Filon Andrii. Modern treatment of symptomatic apical periodontitis after chemotherapy in a breast cancer patient. Case report. Journal of Education, Health and Sport. 2019;9(11):307-313. eISSN 2391-8306. DOI http://dx.doi.org/10.12775/JEHS.2019.09.11.028
https://apcz.umk.pl/czasopisma/index.php/JEHS/article/view/JEHS.2019.09.11.028
http://dx.doi.org/10.5281/zenodo.3594008

The journal has had 5 points in Ministry of Science and Higher Education parametric evaluation. § 8. 2) and § 12. 1. 2) 22.02.2019.

Received: 06.11.2019. Revised: 14.11.2019. Accepted: 29.11.2019.

MODERN TREATMENT OF SYMPTOMATIC APICAL PERIODONTITIS AFTER CHEMOTHERAPY IN A BREAST CANCER PATIENT. CASE REPORT

Andrii Filon

Zaporizhzhya State Medical University
Postgraduate student of the Department of Therapeutic, Orthopedic and Pediatric Dentistry

Abstract

The problem of providing dental care to patients with cancer has been and remains very relevant. According to the National Cancer Institute, in Ukraine there are more than a million people suffering from cancer. Every 3-4 men and every fifth woman are at risk of developing cancer. Studies of the state of the oral cavity in this category of patients have established a high prevalence of dental diseases and, as a result, a significant need for dental care (1, 2). There is a direct correlation between the state of oral hygiene and the severity of cancer (3, 4).

The results confirm that the destruction of the infection in the root canal leads to the regeneration of periapical bone damage. The size of the lesion does not affect the treatment tactics. Large-scale periapical inflammatory processes are amenable to therapeutic treatment. Chemotherapy has been shown to significantly affect the condition of the oral cavity and exacerbate chronic inflammatory processes. This issue is subject to further study and development of special dental treatment for cancer patients.

Key words: endodontic treatment; periapical inflammation; oncology; root canal system; chemotherapy complications.

Introduction

The problem of providing dental care to patients with cancer has been and remains very relevant. According to the National Cancer Institute, in Ukraine there are more than a million people suffering from cancer. Every 3-4 men and every fifth woman are at risk of developing cancer. Studies of the state of the oral cavity in this category of patients have established a high prevalence of dental diseases and, as a result, a significant need for dental care (1, 2). There is a direct correlation between the state of oral hygiene and the severity of cancer (3, 4). Studies by OV Denga, ES Shumilina indicate that patients with cancer, in the first place, spend their energy, time and money on treating the underlying disease, forgetting the undeniable importance of the prevention and treatment of concomitant diseases, including dental ones, and confirms the data the negative impact of chemotherapy on the dental health of patients (5, 6). This category of patients against the background of general somatic pathology has problems with the immune system, a change in the status of blood coagulation (7).

Chemotherapy can cause such complications as stomatitis, mucositis, exacerbation of chronic pulpitis and periodontitis (8, 9) Patients with non-sanitized oral cavity are at risk of developing these complications, unlike patients who regularly visit the dentist. The treatment of caries and its complications without data on the patient's immune status and the number of blood cells is a risk for the dentist. Therefore, any invasive procedures can cause complications (10). Therapeutic treatments for dental diseases in cancer patients are preferred. However, many dentists doubt the success of therapeutic treatment for inflammatory processes in the oral cavity against the background of the underlying disease (11).

Due to the complications of caries, tooth extraction is one of the most common operations in these patients. Moreover, the teeth are removed in those cases when their preservation is quite possible, for example, with pulpitis or periodontitis (12) One of the reasons for the high prevalence of dental pathology in patients with coagulopathies is not only the fear of bleeding after treatment, but also pain in the treatment of teeth and other organs of the oral cavity, due to the lack of a methodological approach and the lack of adaptation of known methods of pain relief and treatment for use in this group of patients (13). The purpose of this article is to demonstrate the possibility of therapeutic treatment with a pronounced inflammatory process against the background of cancer.

Apical periodontitis is an inflammatory disease of the periradicular tissues caused by a bacterial infection found in the root canal system of the affected tooth (Kakehashi et al.1965, Sundqvist 1976). Infected and necrotic pulp is a selective habitat for microorganisms (Fabricius et al 1982).

