

# Intraoral Cystic Lesions: Presentation of a Series of 54 Cases and Review of Literature

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## Abstract

**Introduction:** Congenital cystic swellings can be classified into dermoid cysts, congenital ductal cysts, and branchial cleft anomalies like cystic hygroma. These cysts are composed of elements from all three germinal layers. Acquired cysts most common encountered are mucous retention cysts usually involving the minor salivary glands.

**Objectives:** A retrospective review of 54 cases of intraoral cystic swellings of the floor of the mouth is presented, evaluating their successful diagnosis and further the different surgical approaches for their removal.

**Materials and Methods:** A total of 54 cases presented with a diagnosis of cyst of the floor of the mouth, treated at Saraswati Institute of Medical Sciences, Hapur, Uttar Pradesh, India, between the period of 2010 and 2014.

**Results:** Out of the total 54 cases diagnosed with intraoral cystic lesions, 30 cases were male and 24 cases were female which showed male:female ratio of 1.25:1. Age distribution of the patients ranged from 18 months to 62 years. It was seen that 16 patients belonged to the age group of 18 months-15 years (29.6%), 20 between 16 and 30 years (37.1%), 12 between 31 and 45 years (22.2%), and 6 patients were between 46 and 62 years of age (11.1%). Out of the 54 cases, 16 were ranula, 10 cases were of simple ranula (18.5%) and 6 were of deep plunging ranula (11.1%), 6 cases were of dentigerous cyst (11.1%), 10 cases of dermoid cyst (18.5%), 2 parasitic cysts (3.7%), 14 cases were of mucus retention cyst (25.9%), and 6 were of cystic hygroma (11.1%).

**Conclusion:** Surgery is the treatment of choice for intraoral cystic swellings. The approach of surgery depends on the location of the lesion in relation to the mylohyoid and geniohyoid muscles. For larger cysts some prefer aspiration of the contents of the cysts before excising, it as it considerably decreases the size of the incision and provides better healing and thus better cosmetic results.

**Key words:** Cysts, Dermoid cysts, Intraoral lesions, Ranula

## INTRODUCTION

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Congenital cystic swellings are classified into dermoid cysts, congenital ductal cysts, and branchial cleft anomalies like cystic hygroma. These cysts are usually composed of elements from all three germinal layers. Acquired cysts most common encountered are mucous retention cysts usually involving the minor salivary glands. The common sites of occurrence are the lips, buccal mucosa, and tongue. These true cysts with an epithelial lining result from duct obstruction. A simple ranula is a mucous retention cyst of the sublingual gland and was described as plunging when it extends from the floor of the mouth through

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the mylohyoid musculature into the neck. Mucoceles, in contrast, are not true cysts and do not contain an epithelial lining. Mucoceles represent mucous extravasation into the surrounding soft tissue.<sup>1</sup>

For early diagnosis, a detailed history with respect to onset, duration, size, site of the swelling, presence of any antecedent trauma. A high degree of suspicion is required on the part of the treating physician along with proper and meticulous clinical examination of the oral cavity. In our study, the clinical diagnosis was made on the basis of the clinical features in conjunction with fine-needle aspiration cytology (FNAC), conventional radiographs, ultrasonography (USG), and computed tomography (CT). Treatment includes intraoral surgical excision of the cyst, marsupialization of ranula, aspiration followed by transcervical excision.

## MATERIALS AND METHODS

This retrospective and prospective study of 54 patients was conducted in the Department of Otorhinolaryngology and Head and Neck Surgery, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India from August 2010 to August 2014. A detailed history with respect to onset, duration, size, site of the swelling was taken. Proper and meticulous clinical examination of the oral cavity was done in all the cases. Clinical findings were confirmed by additional investigations like conventional radiographs, USG, CT/magnetic resonance imaging (CT/MRI), together with FNAC in some cases. USG was done to assess the nature of the contents of the swelling. CT/MRI was done in selected cases to know the exact location of the swelling and its relationship with surrounding important structures. FNAC was done for cytological evaluation of the swelling.

### Observations

Out of the total 54 cases diagnosed with intraoral cystic lesions, 30 cases were male and 24 cases were female that showed a male:female ratio of 1.25:1. Age distribution of the patients ranged from 18 months to 62 years.

In our study, it was found that 16 patients belonged to the age group of 18 months-15 years (29.6%), 20 between 16 and 30 years (37.1%), 12 between 31 and 45 years (22.2%), and six patients were between 46 and 62 years of age (11.1%) (Table 1).

The various symptoms with which the patients presented were noted. Intraoral swelling, pain in swelling, difficulty in eating food, extraoral extension were the common complaints encountered (Table 2 and Figure 1).

Out of the 54 cases, 16 were of Ranula, out of the 16 cases of ranula 10 cases were of simple ranula (18.5%) and 6 were of deep plunging ranula (11.1%), 6 cases were of dentigerous cyst (11.1%), 10 cases of dermoid cyst (18.5%), 2 parasitic cysts (3.7%), 14 cases were of mucus retention cyst (25.9%), and 6 were of cystic hygroma (11.1%) (Table 3 and Figure 2).

