



Risk and Complications from Oral Cancer

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Abstract

A bibliographic review was carried out about the main complications and risks in oral cancer. In this work, the different locations within the oral complex are taken into account, as well as the complications related to the different types of treatments.

Keywords: Oral Cancer; Complications; Risks; Patients

Introduction

In this century, orofacial cancer continues more than ever to be a challenge for all professionals who, directly or indirectly, participate and collaborate in this sacrificial work, dedicated to saving those who suffer from it. Stomatology has the greatest responsibility; doctors from the different stomatological specialties fulfill important functions in the multidisciplinary team that provides care to those affected by Head and Neck cancer. There are three main oncospecific treatments used in the orocervicofacial regions, which are first-line Surgery, followed by Radio and Chemotherapy. Whatever is prescribed, the Stomatologist must collaborate pre- and postoperatively, and in certain cases even intraoperatively [1,2].

Always trying to detect, prior to oncological treatment, different oral conditions that may be present before oncospecific therapy. Carrying out your treatment and thus avoiding the complications or consequences of said treatments or at least reducing their severity. The main reason for dental treatment prior to oncological treatment is to avoid oral infections, which can be the starting point of serious systemic conditions [3].

Objective

Describe the main complications and risks of oral cancer by anatomical locations.

Reference Search Methods

Scientific information was collected through a search using the following descriptors in English: The Medical Subject Headings (MeSH): "Risks in Dentistry, Prescription, oral cancer, head and neck cancer

Analysis strategy

The search was based only on the main risks and complications of oral cancer

Developing

Stomatological Indications

- Cavities, pulp and periapical infections of dental origin must be eliminated 14-21 days before the start of oncological therapy to ensure a correct healing period and periapical scarring.
- Endodontic therapy must be completed at least 14 days before the initiation of oncological therapy.
- Those radiolucent periapical lesions in endodontically treated teeth must be retraced, apicoectomy performed or extracted, since they could well be lesions where defense and aggression are in balance but when the patient becomes immunocompromised the process would worsen.
- Deep scaling should also be done.
- Periodontal surgery is not advised because the periodontium is the most common site of initiation of oral and systemic infection.
- Those teeth with an unfavorable pulpal or periodontal prognosis (expectation of less than one year in the mouth) should be extracted.
- Retained teeth and those included in the irradiation zone must also be extracted.
- For extractions, the following guidelines must be followed: use a technique that is as atraumatic as possible, strictly aseptic, perform alveoloplasty if necessary and bone regularization, achieve closure by first intention, leaving 14-21 days for complete healing and periodic control of the same [3-6].
- Before performing the extractions, you must keep in mind what the oral or maxillofacial prosthetic rehabilitation treatment to be performed will be, to take into account the dental anchorages.

- If there is a dental implant in the irradiation field, it depends on professional judgment whether to remove it or not, since it is known that metals cause radiation overdose in their area and reduce it in underlying areas.
- Ill-fitting prosthetic devices can traumatize the oral mucosa and increase the risk of microbial invasion.
- Prostheses should be evaluated and adjusted as necessary to reduce the risk of trauma and it should be remembered that during cancer treatment they should only be used for feeding.
- Conventional X-rays of the pieces to be treated and panoramic X-rays should be taken at the beginning of treatment [7-9].
- Then clinical and radiological control should be carried out every six months to evaluate the status of the restorations, possible recurrence of pulpal and/or periapical pathologies.
- At this stage, the patient's oral hygiene must be assessed and a systematic and complete oral hygiene routine established by mutual agreement.
- Chlorhexidine gluconate is a broad-spectrum antimicrobial drug with activity against gram-positive and gram-negative organisms, yeasts, and other fungal organisms.
- Chlorhexidine gel can also be applied at home or in concentrations of 1% or 5% in the office, achieving a great reduction in the *Streptococcus mutans* population. 0.9% saline solution with or without baking soda can be used if the toothpaste causes irritation. Sodium bicarbonate is very useful to neutralize the acidity of the environment generated by hyposialia and thus counteract the appearance of cavities.
- Rinses containing alcohol should be avoided as they can damage the mucosa and aggravate lesions, as well as aggravate xerostomia [1,2,12,13].
- All these measures must be complemented with the use of dental floss with an atraumatic technique once a day, since chemotherapy will leave the soft tissues more labile.
- Swabs may be useful for cleaning the maxillary and mandibular ridges of edentulous areas, palate, and tongue. It is important to avoid dry lips to reduce the risk of injury.
- Lip care products contain oils and waxes that can be helpful.
- Lanolin-based creams and ointments may be more effective in protecting against this type of trauma. This condition can be caused by mouth breathing and xerostomia secondary to anticholinergic medications; among other drugs; used for the management of nausea favors it even more.
- It is also important to use systemic fluoride measures and frequently perform fluoride topicals in the office or at home by making individual trays.
- The patient must be explained the fundamental reason why they should follow the suggested oral hygiene program and informed of the possible complications of Cancer Chemotherapy and Radiotherapy [14,15].