Microbes grow in attached biofilm in the form of clusters, coaggregations, and suspensions in a liquid channel medium (fig. 1-4).

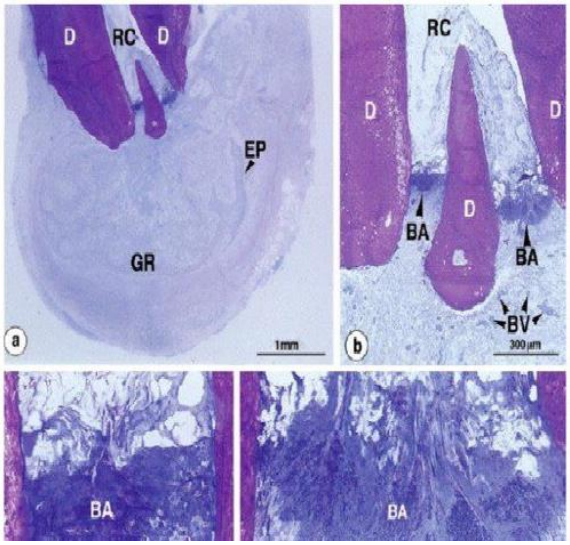

Fig. 1. Attached biofilm near the apical

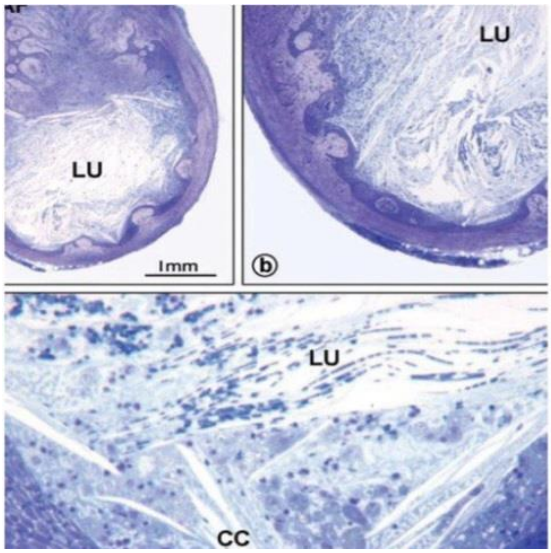

Fig. 2. Structure of the apical cyst opening of the tooth affected by apical periodontitis

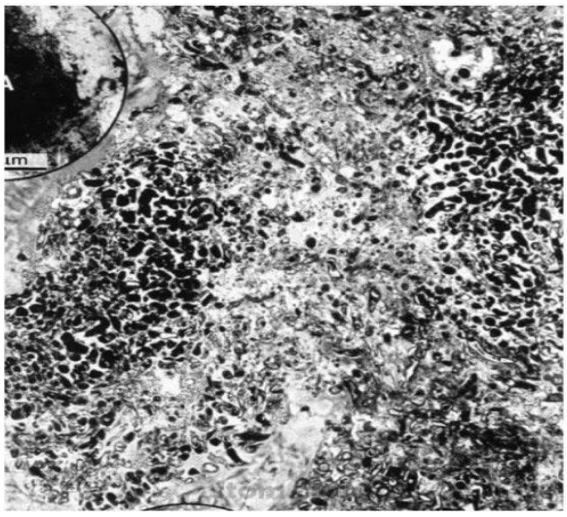

Fig. 3. Transmission electron microscopy of biofilm

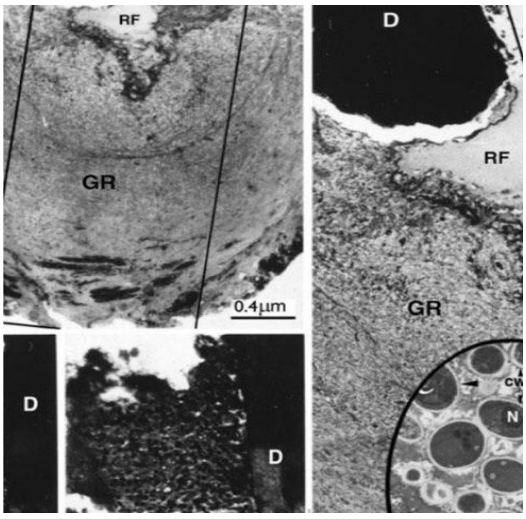

Fig. 4. Mushrooms as a potential cause of apical periodontitis

A biofilm is a collection of microorganisms located in an exopolysaccharide matrix attached to a moist surface. Inner root microorganisms are the most important etiological agent in the occurrence of apical periodontitis (14). The treatment of the disease consists in the destruction of the microorganisms in the root canal system and in the substantial reduction of the microbial load, with subsequent prevention of re-infection by obstruction (15, 16). If the treatment is done correctly, then in the area of inflammation is the regeneration of solid tissues in the form of reduction of radiological enlightenment on subsequent radiographs (17).