## DISCUSSION

Intraoral cystic swellings are rare but not uncommon findings in ENT practice. The differential diagnosis of the swellings in the oral cavity ranges from ranula, Mucous retention cysts, dermoid and epidermoid cysts, cystic hygroma, lymphoepithelial cysts, palatal and gingival cysts, lymphangioma, pyogenic granuloma.<sup>1</sup>

**Table 1: Agewise distribution of patients**

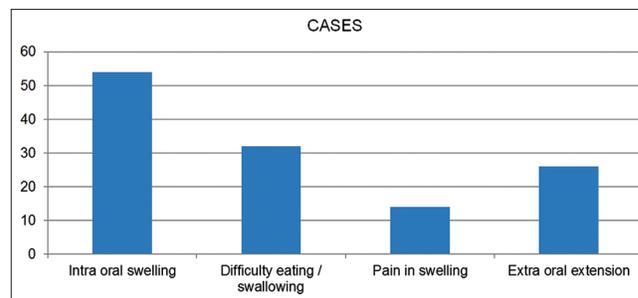
Age group	Cases	Percentage
18 month-15 years	16	29.6
16-30 years	20	37.1
31-45 years	12	22.2
46-62 years	6	11.1

**Table 2: Presenting symptoms of the patients**

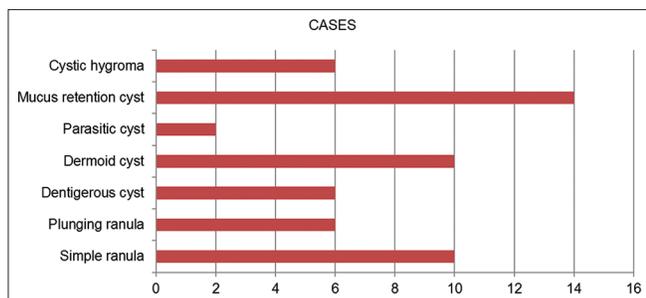
Symptom	Cases	Percentage
Intraoral swelling	54	100
Difficulty eating/swallowing	32	59.3
Pain in swelling	14	25.9
Extra oral extension	26	48.2

**Table 3: Diagnosis of the various intra-oral swellings**

Type	Cases	Percentage
Simple ranula	10	18.5
Plunging ranula	6	11.1
Dentigerous cyst	6	11.1
Dermoid cyst	10	18.5
Parasitic cyst	2	3.7
Mucus retention cyst	14	25.9
Cystic hygroma	6	11.1



**Figure 1: Presenting symptoms of the patients**



**Figure 2: Diagnosis of the various intra-oral swellings**

Ranulas are mucus extravasation cysts formed after trauma to the sublingual gland.<sup>2</sup> A ranula is called as plunging ranula when it extends from the floor of the mouth through the mylohyoid muscle and then into the neck.<sup>3-5</sup> The various methods for treatment of ranulas include marsupialization, excision of ranula, and laser excision and vaporization of the ranula.<sup>2</sup>

Dermoid cysts have been known to occur as a result of defective embryonic development (dysontogenetic). They represent cystic swellings that are filled with the keratinous sebum-like material. Dermoid cysts originating from the floor of the mouth comprise about 1.6-6.5% of all the dermoid cysts of the body and account for about 23-34% of head and neck dermoid cysts.<sup>6,7</sup> These can be congenital or acquired. The congenital dermoid cysts arise from embryonic cell rests of the 1<sup>st</sup> and 2<sup>nd</sup> branchial arch. The acquired dermoid cysts are caused due to trauma or due to iatrogenic causes. They result in occlusion of a sebaceous gland duct. It consists about 1.6-6.4% of the dermoid cysts of the body. On the basis of the anatomic location, the swellings are divided into median genioglossal, median geniohyoid, and lateral cysts, while on the basis of histology they are divided into epidermoid, dermoid cysts and teratomas.<sup>7</sup>

Mucous retention cysts are usually found to involve the minor salivary glands and are usually seen on the lips, buccal mucosa, and tongue. True cysts are the ones with an epithelial lining and result from obstruction of the duct. A mucocele is formed secondary to rupture of an excretory duct of a salivary gland resulting in an outpouring of saliva into the surrounding tissues.<sup>8</sup> Mucoceles are not true cysts as they do not contain an epithelial lining. Mucoceles simply represent mucous extravasation into the surrounding soft tissue. The bluish discoloration is due to the vascular congestion and cyanosis of the tissue. This bluish discoloration also depends on the size of the lesion and proximity of lesion to the surface.<sup>9</sup> The management of these mucous retention cysts and mucoceles is by excision or marsupialization.<sup>10</sup>