Oral hygiene

- It is important to inform the patient that during the treatment of an oncological disease it is common for systemic infections to develop, many of them originating in the oromaxillary sphere, eventually lethal.
 - Oral hygiene should be performed with a straight-handled brush, soft 2- or 3-row nylon bristles, three to four times a day with the modified Bass method for cleaning the gingival sulcus, including the dorsal surface of the tongue and rinsing the tongue. mouth frequently so that there are no traces of the toothpaste.
 - Pastes with a concentration of 1450 ppm fluoride, or higher concentration, should be used. As the flavors used in the paste can irritate oral soft tissues, consideration should be given to using a paste that has a relatively neutral flavor.
 - Rinsing the brush in hot water every 15 to 30 seconds during brushing softens the brush and reduces the risk of causing trauma [3,10,11].
 - The brush should be dried in the open air between each use to avoid contamination and bacterial colonization, which would turn it into an infectious vector, and it should be changed every 2-3 months or when its bristles lose shape and/or bend.
 - When the use of a regular toothbrush is not possible, a possible alternative (although less effective) is the use of a foam and fluoride gel toothbrush. Hygiene should also be complemented with non-sugar and alcohol-free antimicrobial rinses, reminding the patient that these are only auxiliary chemical means and that mechanical removal of plaque is very important and more effective.
 - These rinses can be with 0.12% alcohol-free chlorhexidine for 5 minutes, half an hour after brushing, povidone-iodine can also be used.
- This oral hygiene routine should be established a month before the oncological therapy so that the patient gets used to it, systematizes it, and then its effectiveness should be monitored as well as motivation reinforced in each consultation. The patient should also be advised, in conjunction with a nutritionist, how to maintain an adequate and complete non-cariogenic diet and advise the use of complete food supplements before the start of therapy so that in the event of any complications from radiochemotherapy (RQT) occurring, the body is in the best conditions to face it. The patient should be informed and helped to completely stop smoking and alcohol consumption. The specific protection that the dentist can provide to avoid radiation damage to the bone, teeth, mucosa and salivary glands that are in the vicinity of the tumor is by making acrylic prostheses, in common agreement with the radiotherapist, to protect those areas not involved by the tumor. These prostheses are made with 1.25 cm metal sheets. thick composed of 50% bismuth, 26.7% lead, 13.3% zinc and 10% cadmium and coated with acrylic. This will only be used during the RT session [16,17].

Oncospecific treatment Surgery

Surgery constitutes the fundamental pillar in orocervicofacial cancer and within this in the oral cavity. Early diagnosis of these patients is important given that the operations are very mutilating and can leave multiple sequelae, in addition to exposing the patient to multiple risks and complications. With similar characters, but at the same time dissimilar differences depending on the locations. In this section we will only emphasize malignant conditions with the primary tumor in the oromaxillofacial complex [2,3,18].