The aim

To study the features of endodontic treatment of patients with malignant neoplasms receiving chemotherapy treatment and to confirm the use of atraumatic and conservative methods of treatment of periapical inflammatory processes.

Materials and methods

Patient M., 40 years old, approached a medical university clinic with complaints of pain and abdominal rupture, which appeared a week ago. The pain intensified while eating. She first noticed the pain and discomfort a few months ago, he did not seek dental help. Patients with stage 3 breast cancer, receive chemotherapy treatment. According to the patient, jaw pain appeared after the first chemotherapy session. Objectively: the face is symmetrical, the mucous membrane is pale pink. On the site of the transitional fold of the projection 37 of the tooth is visualized sacral course. On palpation of the transitional fold, the patient noted pain and abrasion. Percussion is sharply painful. The orthopantomogram and the targeted intraoral X-ray showed enlargement of the space of the periodontal ligament and destruction of the rigid plate of the alveolus in the periapical area with clear contours of a rounded shape. The clinical and radiographic picture corresponds to the diagnosis of exacerbation of chronic apical periodontitis caused by the initiation of chemotherapeutic treatment for breast cancer.

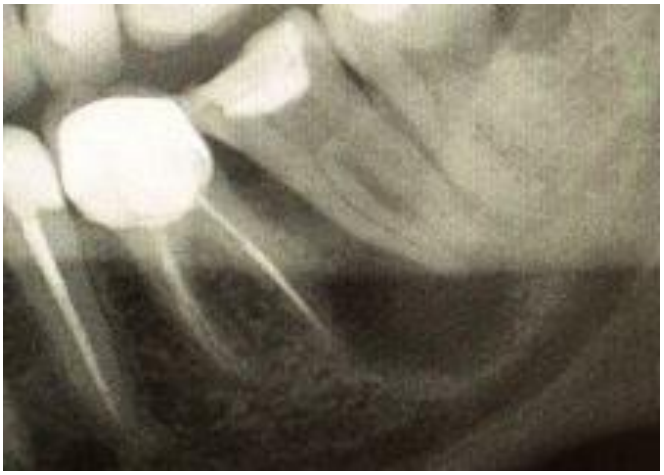

Fig. 5. X-ray before treatment 1 visit

Treatment: 1 visit. Following the administration of cofferdam, the opening of the 37 tooth cavity and endodontic treatment with rotary instruments were performed under torus anesthesia. The root canals were expanded to ISO size 40.02 with apical emphasis formation and irrigation solutions of 5.25% NaOCl, deactivation with distilled water and 2% chlorhexidine solution. After that, the installation of calcium hydroxide for 3 weeks with a temporary seal with a solution of aqueous dentin (18).

2 visit. No complaints, pain disappeared the next day after the first visit. There is no overdrive. Percussion is painless. After the imposition of cofferdam, removal of the temporary filling and irrigation of the root canals with a solution of 5.25% NaOCl, deactivation with distilled water and 2% solution of chlorhexidine were performed. After that, root canals were sealed with siler and gutta-percha with a temporary filling of a water dentin solution.

3 visit. After imposition of the cofferdam, the temporary filling was removed and the permanent restoration of the 37 tooth was done with the help of a photo composite. There are no complaints, the patient has been advised on further remediation of the oral cavity.

X-ray inspection took place after two months. The orthopantomogram and the targeted intraoral X-ray showed solid tissue regeneration, which confirms the positive dynamics and provides an optimistic forecast for the long-term result.

Fig. 6. X-ray after treatment in 3 months

Results

After endodontic treatment of chronic apical periodontitis patient's complaint is absent. on intraoral oral X-ray picture complete regeneration of bone tissue in the area of the

lesion. the signs of inflammation have disappeared, namely mucous membranes, fistula, swelling and pain. The patient notes an improvement in overall well-being.

