

Postoperative Oral Complications in Head and Neck Surgery

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SUMMARY

To evaluate the effects of radiotherapy and chemotherapy on the oral cavity. A total of 80 patients postoperative cases of head and neck surgery, undergoing chemotherapy or radiotherapy were included in the study. Oral complications of these patients were observed and are being reported. Mucositis reported in 82.5%, xerostomia in 68.7%, taste dysfunction in 31.2%, infections in 28.7%, trismus in 25%, dysphagia in 73.7%, burning sensation in 18.7%, tooth hypersensitivity in 21.2% and osteoradionecrosis in 6.2%. The reported complications could be reduced if precautionary measures are taken which ensures good quality of life to the patients.

INTRODUCTION

Cancer of oral cavity is considered to be a preventable disease but once it sets in then it has a high mortality rate. In Pakistan oral cancer is the second most common cancer in males after bronchogenic carcinoma and breast cancer in females and constitutes 10% of all malignant tumors¹. Recognized etiological agents in oral cancer include tobacco, alcohol and use of areca nut.

There are three general modalities of therapy namely surgery, radiation and chemotherapy. Radiation and chemotherapy results in changes of hard and soft tissues like mucous membranes, bone and musculature. This short term prospective study is aimed at evaluating the effects of radiation and chemotherapy on oral tissues in oncology patients.

MATERIALS AND METHODS

Eighty patients operated for head and neck cancer at Department of Oral and Maxillofacial Surgery, de'Montmorency College of Dentistry and Shaukat Khanum Cancer Hospital, Lahore were included in this study. They were evaluated for the effects of radiotherapy and chemotherapy.

All the patients were reviewed monthly, during

and up to 6 months after normal course of therapy for mucositis, taste dysfunction, xerostomia, infection, trismus, dysphagia, tooth hypersensitivity, burning mouth sensation and osteoradionecrosis.

RESULTS

The age range of the study population was between 13 to 70 years, with a mean of 46 years. There were 29 females and 51 males. All patients were diagnosed as having Squamous cell carcinoma of the oral cavity including tongue, retromolar area, alveolus, floor of mouth and maxilla.

Postoperative radiotherapy is initiated after one month of the surgery, but not later than six weeks, which is followed by chemotherapy. During the courses of radiotherapy and chemotherapy the patients were observed on weekly basis and followed for an average of six months after the treatment is complete. Only two patients were lost in followup. However, their complications are also included in the results.

Most of the patients were observed to be having multiple complications. The results were, therefore, compiled on the basis of number of complications in each case. Table 1 shows the number and percentage of each complication as observed in the study population.

Table 1: Complications.

Complications	No.	Percent
Mucositis	66	82.5
Dysphagia	59	73.7
Xerostomia	55	68.7
Taste dysfunction	25	31.2
Infection(fungal, viral, bacterial)	23	28.7
Trismus	20	25
Tooth hypersensitivity	17	21.2
Burning sensation	15	18.7
Osteoradionecrosis	5	6.2

It can be seen in the table that mucositis was the most commonly reported complication, followed by dysphagia and xerostomia. Osteoradionecrosis was the least reported complication.

DISCUSSION

The results of this study show that almost all the patients had complications of varying degree. Few of the complications are transitory and others unavoidable, the severity of these problems could be minimized.

Chemotherapy has been a cause of oral complications. Anti neoplastic drugs affect bone marrow leading to pancytopenia, subsequently causing bleeding and lowered resistance². These patients could have punctate petechiae, submucosal haemorrhage, bleeding gums, periodontal disease, pulp necrosis, candidosis and herpes simplex. Dental complications are tooth agenesis, microdontia, arrested root development and enamel hypoplasia³.

Mucosal cells have low resistance to radiation⁴. Radiation reduces mitotic activity leading to thinning of mucosa and ulceration⁵. Radiation effects on salivary glands occur within the first 14 hours reducing the salivary flow to 50 %⁶. Salivary flow begins to return in 3-4 months. It may not return if the doses are higher than 50Gy⁷. The saliva becomes thick and more acidic. Parotid gland seems to be involved more. Microbial population changes, candidal microbial growth increases⁸. Xerostomia and increase in microbial population leads to increased risk of periodontal disease. Some

patients complain of taste loss due to damage to taste buds, this returns back in 4 months.

Teeth become sensitive which becomes worse due to tooth surface loss. Dental caries often develop due to radiation and is known as radiation caries. Oral flora becomes more cariogenic. Classically it's the incisal edges of the incisors and cuspal tips of premolars and molars. Progressive endarthritis results in trismus⁹. This is due to muscle fibrosis and fibrotic changes in TMJ capsule. Repair capacity is reduced subsequently leading to osteoradionecrosis¹⁰. It is a hypovascular, hypoxic and hypocellular condition .

The incidence of osteoradionecrosis of mandible is considered to be 2-20%¹¹. Some think it to be a chronic infective osteomyelitis of radiated bone with mixed oral micro-organisms. Treatment consists of long term antibiotics, minor surgical procedures, hyperbaric oxygen therapy and complete resection.

All these could be minimized if standard protocol of prevention and monitoring are followed¹². The protocol could be divided into

- a) Initial assessment and management
- b) Continual assessment
- c) Maintenance and monitoring

Initial assessment and monitoring is the most important part of overall treatment. It is essential to identify conditions like poor oral hygiene, deficient restorations, broken teeth and periodontal disease. This will reduce the chances of more aggressive procedures. Adequate prophylactic measures like good oral hygiene, anti microbial (e.g. Chlorhexidine mouth wash, Nystatin drops) and dietary counseling should be carried out. Continuous assessment and management should be continued throughout the radiation and chemotherapy. This is followed by maintenance and monitoring with emphasis on diet counseling and oral hygiene.

This study concludes that oral complications following radiation and chemotherapy are common in oral cancer patients. These are unavoidable but could be minimized by proper management and monitoring.

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