Surgical risks and complications according to locations



Figure 1: Patient with squamous cell carcinoma of the lower lip and cheek, who underwent surgery on four occasions, but her wound dehiscence, and she came to our office for help, reconstruction was performed with favorable evolution. Courtesy of Doctor Otto Alemán Miranda.

Lip cancer

Cancer with labial location is characterized by being very evident, so patients can quickly self-detect any alteration. In the highest percentage of diagnosed cases, they present squamous cell carcinomas originating in the lining epithelium of the vermilion. They generally grow slowly and are not as metastasizing. In our experience, the most affected region is the lower lip and it appears infrequently in women. It has great affinity for the white race and appears from the fifth or sixth decade of life. Its diagnosis is easy and relatively early. In its etiopathogenesis it is related to solar radiation mainly in patients with potentially malignant lesions (pre-malignant), physical, chemical and/or mechanical trauma [19-22].

It is a neoplasm with important aesthetic, functional, and psychological conditions. The main objective of surgery is excision with adequate safety margins of the disease and then carrying out a reconstruction that results in an aesthetically and functionally acceptable neolabium for the individual and the professional. These injuries have a well-studied pattern of how they evolve. They generally develop in the vermilion, mainly in its middle third. It is seen more on the lower lip since this region is exposed more to the sun. (view image) In its process of local extension it invades the rest of the vermilion laterally, towards the muscles in depth, the skin outwards and the mucosa of the lip inwards. Until it manages to invade the bony portion of the lower or upper jaw. You can use the nerve pathway through the mental and inferior alveolar nerves to the base of the skull. The tumor may continue to other subsites of the oral cavity or outside of it [1,2,12,13].

Main risks and complications of lip cancer.



Figure 2: Squamous cell carcinoma of the labial region. Courtesy of Dr. Carlos Juan Puig González.



Figure 3: Transoperative excision of squamous cell carcinoma of the labial region. Courtesy of Dr. Carlos Juan Puig González.

Characteristics of Cancer	Of surgical treatment
Aesthetic condition	Specific to anesthesia
Functional condition	Nerve injuries
Psychological condition	Vascular injuries
Pain	Wound dehiscence
Infection	Lip incompetence
Bleeding	Insufficient surgery
Bone	condition Recurrence
Muscle condition	Persistence
Lymphatic metastases (rare)	Unaesthetic scars
Distant metastasis (rare)	Microstomy
Difficulty feeding	Drooling
Difficulty phonation	Diction problems
Long-term death	Difficulty in prosthetic rehabilitation

Table a

Floor of mouth

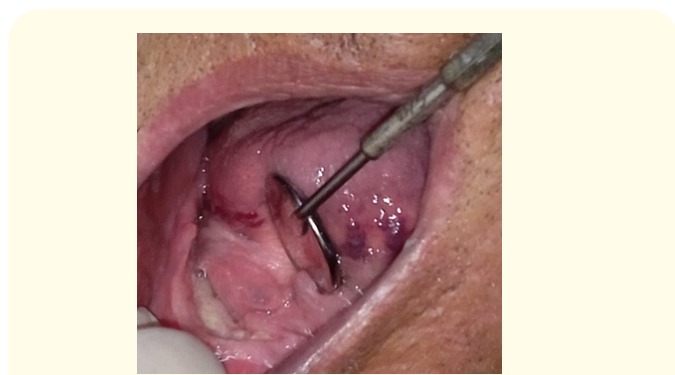


Figure 4: Patient with a diagnosis of squamous cell carcinoma of the floor of the mouth and lower residual alveolar ridge. Courtesy of Doctor Otto Alemán Miranda.

