

## Anomalies in Oral Cavity

### Research Article

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**Received:** Jan 22, 2020; **Accepted:** Feb 08, 2020; **Published:** Feb 12, 2020

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### Abstract

The oral cavity is a unique entity whose main role is chewing and swallowing food and speech. The most important organs are the teeth, tongue and salivary glands. The role of the oral mucosa is to protect these organs by allowing the absorption of the substance, preventing non-physiological metabolism and stimulating the excretion of harmful substances from the body. When only one changes of the factors in the oral cavity, there is a disagreement that manifests itself with the appearance of oral symptoms and oral diseases that can compromise a person's daily life functions and habits.

### Keywords

Oral Cavity; Injury, Diagnosis; Health

### Introduction

The oral cavity includes the lips, buccal mucosa, oral tongue (anterior two thirds), floor of mouth, hard palate, upper and lower alveolar ridges, and retromolar trigone [1]. Virtually all malignancies here are squamous cell in origin. They often are painful, generally raised or ulcerated, and firmer to the touch than surrounding tissue. The pain from superficial infection often can be relieved through antibiotic treatment. A patient with a suspected lesion is referred immediately for early biopsy, and, if necessary, a multidisciplinary treatment plan for cancer cure can be instituted. Cancers of this region affect speech and swallowing patterns. A new onset of hoarseness or painful or difficult swallowing, especially when coupled with a history of tobacco or alcohol use, should prompt a thorough evaluation to identify a primary cancer. The therapy for oral cavity cancers is dependent on the site and cancer stage at presentation.

An epulis is a granulomatous lesion of the gingiva [2]. It represents an exaggerated inflammatory response

to minor injury. Only symptomatic epulides need to be excised.

Peripheral giant cell reparative granulomas also occur commonly on the gingiva. The "giant" cell of origin appears to resemble an osteoclast. These granulomas are polypoid, submucosal, and fibrous. Radiographic examination may reveal erosion of the underlying bone. Excision must be complete to prevent recurrence.

The tongue and larynx are common locations for the development of papillomas. They are caused by the human papillomavirus, which induces squamous epithelial proliferation. Eradication may be accomplished by excision or cauterization.

Granular cell myoblastoma is a rare benign tumor of the tongue that originally was described as of embryonal muscle cell origin. These tumors are now believed to derive from Schwann cells and have been found to arise throughout the aerodigestive tract. In the tongue these tumors form firm submucosal swellings in the middle third

and can mimic squamous cell carcinoma. Wedge excision is recommended.

Ulcers of the oral lining are common. The idiopathic aphthous ulcer is the most common type. The cycle of painful ulceration and spontaneous healing may occur several times a year. Viral infections, nutritional deficiencies, and emotional stress are common etiologic factors. These ulcers often respond to topical steroids.

Lichen planus is a degenerative mucocutaneous disease with a probable autoimmune basis. The oral lesions appear with or without cutaneous manifestations and may, at times, become erosive. Squamous cell carcinoma has been found in association with lichen planus infection. Systemic and topical retinoids are being evaluated in the treatment of this condition.

## Thermal Injury

Thermal injury to the face, oral cavity, and airway causes soft tissue edema, and subsequent airway obstruction may result from swelling of either the supraglottic or infraglottic airway tissues [3]. Airway edema may often occur without burns to the face in patients with burns covering a large surface area. The mechanism of injury should be identified and an airway exam performed in any patient with burns greater than 30 % Total Body Surface Area (TBSA) with special attention being paid to burns to the face. Thermal injury of the upper airway (occurring above the glottis) spares the structures below the larynx due to the dissipation of heat energy. Thermal injury of the lower airway is very rare but may occur when there is closed space exposure to steam or prolonged exposure to products of combustion. Other less reliable predictors of smoke inhalation injury may include singeing of facial or nasal hair, evidence of oropharyngeal carbonaceous deposits, or carboxyhemoglobin levels greater than ten percent. Smoke inhalation injury is not truly a burn to the lower airway but, instead, is the result of smoke particles damaging the mucosa of the distal airways leading to sloughing, obstruction, and atelectasis. Observing soot or injury below the vocal cords while performing bronchoscopy makes the diagnosis. Epithelial damage in the airway is present in approximately one-third of patients with flame burns treated in burn centers. Patients with inhalation injury have increased fluid resuscitation requirements and have a higher likelihood of pulmonary complications and mortality, compared with those having an isolated burn injury. Inhalation of products of combustion damages

