Revista Odontológica Mexicana

Facultad de Odontología

Vol. 19, No. 3 • July-September 2015
pp e188–e196

CASE REPORT

Comprehensive prosthetic rehabilitation in absence of the maxilla. Clinical case report

Rehabilitación protésica integral en ausencia de maxilar. Reporte de un caso

María de Lourdes Mendoza Ugalde,* José Federico Torres Terán,§ René Jiménez Castillo||

ABSTRACT

Maxillofacial Prosthesis studies comprehend two main branches: oral and facial. In the mouth, some defects caused by unilateral or bilateral maxillectomies performed as part of head and neck cancer treatment, leave structural, functional and psychological sequels. This gives rise to the need of a comprehensive prosthetic rehabilitation. To this end, palate prostheses are used, which offer patients´ reinsertion into society as well as better quality of life. In the present clinical case, the shutter was placed in a situation of complete absence of the maxilla , achieving thus function re-establishment and acceptable aesthetics.

RESUMEN

La prótesis maxilofacial estudia dos importantes ramas; la bucal y la facial. En relación a la bucal, algunos defectos originados por maxilectomías unilaterales o bilaterales ya sean parciales o totales en el tratamiento del cáncer de cabeza y cuello; dejan secuelas estructurales, funcionales y psicológicas; estableciendo así la necesidad de una rehabilitación protésica integral; para lo cual son utilizadas las prótesis obturadoras de paladar, que ofrecen así al paciente su reintegración a la sociedad con una mejor calidad de vida. En el presente caso clínico, el obturador es colocado en ausencia completa de maxilar, obteniendo como resultados el restablecimiento de las funciones y estética aceptables.

Key words: Maxillofacial prosthesis, maxillectomy, squamous cell carcinoma, palatal shutter, mini-implants, distraction osteogenesis, zygomatic implants.
Palabras clave: Prótesis maxilofacial, maxilectomía, carcinoma epidermoide, obturador palatino, miniimplantes, distracción ósea, implantes cigomáticos.

INTRODUCTION

In Mexico, cancer represents a public health problem. This is due to the severe clinical manifestations of the disease, its high mortality rate as well as the variety of associated environmental and individual factors such as ionizing radiation (UV Rays), occupational radiations (X rays), irritants (soldering fumes, ozone, acids, maladjusted prostheses) pneumoconiotic particles (asbestos[1,2] and silicosis) allergens (natural or synthetic) carcinogens (benign or malign caused by arsenical insecticides, sawdust, asbestos, vinyl chloride, aromatic amines, etc) lifestyle (tobacco use, alcoholism, human papilloma virus, poor hygiene),[3,4] genetic factors: (mutations of gene p53, of chromosome 9p21, mutation of gene RB)[5,6] or related to hereditary cancer syndromes (Plummer Vinson)[4,7] which increase the degree of the aforementioned risk.[8,9] They are related to the following factors: increase of older people in the world, decrease of death cases due to communicable diseases, as well as mortality caused by cardio-vascular disease in some countries as well as increase in cancer modalities[9] which affect patient susceptibility, even more so in cases when they present some degree of malnutrition (30-50%). In these cases, tumor recurrence might be a factor to consider.[8,10,11]

In Mexico, head and neck cancer represents 17.6% of the total malignant neoplasia cases reported by the Histopathological Record of Neoplasia in Mexico (HRNM) in 2002, where 12% corresponded to Upper Aero-digestive Tract (UADT). Out of this, oral cancer represented 37% with a 62.4% mortality rate.[9,12]

85 to 90% of UADT cancer cases are due to tobacco exposition. Risk is proportional to exposition intensity.

* Graduate, Maxillofacial Prosthesis, Graduate and Research School, National School of Dentistry, National University of Mexico (UNAM). INCAN resident.
§ Maxillofacial prostheses practice and professor at the Maxillofacial Prosthesis Department, Graduate and Research School, National School of Dentistry, National University of Mexico (UNAM).
|| Department Head, Maxillofacial Prosthesis Department, Graduate and Research School, National School of Dentistry, National University of Mexico (UNAM).