Cancer of the floor of the mouth generally begins in the mucosa of said area, and in its evolution it spreads superficially in a medial direction, looking for the ventral surface of the tongue and outwards, it is directed against the internal surface of the mandibular bone. affecting the mucosa of the lingual surface of the alveolar ridge. In depth, the condition can include the Genioglossus, Geniohyoid and Mylohyoid muscles that make up the diaphragm of the oral floor, in addition to the extrinsic muscles of the tongue. In addition, it can affect all adjacent structures found in this area [23-25].

Main risks and complications of floor of mouth cancer

Characteristics of Cancer	Of surgical treatment
Tongue fixation	Specific to anesthesia
Functional condition	nerve injuries
psychological condition	Vascular injuries
Pain	Wound dehiscences
Infection	Lip incompetence
Bleeding	Insufficient surgery
Bone invasion of the jaw (due to cortical rupture or transalveolar route)	Recurrence
muscle condition	Persistence
Lymphatic Metastases	Unsightly scars
Distant metastasis	Decreased air permeability due to post-surgical edema and/or hematoma.
Difficulty feeding	Infection
Difficulty phonation	Diction problems
Secondary Sialadenitis of the Submandibular Gland	Difficulty in prosthetic rehabilitation
Sublingual gland disease	Risks of tracheostomy
Tooth mobility	Distant flap necrosis
Lower dental nerve intake	Severe post-surgical pain

Aesthetic condition due to invading the skin of the chin and lower lip, initially producing fixation and edema of the skin and then erythema and ulceration with the obvious presence of the tumor mass.	Long income
Long-term death	Thromboembolisms
	Necrosis or resorption of bone grafts
	Reaction to osteosynthesis material
	Death

Table b



Figure 5: It shows how it was planned and how it looked at the end of the intervention. Courtesy of Doctor Otto Alemán Miranda.

Alveolar ridge

Carcinoma of the alveolar ridge, in its extension, is closely related to that of the floor of the mouth (see images) and then with the tongue, externally it invades the bottom of the lower vestibular sulcus, reaching the mucosa of the lip or cheek [25-27].

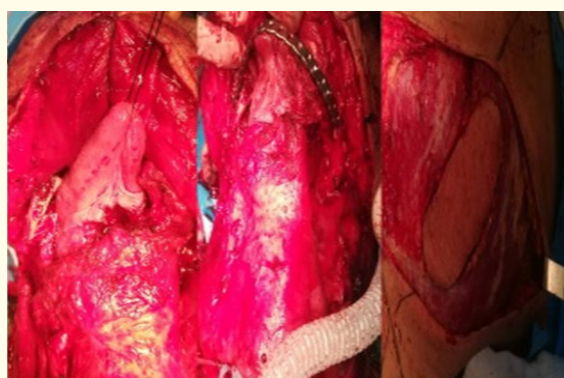


Figure 6: Some steps of the intervention in the previous case are shown. The area after the segmental mandibulectomy, the reconstruction with a metal plate and the formation of the pectoralis major flap are evident. Courtesy of Doctor Otto Alemán Miranda.

Given its location, early invasion deep into the underlying bone is common. When teeth are present, in most cases, severe mobility with subsequent loss of the pieces is common.



Figure 7: The removed surgical pieces, lymph node levels and the primary tumor are evident. Courtesy of Doctor Otto Alemán Miranda.

Main risks and complications of mouth floor cancer

Cancer-Specific	Surgical treatment
Tongue fixation	Anesthesia Typical
Functional condition	Nerve Injuries
Psychological condition	Vascular lesions
Pain	Wound dehiscence
Infection	Lip incompetence
Bleeding	Insufficient surgery
Bone invasion of the mandible (by rupture of the corticals or transsalveolar route)	Recidivism
Muscle condition	Persistence
Lymphatic Metastases	Unsightly scars
Distant metastases	Decreased air patency due to post-surgical edema and/or hematoma.
Difficulty feeding	Infection
Difficulty phonation	Diction problems
Secondary Sialoadenitis of the Submandibular Gland	Difficulty in prosthetic rehabilitation
Involvement of the sublingual glands	Risks of Tracheostomy
Dental Mobility	Necrosis of the flaps at a distance
Lower Dental Nerve Intake	Severe post-surgical pain
Aesthetic affection due to invading the skin of the chin and lower lip, initially producing fixation and edema of the skin and then erythema and ulceration with evident presence of the tumor mass.	Prolonged Income
Paresthesia	Thromboembolisms
Neuralgia	Necrosis or resorption of bone grafts
Long-term death	Reaction to osteosynthesis material
	Drooping lip and drooling
	Death