the epithelial lining of the larynx, trachea, and bronchi. Clinical signs include wheezing, dyspnea, coughing, and the presence of copious secretions. Beyond a direct insult to the tissue of the airway is an inflammatory response that occurs during the first 48 h following a major thermal injury. Inflammatory mediators such as IL-6, leukotrienes, and thromboxane increase capillary permeability leading to a loss of plasma proteins and electrolytes into the airway and alveolar tissue beds causing edema. Edema and obstruction of the airway following fluid resuscitation may not be present until 8–36 h after the initial insult.

Isolated facial injuries are rarely life-threatening; however, in high-impact trauma, concomitant injuries are a concern, particularly for acute brain injury and visceral damage [4]. Associated emergencies should be detected in the primary survey: this is primarily airway compromise. Airway compromise is the commonest cause of mortality, making its establishment and maintenance of the highest priority. Obstruction occurs by the tongue occluding the oropharynx (especially common in bilateral mandibular fractures because of central displacement), from foreign bodies such as teeth or from excessive upper airway haemorrhage, particularly in those with an altered Glasgow Coma Scale. The first-line treatment for securing an airway after the appropriate use of suction, forceps and tongue placement is tracheal intubation. This is often very difficult in laryngeal injury owing to haematoma; when oral attempts of intubation fail, the next approach is the fastest surgical one, cricothyroidotomy. If there is hoarseness, a palpable fracture and subcutaneous emphysema, the suggestion for a laryngeal fracture would promote the use of a tracheotomy avoiding the zone of injury. Although haemorrhage may cause airway concerns unless there is involvement of major vessels, severe consequences such as hypovolaemic shock are rare and will otherwise be detected in the secondary survey and treated urgently. Bleeding should be controlled by direct pressure. Bleeding of the maxillary artery territory is usually controlled by nasal balloons in the post-nasal space; these should be used with caution because of the risk of intracranial damage as a consequence of a co-existing cribriform plate fracture. To encourage haemostasis, several techniques may be applied: postural assistance, A-P packing, vasoconstrictors, controlling blood pressure, cauterisation and embolisation.

A rapid but abbreviated assessment of airway management risk is a prerequisite in all cases except when

one is forced to intervene without the opportunity to do so, for example, cardiac arrest [5]. Elective evaluation of the patient in the operating room is certainly an inexact science as the “unrecognized difficult airway” remains a challenge. This effect is exaggerated in the ED. Recognition of difficulty puts the practitioner on alert and places the patient at an elevated level of safety (preintubation preparation, positioning, equipment, and personnel acquisition augmented by a prudent and careful preplanned strategy with Plan A, Plan B, Plan C, etc.). Unfortunately, the patient, who is not evaluated, is improperly assessed or has equivocal signs of potential airway management difficulty, and may be approached in a less safety conscious manner. This subsequently may set the stage for increased patient risk when a backup plan has not been conceived; rescue equipment is unavailable or handled by the novice or when assisting personnel capable of performing a surgical airway is not present. The American Society of Anesthesiologists suggests an 11-part airway assessment (Mallampati score to assess oral cavity–oropharyngeal opening, neck and mandibular range of motion, dentition, thyromental distance, shape of palate, facial and mandibular bone size and alteration, etc.) which may still lead even the seasoned practitioner to miss or underestimate the “unrecognized” difficult airway. This lends credence to why airway managers must be prepared to handle unanticipated difficulty in every case they encounter since our predictive capabilities are imprecise.

## Dentist

Lesions of the oral cavity and perioral areas must be identified and accurately diagnosed so that appropriate therapy can eliminate the lesions [6]. When abnormal tissue growth is discovered, several important orderly steps should be undertaken to identify and characterize it. These steps include a comprehensive health history, history of the identified lesion(s), clinical and radiographic examinations, and relevant laboratory testing, if indicated. These steps lead to a period of close observation, referral to another health care provider when indicated, or initiation of surgical procedures to obtain a specimen for histologic examination (biopsy), which in turn lead to appropriate treatment decisions.