Conclusions

The results confirm that the destruction of the infection in the root canal leads to the regeneration of periapical bone damage. The size of the lesion does not affect the treatment tactics. Large-scale periapical inflammatory processes are amenable to therapeutic treatment. Chemotherapy has been shown to significantly affect the condition of the oral cavity and exacerbate chronic inflammatory processes. This issue is subject to further study and development of special dental treatment for cancer patients.

References:

1. Taichman LS, Gomez G, Inglehart MR. Oral Health-Related Complications of Breast Cancer Treatment: Assessing Dental Hygienists' Knowledge and Professional Practice. J Dent Hyg. 2015 Jun;
2. Almendra Mattos RM, de Mendonça RMH, Dos Santos Aguiar . Adherence to dental treatment reduces oral complications related to cancer treatment in pediatric and adolescent patients. Support Care Cancer. 2019 May
3. Taichman LS, Griggs JJ, Inglehart MR. Periodontal health, perceived oral health, and dental care utilization of breast cancer survivors. J Public Health Dent. 2015;75:148–56.
4. Hai Ming Wong. Oral Complications and Management Strategies for Patients Undergoing Cancer Therapy. Scientific World Journal. 2014;
5. Alkan A, Cakmak O, Yilmaz S, Cebi T, Gurgan C. Relationship between psychological factors and oral health status and behaviours. Oral Health Prev Dent. 2015;13:331–9.
6. O. V. Denga, E. S. Shumilina. SE The Institute of Stomatology NAMS of Ukraine. The Dental state of the patients with breast cancer after chemotherapy. Bulletin of dentistry № 4, 2012
7. Willershausen I, Schmidtmann I, Azaripour A, Kledtke J, Willershausen B, Hasenburg A. Association between breast cancer chemotherapy, oral health and chronic dental infections: a pilot study. Odontology. 2019 Jul;107(3):401-408.
8. Van Sebille YZ, Stansborough R, Wardill HR, Bateman E, Gibson RJ, Keefe DM. Management of mucositis during chemotherapy: from pathophysiology to pragmatic therapeutics. Curr Oncol Rep. 2015;17:50.

9. Mayor S. Side-effects of cancer drugs are under-reported in trials. Lancet Oncol. 2015;16:e107.

10. Jerome Rothstein, DDS, MHA.: J Dentistry Today, Volume 23, № 12, December 2004

11. Amodio J, Palioto DB, Carrara HH, Tiezzi DG, Andrade JM, Reis FJ. Oral health after breast cancer treatment in postmenopausal women. Clinics (Sao Paulo Brasil). 2014;69:706–8.

12. Kisely S, Sawyer E, Siskind D, Lalloo R. The oral health of people with anxiety and depressive disorders—a systematic review and meta-analysis. J Affect Disord. 2016;200:119–32.

13. Pereira LJ, Braga Caputo J, Midori Castelo P, et al. Oral physiology and quality of life in cancer patients. Nutr Hosp. 2015;31:2161–6.

14. P. N. R. Nair. On the causes of persistent apical periodontitis: a review. International endodontic journal. 249-281, 10 March 2006

15. Del Fabbro M, Corbella S, Sequeira-Byron P, Tsesis I, Rosen E, Lolato A, Taschieri S. Endodontic procedures for retreatment of periapical lesions. Cochrane Database Syst Rev. 2016 Oct 19;10:CD005511.

16. Olcay K, Eyüboglu TF, Özcan M. Clinical outcomes of non-surgical multiple-visit root canal retreatment: a retrospective cohort study. Odontology. 2019 Oct;107(4):536-545

17. Pirani C, Friedman S, Gatto MR, Iacono F, Tinarelli V, Gandolfi MG, Prati C. Survival and periapical health after root canal treatment with carrier-based root fillings: five-year retrospective assessment. Int Endod J. 2018 Apr;51 Suppl 3:e178-e188

18. Thomas K, T PD, Simon EP. Management of large periapical cystic lesion by aspiration and nonsurgical endodontic therapy using calcium hydroxide paste. J Contemp Dent Pract. 2012 Nov 1;13(6):897-901.