Table c

Cheek mucosa

The neoplastic lesions that begin in the mucosa of the cheek spread locally towards the labial commissure and mucosa of both lips forward. They can affect both the upper and lower buccal vestibules, then invading the bone structures of the mandible or the infrastructure of the upper jaw. Towards the back they go to the retromolar space, oropharynx and in depth to the masticatory space. When limitation of mouth opening is evident, it is a late sign. In their deep infiltration, these tumors take up the thickness of the cheek, invading the buccinator muscle and the subcutaneous cellular tissue of the face, externalizing through the skin of the genial region. Tumors in advanced stages frequently ascend through the soft tissues of the face to enter the infratemporal fossa behind the zygomatic arch [27-29].

Main risks and complications of cheek mucosa cancer

Cancer-Specific	Surgical treatment
Scar retraction of the cheek	Anesthesia Typical
Sialoadenitis due to salivary duct involvement.	Nerve Injuries
Psychological condition	Vascular lesions
Aesthetic deformity of the cheek.	Wound dehiscence
Pain	Insufficient surgery
Infection	Recidivism
Bleeding	Persistence
Bone invasion of the mandible (by rupture of the corticals or transsalveolar route)	Unsightly scars
Muscle condition	Infection
Lymphatic Metastases	Diction problems
Distant metastases	Difficulty in prosthetic rehabilitation
Difficulty feeding	Necrosis of the flaps at a distance
Difficulty phonation	Severe post-surgical pain
Limitation of mouth opening	Prolonged Income
Aesthetic affection due to invading the skin of the cheek and/or lips, initially producing fixation and edema of the skin and then erythema and ulceration with evident presence of the tumor mass.	Thromboembolisms
Paresthesia	Death
Neuralgia	
Long-term death	
Other according to adjacent affected sites	

Table d

Retraction can be prevented by performing adequate closures without tension, that is, avoiding, as far as possible, closure by secondary intention of surgical defects. Surgical defects can be repaired with the use of flap reconstructions. Inflammatory processes of the gland (sialadenitis) can sometimes be avoided by recanalizing the duct, although it usually subsides spontaneously in the mid-postoperative period or after adjuvant radiotherapy. It is important to indicate mouth opening and closing exercises in the immediate and mid-postoperative period, in patients where surgical manipulation affected the chewing muscles [30-32].

Retromolar space



Figure 8: Patient diagnosed with squamous cell carcinoma of the Carrillo mucosa, showing how the intervention was planned. Courtesy of Doctor Otto Alemán Miranda.



Figure 9: Some steps of the intervention in the previous case and the extracted pieces are shown. Courtesy of Doctor Otto Alemán Miranda.



Figure 10: Immediate postoperative. Courtesy of Doctor Otto Alemán Miranda.

They may extend locally to the mucosa of the cheek laterally, the anterior pillar, the soft palate, the tonsillar fossa medially, or another portion of the mesopharynx, the superior alveolar ridge cephalad, and the inferior alveolar ridge caudally. In depth, these lesions tend to invade the masseter and internal pterygoid muscles, producing limitation of mouth opening. In addition, it can

cause bone tissue to be taken at the level of the ramus of the mandible or the tuberosity of the upper jaw, since both maxillary bones converge in this area. Once in the masticatory space, they extend to the pterygomaxillary and infratemporal fossa [33,34].