According to INEGI it is an increasing circumstance. It has been reported that 12-17 year old youngsters have increased consumption patterns.[9,12]

Alcohol consumption is another important associated factor. It produces synergism. Whilst a heavy smoker or drinker increases risk in direct proportion to consumption, those who smoke and drink increase risk 35 times over.[9]

Squamous cell carcinoma is the most frequent oral neoplasia in Mexico. It is found at a risk factor of 1.4% in males and 0.9 in females in the head and neck area. In 0.02% of all cases it is found in the palate in males, and 0.009% in females, in a 1.7:1.2 relationship respectively, in 2007.[12] At the «20 de Noviembre» National Medical Center, a study was conducted in 2009, in it, a 2:1 male-female relationship was reported. After treatment 46.9% recurrence was observed, 32.2% metastasis and 22.45% mortality.[13]

General frequency of ganglion metastases ranges between 10 and 40%, few distanced metastases were reported. In the hard palate and retromolar trigone, tumors are normally detected at an early stage since they elicit bleeding and pain in the palate.[14]

According to the tumors' histological type, etiological factors and location, epidemiological characteristics symptomatology, progression, therapeutics and prognosis will be modified.[4] Squamous cell carcinoma is a malignant neoplasia originating from squamous cells; it represents 92% of all oral cavity neoplasia, it is followed by basal cell carcinoma and melanoma.[13,15,16] It is placed in 12th place of all malignant neoplasia in the whole world. It mainly affects patients in their seventh decade of life, with average age of 68 years.[13] This head and neck carcinoma is most frequent in older men, nevertheless, an increase in young people and women has been reported, as well as in pregnant women.[17] It can have its onset as a leukoplakia (2-4% invasive) or erythroplasia (80% invasive) in high-risk zones such as floor of the mouth, ventro-lateral side of the tongue soft palate and palatal velum.[18] Different locations of the tumor will elicit different behavior patterns and prognoses, which in turn will require different treatment plans.[14,19]

Reaction to different types of treatment modify prosthetic rehabilitation times during procedure and after it. These treatments can be adjuvant or concomitant (chemotherapy, radiotherapy, surgery), they are alternative treatments and increase organ preservation, improving thus treatment success.[8]

Chemotherapy consists on anti-neoplastic drug administration to induce tumor cell destruction though the hindering of cell division. Most used drugs for head and neck treatment are: bleomycin, cisplatin, methotrexate, 5 fluorouracil, vinblastine, cyclophosphamide, carboplatin, gefinitib, erbitux, and cetuximab.[20-22] Certain anti-neoplastic drugs can cause long-term lesions in the hematopoietic system.[23] It can be curative (total tumor control), adjuvant (after surgery, decreasing the risk of metastasis), previous (partial tumor reduction to complement surgery or radiotherapy) and palliative (improving patient's quality of life).[14,20] Knowledge of HPV (human papilloma virus) is becoming an important consideration to observe when assessing treatment for patients with head and neck cancer. Patients who are HPV-positive respond better to treatment, Current research is targeting to stratify patients according to their HPV status in clinical trials.[21]

Ionizing-radiation radiotherapy either destroys cancer cells or decreases their growth. This is a common treatment for head and neck cancer cases, it is used for approximately 50% of all cancer treatments in this area; it can be used by itself, or combined with chemotherapy and/or surgery.[14,20] It can cause oral complications such as mucositis, bacterial or fungal infections, salivary gland dysfunction, fibrosis, dental caries, dysfunction of sense of taste or osteo-radio-necroses.[14,19,22]

Surgical treatment of head and neck involves a series of functional repercussions of the anatomical structures affected by the tumor. This can appear in neck and scapular region mobility, alterations in healing and lymphatic drainage, as well as deglutition, which would then warrant extirpation surgery of tumor resection and/or lymphatic surgery of tumor-affected areas.[19]

Therefore, sequels originated from surgical treatment in the bucco-antral area are caused by maxillectomies (limited, partial, medial subtotal, total radical or extended).[24] These sequels can be structural (bucal-antral communication)[3,24] functional (breathing, mastication, deglutition, phonation) and psychological.[3]

Aramany undertook to classify maxillary defects based upon the defect area and remaining teeth[25] Classifications I, II and IV (lateral defects with anterior margins close to the midline) are the most frequent.[26] It is therefore of the utmost importance to consider that full, wide defects of the soft and hard palate are not considered within this classification (when in the soft palate, they are rather considered hereditary defects).[26] Kan-ichi Seto did mention it in 2003 (HS classification), and referred to it as H6SODxT3 (full defect without soft palate involvement, impossible to determine oral opening degree and with no tooth