Conservative dental treatment of cancer patients received head and neck radiation therapy – Protocols and clinical cases

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Background: Patients who receive anti-neoplasmatic therapy, usually present with symptoms in the oral cavity such as oral mucositis, xerostomia and dental caries. The management of these patients should begin before the therapy with treatment of all the dental problems and with intense preventive protocols, which are customized according to the type and phase of their anti-neoplasmatic therapy. Lastly, a strict recall system during and after the therapy is followed in order to monitor the changes in the oral cavity and deal with possible implications. However, even after application of this protocol, excessive loss of dental tissues, due to caries and xerostomia, is a common phenomenon. Severe trismus due to surgical procedures or fibrosis of the masticatory muscles reduce the mouth opening and complicate the treatment procedures of the dental lesions. Furthermore, due to their serious health problems, a high percentage of such patients are left without specific dental care. As a result, extensive dental caries cause remarkable difficulties for tooth restoration.

Purpose: In the current study, specific protocols, which should be applied in each of the phases and after the anti-neoplasmatic therapy, regarding the prevention of dental caries will be reported. Furthermore, the step by step clinical conservative approach for tooth rehabilitation in representative patients who received antineoplasmatic therapy and were suffering from extensive dental caries will be presented.

Case I

* *Woman-37 years old, Polymorphous Low-Grade Adocarcinoma, Soft Palate*
* *Maximum mouth opening 12 cm*
* *Surgical resection of tumor and 39 radiation therapies*
* *Total radiation 68 Gy*
* *Dental treatment 3 years after the antineoplasmatic therapy*

Fig. I-1: Intraoral clinical examination

Fig. I-2: X-ray examination

Fig. I-3: Removal of caries maxillary

Fig. I-4: Removal of caries maxillary

Fig. I- 5: Endo treatments, composite resin restorations and cast posts at severely damaged teeth

Fig. I-6: Provisional restorations

Fig. I- 7: Removal of caries mandibulary

Fig. I- 8: Removal of caries mandibulary

Fig. I- 9: Final all-ceramic and resin restorations

Fig. I- 10: Final metal- ceramic and resin restorations

PROTOCOLS

BEFORE ANTINEOPLASMATIC THERAPY

Preventive Program

- Toothpaste 5000ppm twice daily
- Mouthrinse 0,05% NaF twice daily or 0,2% NaF once daily
- Fluoride gel 1%Naf or CPP-ACP in trays 5min before night sleep
- Chlorexidine 0,12-0,2%
- Use of interdental brushes or dental floss

Treatment Planning

- Treatment plan must be simple but more aggressive compared to health population
- Early caries → conservative restorations
- Larger cavities → direct rather than indirect restorations
- In cases with pulp involvement → always endo treatments
- Teeth with questionable or bad prognosis must be extracted

Recall Sessions

- About chemotherapy there are not specific recommendations
- About radiation therapy → monitoring every 4-8 weeks

DURING ANTINEOPLASMATIC THERAPY

Preventive Program

- Use of fluoride products not differentiated compared to pre- antineoplasmatic treatment
- Frequent rinses of mouth with water in case of xerostomia
- Avoid use of mouthrinses containing alcohol , may be irritant for oral mucosa
- Use of soft toothbrush or gauze for teeth cleaning
- Avoid interdental cleaning , may be traumatic

Treatment Planning

- Confrontation of dental pain and caries lesions. Treatment must be simple
- Short-term dental sessions
- Conservative removal of caries
- Provisional restorations with glass-ionomer cement, that will be replaced by composite resin restorations after the completion of the antineoplasmatic therapy

Recall Sessions

- About chemotherapy there are not specific recommendations
- About radiation therapy → monitoring every 4-8 weeks

AFTER ANTINEOPLASMATIC THERAPY

Preventive Program

- Saliva check
- Fluoride toothpaste 5000ppm twice daily
- Mouthrinse 0,05% NaF twice daily or 0,2% NaF once daily
- Relief from xerostomia with frequent rinses with water and other humectants, depending on the severity of xerostomia

Treatment Planning

- Restoration of the lesions of dental tissues, after stabilization of the oral environment
- Upon oral hygiene is satisfactory, even complicated and extended prostheses can be performed

Recall Sessions

- The recall frequency is determined by the degree of xerostomia
- The first 2 years after antineoplasmatic trerapy the recalls must be carried out every 4 months and subsequently every 6 months

Case II

* *Woman, 52 years old, Squamous Cell Carcinoma, Mandible*
* *Maximum mouth opening 22 cm*
* *Surgical resection of tumor, 3 chemotherapies (Platina 2#) and 33 radiation therapies*
* *Total radiation 66 Gy*
* *Dental treatment 2 years after the antineoplasmatic therapy*

Fig. II-1: Intraoral clinical examination

Fig. II-2: X-ray examination

Fig. II-3a: Initial examination #15-17

Fig. II-3b: Removal of caries

Fig. II-3c :Endo treatment, fiber post #15, composite resin restorations

Fig. II-4a: Initial examination #24-28

Fig. II-4b,c: Composite resin restoration #28, endo treatment #24,25

Fig. II-5a: Initial examination #35-38

Fig. II-5b: Removal of caries

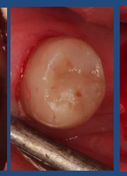

Fig. II-5c,d: Composite resin restorations

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