Main risks and complications of retromolar space cancer

Cancer-Specific	Surgical treatment
Limitation of mouth opening	Anesthesia Typical
Functional condition	Nerve Injuries
Psychological condition	Vascular lesions
Pain	Wound dehiscence
Infection	Labial incompetence after surgical approach
Bleeding	Insufficient surgery
Bone invasion of the mandible (by rupture of the corticals or transsalveolar route)	Recidivism
Muscle condition	Persistence
Lymphatic Metastases	Unsightly scars
Distant metastases	Decreased air patency due to post-surgical edema and/or hematoma.
Difficulty feeding	Infection
Difficulty phonation	Diction problems
Dental Mobility	Difficulty in prosthetic rehabilitation
Lower Dental Nerve Intake	Aesthetic sequelae secondary to madibulectomy
Paresthesia	Necrosis of the flaps at a distance
Neuralgia	Severe post-surgical pain
Long-term death	Prolonged Income
	Thromboembolisms
	Necrosis or resorption of bone grafts
	Reaction to osteosynthesis material
	Death

Table e



Figure 11: Patient with squamous cell carcinoma of the retromolar space, the planning of the surgical approach is shown. Courtesy of Doctor Otto Alemán Miranda.



Figure 12: Patient with squamous cell carcinoma of the retromolar space, the surgical approach is shown. Courtesy of Doctor Otto Alemán Miranda.

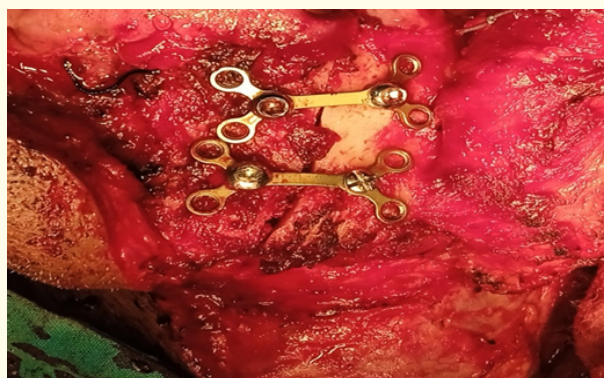


Figure 15: Patient with squamous cell carcinoma of the retromolar space, the osteosynthesis of the mandibulotomy is shown. Courtesy of Doctor Otto Alemán Miranda.



Figure 13: Patient with squamous cell carcinoma of the retromolar space, the selective neck dissection already completed is shown. Courtesy of Doctor Otto Alemán Miranda.



Figure 16: Patient with squamous cell carcinoma of the retromolar space, the summary of the surgical approach is shown. Courtesy of Doctor Otto Alemán Miranda.



Figure 14: Patient with squamous cell carcinoma of the retromolar space, the surgical specimen is shown with the lymph node levels. Courtesy of Doctor Otto Alemán Miranda.

Tongue



Figure 17: Patient with squamous cell carcinoma of the tongue. Courtesy of Doctor Otto Alemán Miranda.

Squamous cell carcinoma of the tongue frequently occurs on the lateral edge and towards the ventral surface of the tongue. From there, the lesion can extend in depth to include the intrinsic muscles and later the extrinsic muscles, causing hypomobility or paralysis of the tongue.

Otalgia is a symptom of deep infiltration. Downwards the tumor invades through the fibers of the hyoglossus muscle, affecting the insertion of the tongue in the hyoid bone and causing its fixation and submental edema. At the level of the mucosa, the posterior extension takes over the base of the tongue and the rest of the oropharynx, forwards and laterally it invades the floor of the mouth and finally the bony portion of the jaw. In the tongue, the tumor uses the submucosal route for its local extension, hence the importance of palpation in the examination. Once the extrinsic muscles have been taken, the musculoaponeurotic route allows it to go forward to the insertion of the genioglossus and downwards to the hyoglossus. Embolic dissemination is also a feature of tongue cancer, for which carcinomatous foci may be found distant from the primary tumor [35-38].