When the dentist discovers or confirms the presence of a lesion, the information must be discussed with the patient in a sensitive manner that conveys the importance of urgent attention to the problem without alarming the

patient. Words such as lesion, tumor, growth, and biopsy can carry terrifying connotations to many patients. The empathetic dentist can spare patients undue anxiety and emotional trauma by carefully wording the discussion relating to the lesion and reminding the patient that most discovered lesions in the head and neck region are benign, so the steps being taken are merely precautionary.

## Malignancies

Malignancies of the oral cavity may arise from a variety of tissues, such as salivary gland, muscle, and blood vessels, or may even present as metastases from distant sites [7]. Most common, however, are epidermoid carcinomas of the oral mucosa, which are the form of cancer that the dentist is in a position to discover first by doing thorough oral examinations. The seriousness of an oral malignancy can vary from the necessity for a simple excisional biopsy to composite jaw resection with neck dissection (i.e., removal of the lymph nodes and other visceral structures adjacent to lymph node channels in neck) to affect a cure. Because of the variation in clinical presentation, clinical staging is usually undertaken before a treatment plan is formulated.

Clinical staging refers to assessing the extent of the disease before undertaking treatment and has as two purposes: (1) selection of the best treatment, and (2) meaningful comparison of the end results reported from different sources. Clinical staging of the lesion is performed for several varieties of oral malignancies, including epidermoid carcinomas and oral lymphomas. Staging is performed differently for each type of malignancy and may involve extensive diagnostic tests, such as radiographs, blood tests, and even surgical exploration of other body areas to evaluate the extent of possible tumor metastasis. Once the tumor is staged, treatment is formulated. Several types of malignancies have well-defined treatment protocols that have been designed by surgeons and oncologists in an effort to study the effectiveness of treatment regimens more carefully.

## Cancer

The oral cavity starts at the lips and ends at the line marked by the junction of the hard and soft palates and the circumvallate papillae [8]. It has an important role in swallowing, taste and speech.

Head and neck cancers constitute 15% of all cancers, and one-third of all head and neck tumours arise within the oral cavity. The vast majority of oral cancers are

squamous cell carcinomas (SCC, 90%); adenocarcinomas are the second commonest, while other types of tumour are fairly uncommon. The patient (males predominate 3–4X) usually presents with a painless ulcer or cervical lymphadenopathy.

The risk factors (for SCC) are usually summarized as the 'S's, and of these smoking is the most important. Those who do not give up smoking have a greater risk of recurrence and of developing a second primary SCC. Chewing tobacco or betel nuts also increases risk. Susceptibility to these factors may be at least partly determined by genetic factors. The other 'S's are spirits (the effect of alcohol and tobacco is additive, and both show a linear association with cancer risk), sharps (damaged teeth or illfitting dental appliances), and less commonly, syphilis and spices. Leukoplakia and erythroplakia are premalignant lesions that are found in association with up to 20% of oral cancers; these lesions can progress to frankly invasive SCC and such lesions tend to be more aggressive.

Cancer of the oral cavity and pharynx can occur in any part of the mouth (lips, lateral tongue, floor of mouth most common) or throat and is highly curable if discovered early [9]. Risk factors for cancer of the oral cavity and pharynx include cigarette, cigar, and pipe smoking; use of smokeless tobacco; and excessive use of alcohol. Oral cancers are often associated with the combined use of alcohol and tobacco. Other factors include gender (male), age (older than 50 years), and African American descent. Malignancies of the oral cavity are usually squamous cell cancers.

#### **Clinical Manifestations:**

- Few or no symptoms; most commonly a painless sore or mass that will not heal.
- Typical lesion is a painful indurated ulcer with raised edges.
- As the cancer progresses, patient may complain of tenderness; difficulty in chewing, swallowing, or speaking; coughing of blood-tinged sputum; or enlarged cervical lymph nodes.

