic Resonance Imaging revealed a well-defined midline cystic lesion that had displaced bilateral geniohyoid muscles and measured 73 x 50 x 48 mm. Mild enhancement along the cyst wall is noted.

Consent was obtained for surgical intervention, for taking photographs, and for publication of photographs. Nasotracheal intubation was used to induce general anesthesia and patient was positioned supine. One shot of intravenous antibiotic was given. A tongue stitch was taken, and the tongue was retracted out of the field. An incision was conducted at the right side of the frenulum to protect the Wharton’s ducts. A combination of blunt and sharp dissection was performed, using scissors, curved artery forceps, and bipolar electrocautery. The application of traction and counter-traction forces assisted in the dissection. As it is challenging to deliver the broadest part of the cyst, a stab incision was given, and some of the cheesy contents were evacuated (Figure 4). This procedure aided in excising the rest of the DC, out of the surrounding muscles. A 75 x 55 x 50 mm-lesion was dissected. (Figures 5, 6). Hemostasis was achieved, and closure was done with absorbable sutures. The operating time was 70 minute.

Figure 4: MRI showing a well-defined cystic lesion (Arrow), displacing geniohyoid muscles, and measuring 73x50x48 millimeter



Figure 5: Partial excision of the swelling via intraoral route. A stab incision had to be applied and some contents had to be evacuated to help in delivery of the cyst.



Figure 6: After complete excision of the cyst and hemostasis

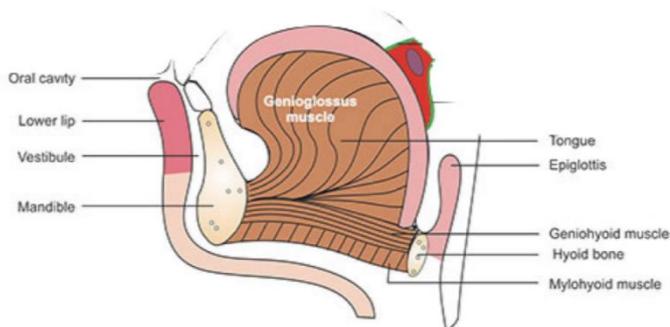


Histopathological examination confirmed the diagnosis of a dermoid cyst. In the postoperative period, edema developed in the submental region, which resolved with conservative methods.

## Discussion

DC is a clinicopathological lesion of developmental origin. Even though it is congenital, DC usually present in the second or third decade, when they become sufficiently large to cause symptoms due to mass effect [4]. The anatomy of the FOM is depicted in Figure 7. The median DC may rest on the mylohyoid and spread the geniohyoid, called geniohyoid DC, or may rest on the geniohyoid and spread the genioglossus, called genioglossal DC [5]. Geniohyoid DC may present as double chin; whereas genioglossal DC presents as sublingual swelling, which may lead to articulation and mastication disorder, and rarely causes dysphagia, dysphonia, and dyspnea [2]. Large cysts may result in a combination of symptoms, as was in our case.

Figure 7: Relevant anatomy of floor of mouth



Many surgeons believe that the origin of the DC and size of the cyst influence the route of extirpation. Longo et al. [6], Teszler et al. [7] and other studies recommended excision using the intraoral route for small genioglossal cysts. However, these studies preferred the extraoral route for a geniohyoid cyst or large sublingual cyst.

However, some surgeons favor the intraoral route, irrespective of the location and size of the lesion- Ohta et al. [4], Brusati et al. [8] cite the following reasons for favouring the intraoral route. Sewart [2] points out that a large cyst, which causes symptoms, should involve the median septum between genioglossus and geniohyoid muscles. The difference in surgical approach, advocated by the previously mentioned surgeons, is based more on theory and not practicality. Meyer et al. [9] and Sewart [2] concede that all DC (of any subtype) originate from

above the mylohyoid. Hence, the plane below mylohyoid should not be violated, thus necessitating excising all median DC via the mucosal route.

Sewart [2] and Walstad et al. [3] reiterate that, with patience, extensive cysts can be removed via the intraoral route. We also performed the same operation, completed the dissection, and excised the cyst in toto. In massive cysts, some contents can be aspirated to reduce the volume and deliver it through mucosal incision [7]. Brusati et al. [8] stated that an extended midline mucosal incision is sufficient for the excision of tumors as distant as the posterior third of the tongue and the cervical spine. Thus, the extended midline mucosal incision can remove large cysts of FOM, even if they reach up to the hyoid bone.

Incising through the skin, platysma, and mylohyoid to reach cysts, does not seem justified to us. Wider surgical exposure and better visualization of structures do not balance the outcome for an unaesthetic scar. The scar may become hypertrophic and appear as a patch of alopecia in males. The best scar therapy is prevention. In exceptional conditions such as an inflamed lesion, that is expected to be adherent to surrounding structures or sizeable blood vessels passing in the vicinity of the lesion, adopting an extraoral approach appears prudent [2].

In conclusion, we advocate the intraoral approach for excising DC of FOM. We wrote this piece to highlight the conflict in the existing literature and to educate the clinicians regarding the benefits of an intraoral approach.

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