Main risks and complications of tongue cancer

Cancer-Specific	Surgical treatment
Tongue fixation	Anesthesia Typical
Functional condition	Nerve Injuries
Psychological condition	Vascular lesions
Pain	Wound dehiscence
Infection	Tongue incompetence
Bleeding	Insufficient surgery
Bone invasion of the mandible (by rupture of the corticals or trans-salveolar route)	Recidivism
Muscle condition	Persistence
Lymphatic Metastases	Unightly scars
Distant metastases	Decreased air patency due to post-surgical edema and/or hematoma.
Difficulty feeding	Infection
Difficulty phonation	Diction problems
Secondary Sialoadenitis of the Submandibular Gland	Risks of Tracheostomy
Involvement of the sublingual glands	Necrosis of the flaps at a distance
Paresthesia	Severe post-surgical pain
Neuralgia	Prolonged Income
Cachexia due to inability to feed	Thromboembolisms
Massive hemorrhage due to bursting of the carotid artery or any of its branches	Reaction to osteosynthesis material at the approach site
Long-term death	Death

Table f

Hard palate

They immediately infiltrate the bone tissue, extending to the nasal cavities and towards the maxillary sinus, posteriorly they affect the soft palate, towards the anterolateral portion they take the alveolar ridges and upper oral vestibules, producing dental mobility and loss of dental organs. It should always be ruled out if it is not a lesion of the nasal cavity or maxillary sinus that has descended through the infrastructure. Regional spread is rare and occurs to the nodes of the upper third of the jugular group II, especially when the lesion has extended to the soft palate [39,40].

Main risks and complications of hard palate cancer.

Cancer-Specific	Surgical treatment
Oronasal or oro-antral communication	Anesthesia Typical
Functional condition	Nerve Injuries
Psychological condition	Vascular lesions
Pain	Wound dehiscence
Infection	Insufficient surgery
Bleeding	Recidivism
Bone invasion of the maxilla (by rupture of the corticals or via the transsalveol)	Persistence
Muscle condition	Unightly scars
Lymphatic Metastases	Infection
Distant metastases	Diction problems
Difficulty feeding	Difficulty in prosthetic rehabilitation
Difficulty phonation	Necrosis of the flaps at a distance
Dental Mobility	Severe post-surgical pain
Upper Dental Nerve Socket	Prolonged Income
Paresthesia	Thromboembolisms
Neuralgia	Necrosis or resorption of bone grafts
Rhinolalia and nasal regurgitation of food	Reaction to osteosynthesis material
Long-term death	Death

Table g

Radiotherapy RT is ionizing radiation whose biological action is to develop free radicals in intracellular water, altering the genetic structure of cells and hindering or preventing their normal multiplication, leading to cell death. The speed with which this cell death occurs depends on the cell duplication time of the tissues involved by the tumor. For example squamous cell carcinoma has a high cell duplication rate of 3-5 days and therefore cell lysis and death occur rapidly. The oral cavity is highly sensitive to the side effects of radiotherapy for various reasons, among them because cancer therapy prevents the proliferation of cells in the mouth, which makes it difficult to repair oral tissue, produces changes in the lining of the

mouth and in the production of saliva, it alters the healthy balance of bacteria, causing ulcers, infections and dental cavities.

The participation of dental professionals is important before, during and after radiotherapy, especially focused on the prevention of late complications that can have severe consequences for the patient's quality of life. Poor hygiene, defective restorations, sharp edges of the teeth and poorly adjusted prostheses are factors that decide whether a patient recovers better or worse when receiving ionizing radiation. Poor oral hygiene favors the formation of dental plaque and the alteration of the normal flora and with it the appearance of dental caries, periodontal diseases and favors the infection of the lesions produced by oncotherapy [41-43].

Each tissue has a variable susceptibility, today it is known that the oral and gastrointestinal mucosa is completely renewed in around 12 days, the skin in 21 days and the endothelium of the blood vessels in 3 months. This influences when the unwanted effects of RT will be evident in normal tissues in the irradiation field.