#### **Diagnosis**

The examination of the oral cavity and oropharynx is most commonly undertaken in the clinic without the need for anaesthetic [10]. Most patients are tolerant of the process and allow biopsy procedures to be performed using local anaesthetic. When other conditions are present,

such as leucoplakia, asymmetrical tonsils, ulceration of unknown origin, symptoms such as pain whose cause cannot be determined, an examination under general anaesthetic may be required. The key to successful transoral surgery requiring resection is adequate exposure, usually necessitating the use of mouth gags, cheek retractors and tongue depressors. An excision may be accomplished using a scalpel, electrocautery, or laser. Following resection the defect may be allowed to heal by secondary intention, be closed primarily, or be skin grafted.

Physical findings relate to late tumor stage presentation, which is common [2]. Pain in the ear of an adult is a relatively rare problem and usually indicates a malignancy of the oral cavity, oropharynx, or larynx. Formication, the feeling of ants crawling along the lip or cheek, may represent infraorbital nerve invasion by carcinoma. A change in speech is another physical indicator of oral carcinoma. Hoarseness is a sign of vocal cord impairment by local tumor growth. Airway compromise is usually a late symptom but can precipitate an emergency. Evaluation of the patient includes visualization of the entire upper aerodigestive tract. Careful intraoral examination and indirect mirror laryngoscopy are essential. A flexible nasopharyngoscope has added greatly to complete examination. Mobility of the tongue always should be noted. Position and movement of the vocal cords are also important. Limited motion of the mandible may come from direct tumor invasion or from invasion of tumor through the retromolar trigone. This may cause the uncomfortable symptom of trismus, an ominous clinical sign. Examination of the neck will reveal the presence or absence of metastatic lymph nodes. Careful examination will allow the examiner to assign an N stage to the patient, which is an important prognostic feature. A careful neurologic examination is also important to reveal evidence of more extensive disease. These findings would include extraocular movement disorders or Horner syndrome from invasion of cervical sympathetic nerves. Distant metastases are evaluated by laboratory procedures and radiologic examination, as well as by history and physical examination. Pleuritic pain or shortness of breath may indicate lung involvement, and distinct pain at specific sites may indicate bone involvement.

Definitive diagnosis depends on a biopsy. If the primary site is visible, a wedge biopsy should be taken at the edge of the tumor. Because of the significant incidence of synchronous primaries, however, evaluation of the entire upper aerodigestive tract is useful. Triple endoscopy, i.e.,

bronchoscopy, esophagoscopy, and direct laryngoscopy, is advisable for ideal workup of head and neck cancer. Radiologic evaluation of head and neck disease usually involves assessment of the mandible with dental films, mandibular series, and panoramic films. Bone scans frequently are falsely positive; rather, CT scanning is a very sensitive method of diagnosing bone invasion. MRI is probably the most accurate and useful method of evaluating the mandible as well as other areas of head and neck.

## Treatment

Malignancies of the oral cavity are treated with surgery, radiation, chemotherapy, or a combination of these modalities [7]. The treatment for any given case depends on several factors, including the histopathologic diagnosis, the location of the tumor, the presence and degree of metastasis, the radiosensitivity or chemosensitivity of the tumor, the age and general physical condition of the patient, the experience of the treating clinicians, and the wishes of the patient. In general, if a lesion can be completely excised without mutilating the patient, this is the preferred modality. If spread to regional lymph nodes is suspected, radiation may be used before or after surgery to help eliminate small foci of malignant cells in the adjacent areas. If widespread systemic metastasis is detected or if a tumor, such as a lymphoma, is especially chemosensitive, chemotherapy is used with or without surgery and radiation.

Currently, malignancies are often treated in an institution where several specialists evaluate each case and discuss treatment regimens. These "tumor boards" include at least a surgeon, a chemotherapist, and a radiotherapist. Most head and neck tumor boards also include a general dentist, a maxillofacial prosthodontist, a nutritionist, a speech pathologist, and a sociologist or psychiatrist.

## Conclusion

When only one changes of the factors in the oral cavity, there is a disagreement that manifests itself with the appearance of oral symptoms and oral diseases that can compromise a person's daily life functions and habits. Many

diseases of the human body can be identified early through changes in oral tissue. Mouth are mirrors of general health. Oral health is part and precondition of the general health of the organism. Poor oral health presents a risk to systemic health. Diseases of the mouth can damage general health.

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