Dentigerous cyst is defined as a developmental odontogenic cyst; they develop by an accumulation of fluid between

the epithelium of the enamel and the tooth crown of an unerupted tooth.<sup>11</sup> It has been observed that 95% of dentigerous cysts involve the permanent dentition and about 5% cysts are found in association with supernumerary teeth. The age of presentation of dentigerous cyst associated with the supernumerary tooth is during the first four decades of life. Mesiodens is a supernumerary tooth situated between the maxillary central incisors. Mesiodens usually occurs unilaterally, but it may also be bilateral or rarely multiple.<sup>12</sup> Dentigerous cysts associated with the supernumerary teeth constitute 5-6% of all the dentigerous cysts while about 90% cysts are found in association with a maxillary mesiodens.<sup>13</sup>

Cystic hygromas are fluid-filled sacs resulting from blockage of the lymphatic duct system. Cystic hygromas can be single or multiple cysts found most common in the neck region. A cystic hygroma can be present at birth (congenital), or it may develop at any time. A cystic hygroma in a developing baby can progress to hydrops (an excess amount of fluid in the body) and eventually fetal death. Some cases of congenital cystic hygromas resolve during the course of development. In other instances, it can progress in size to become larger in size. Cystic hygromas occur in 1% of fetuses during pregnancy.<sup>14</sup> In about 80% cases, the location of cystic hygromas is cervico-facial region. Approximately, 60% of cystic hygromas have onset at birth and about 90% become apparent before 2 years of age. Cystic hygromas can remain asymptomatic for the long duration. The indications of intervention include recurrent bouts of infection, respiratory distress, dysphagia, hemorrhage inside cystic hygroma, the sudden increase in the size of the lesion, lymph discharging sinus, and disfigurement.<sup>15</sup> Surgical excision of the cystic hygromas is considered as the treatment of choice. Extreme care should be taken to avoid perioperative complications. The possible complications following surgical excision varies from damage to the facial nerve, facial artery, carotid vessels, internal jugular vessels, thoracic duct and pleura, and incomplete excision in the case of infiltration to the surrounding structures. The various post-operative complications seen after the surgical excision of are wound infection, hemorrhage, hypertrophied scar, and lymphatic discharge from the wound.<sup>16</sup>

A thorough clinical examination is required on the part of the clinician, for early diagnosis a detailed history with respect to onset, duration, size, site of the swelling, presence of any antecedent trauma. High degree of suspicion on a part of the physician and proper and meticulous clinical examination of the oral cavity. Clinical findings need to be supported by investigations like conventional radiographs, USG, CT/MRI, together with FNAC.

Surgery is still the treatment of choice for intraoral cystic swellings. The approach of surgery depends on the surgical expertise of the surgeon and lesion's location in relation to the mylohyoid or geniohyoid muscles. Mostly the surgeons prefer that if the cyst is located over the mylohyoid, then surgery should be carried out through the intraoral approach, whereas if the cysts were under the geniohyoid muscle then extraoral incision, known as cervical approach should be preferred.<sup>2</sup> In the case of larger cysts some prefer aspiration of the contents of the cysts before excising it. In the case of an Intraoral approach, a midline vertical, or an elliptical incision on the floor of the mouth should be given first followed by blunt dissection; however, only small cysts can be enucleated using this kind of incisions as reported by other authors. Some surgeons prefer a bilateral incision along the mandibular crest, to obtain a good surgical approach and wider field to remove the cyst and to obtain adequate surgical control of the cysts located above the geniohyoid muscles.<sup>4</sup>

The extraoral approach or rather the cervical approach consists of a submental incision and a sharp, blunt dissection to reach the cystic lesion and thence to enucleate the lesion. The extraoral approach is preferred in the case of median geniohyoid or considerably larger sublingual cysts. The incision site is always closed in layers in extraoral approach and with intermittent interrupted sutures in intraoral approach to provide for drainage and avoid collection and thus providing better and cosmetically acceptable surgical results. A self-retaining and vacuumized Cervical Drain was kept in all the cases where large cysts were removed. The drain was removed post-operative on day 3. Specimens removed during surgery were sent for histopathological evaluation. The post-operative course did not present with any serious complication. Pain at the incision site, mucosal edema, collection at the site, hematoma were seen only in few post-operative cases. All the operated cases were followed for up to 10 months, and no recurrence was found during this period.

## CONCLUSION

Cystic swellings occurring in the oral cavity are successfully diagnosed and managed by a combined intra- and extraoral surgical approach. It follows a systemic approach consisting of detailed history, clinical examination and appropriate imaging techniques. FNAC of the mass is diagnostic in

a large number of cases. Differential diagnosis of such lesions includes Ranula, Mucous retention cysts, dermoid and epidermoid cysts, cystic hygroma, lymphoepithelial cysts, palatal and gingival cysts, lymphangioma, pyogenic granuloma and embryonic abnormalities. Surgery is still considered as the treatment of choice for intraoral cystic swellings. However, the approach of surgery depends on the location of the lesion with respect to the mylohyoid or geniohyoid muscles. Most of the surgeons prefer to remove the cyst through intraoral approach if the cyst is located over the mylohyoid muscle. Whereas the extraoral incision also known as the cervical approach is to be preferred when the cysts are located under the geniohyoid muscle.

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