The RT dose is expressed in terms of doses absorbed by the body expressed in grays (Gy), which is equal to the absorbed energy of 1 joule/Kg. The old unit of measurement for absorbed dose was the rad, 100 rads is equal to 1 Gy. There are two types of RT techniques: brachytherapy and teletherapy. In brachytherapy or local radiotherapy, the radioactive device is installed inside the patient's tissues; they are generally thin, blunt 0.6 mm diameter iridium-192 needles. For a total dose of 65-70 Gy, these needles are left for about 5-8 days with a release rate of 0.3-0.5 Gy per hour.

This technique gives better results than teletherapy. Teletherapy is the most used and is one in which the tumor area is irradiated by supervoltage RT equipment. Teletherapy is fractionated to achieve better results and can also be administered at the same time as hyperbaric oxygen therapy to optimize results. Generally, for the treatment of head and neck neoplasms, radiation doses of around 40-70 Gy are needed, divided into daily doses of 2 Gy, for a total of 4-7 weeks of treatment. The dose depends on the radiosensitivity of the tumor, size, oxygenation of the tumor, etc. Thus, squamous cell carcinoma is more radiosensitive than salivary gland adenocarcinoma [1,2,12,13].

Main complications and sequelae of radiotherapy in the oral cavity

Mucositis
Salivary gland dysfunction
Dysfunction of the sense of taste
Pain
Limitation of mouth opening
Dehydration

Malnutrition.
Irreversible damage to the oral mucosa
Irreversible damage to the vasculature
Irreversible damage to the salivary glands
Irreversible muscle damage
Irreversible damage to the teeth
Irreversible bone damage
Xerostomy
Caries dental
Soft tissue necrosis
Osteorradionecrosis (ORN)

Table h

Chemotherapy

(QT) CT is the medical treatment of cancer based on the use of cytostatic or cytotoxic drugs. The great limitation of these is the low specificity, since they attack both tumor cells and healthy cells. The mechanism of action is to cause a cellular alteration either in the synthesis of nucleic acids, cell division or protein synthesis. The most used are: Methotrexate, Cisplatin, Vincristine and Vinblastine. It is usually used in 3 or 4 cycles. The toxic effects related to QT mainly affect the mucosa that lines the oral and gastrointestinal system, due to its high rate of cell renewal, the complex microflora and the trauma of oral tissues during normal oral function. Bisphosphonates deserve a separate mention, as they are very effective in the treatment of cancer with bone metastases. In recent years, there has been an increase in the number of clinical cases in which its use is related to osteonecrosis of the jaws; Therefore, the dentist must be very alert about possible complications in patients who ingest them. In this sense, collaboration with the Oncologist and the Maxillofacial Surgeon will be essential, in those patients being treated with Bisphosphonates, and taking the necessary measures to prevent osteonecrosis [45-48].

To reduce the frequency of complications caused by RT and CT, the best professional action is prevention, in order to improve the 5-year survival rate. For this purpose, radium and chemoprotectants can be used. Amifostine is a drug used to reduce the unwanted side effects of RT and CT. This drug is an antineoplastic or cytoprotective adjuvant agent (it protects normal cells, not tumor cells), it has been proven to reduce the harmful effects that QT has on the kidneys, myelosuppression and helps relieve problems of dry mouth, mucositis and acute or late xerostomia in patients with head and neck cancer. It binds to free radicals produced in tissues exposed to cisplatin and/or RT, neutralizing them. Side effects are hypotension and vomiting. Its administration and dosage correspond to the sphere of the oncological medical team. Sodium thiosulfate can also be used to attenuate the undesirable effects of intra-arterial cisplatin [49-53].

Conclusion

The main risks of oral cancer and its complications are multiple with different evolution, prognosis and vary according to the different locations and the treatment modality applied. They can range from pain to the death of the patient.

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