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CORRELATION DYNAMICS OF ERRORS AND COMPLICATIONS IN THE USE OF RESTORATIVE POST CONSTRUCTIONS

Ortikova Nargiza Khairullaevna
PhD, Associate Professor Samarkand State Medical University
Department of Orthopedic Dentistry

Abstract
Restoration of dental hard tissue defects is one of the actual problems of orthopedic dentistry. Restoration of destroyed teeth using endocanal posts has always been one of the fundamental problems of dentistry. The choice of the type and determination of the number of posts depends on the volume and patency of the canal after endodontic treatment, the number of root canals, the loss of dentin mass, the distance to antagonist teeth and neighboring teeth.

Keywords Restorative post constructions, restoration of dental hard, endocanal posts, complications in the restoration, dental crown.

Introduction

Pins should provide a long service life of endodontic obturation, restoration of the crown-root part of the tooth in the simplest way, taking into account the anatomy of the root canal. However, many clinicians do not take into account either the anatomical features of dentin mass loss or the characteristics of the posts used. At all stages of pin construction (PC) fabrication, errors may be made, causing the development of immediate or distant complications. It should be noted that it is impossible to talk about the advantages of certain post designs in general, we can only talk about the indications or contraindications to the use of a particular post design in a particular clinical case.

However, despite the achievements in prosthetic dentistry, improvement of clinical techniques and technological processes, the percentage of premature replacement of fixed structures due to complications and unsuitability for use remains high. The main reasons for the removal of fixed structures of dental prostheses are medical errors in the preparation of the patient's oral cavity for prosthetics, unreasonable choice of the design of prostheses and materials for them, non-compliance with the stages of treatment and the rules of manipulation techniques in odontopreparation, tactical lapses, the use of imperfect technologies. Therefore, the need to study this problem in order to optimize the prevention and elimination of clinical errors, as well as emerging complications in the prosthetic treatment of patients with defects of the crown part of teeth with post structures is relevant and timely.

Purpose of the study: to dynamics complications in the restoration of dental crown defects with endocanal posts.

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Materials and methods:

To achieve the goal, a comprehensive examination of 86 patients aged 19-56 years who had previously undergone dental treatment of dental hard tissue defects with SC. In total, the quality of prosthetic treatment of SC defects of the crown part of 116 teeth was determined and studied. Of these, 80 on the upper jaw and 36 on the lower jaw.

Dental status was studied under artificial light using a standard set of instruments (mirror, probe, forceps). To assess the condition of the post structures during oral cavity examination, the generally accepted methods were used (anamnesis collection, examination, probing, etc.) The existing clinical errors and complications were noted in the "Medical records of a dental patient". The method of analyzing occludograms was used to detect premature contacts, since the determination of interocclusal relationships of teeth is an important diagnostic criterion in assessing the quality of dental prosthetic treatment. Occludograms were obtained according to the generally accepted methodology. The occlusal contacts of the antagonist teeth in the area of available post constructions were determined in patients directly in the oral cavity. A total of 126 occludograms were obtained and analyzed.

M.Z. Mirgazizov's methodology was used to calculate and analyze the indicator characterizing the level of defectiveness of the completed orthopedic dental treatment. To apply this indicator, a list of possible defects resulting from clinical errors was compiled and the weighting coefficient of each type of defect was determined by experts:

1) irrational use of root canal length (m1=0,6);
2) violation of root canal axis topography (m2=0,8);
3) perforation of the tooth root (m3= 1,0);
4) excessive expansion of the root canal (m4=0,6);
5) poor-quality filling of the post bed with cement (m5=0,3);
6) poor-quality root canal obturation at the stage of endodontic treatment (m6=0.5);
7) absence of aesthetic optimum (m8=0,9);
8) presence of marginal periodontal pathology (m9=0,6)5
9) presence of functional overload (m10=0,8);
10) the design for various reasons does not satisfy the patient (m11=0.9).

In the absence of clinical errors, the defect rate of the completed treatment is 0.

In addition, during examination and evaluation of the quality of restoration of the crown part of the tooth, the following parameters were noted: colour, shape, degree of mechanical wear, violation of the integrity of the cutting edges and chewing surfaces, compliance with the anatomical shape. Discussion of results: The results of the study show that in clinical practice in 76,3±1,8% of cases there were various clinical errors and complications in the restoration of defects of the crown part of the SC teeth. It was found that significantly higher ($p<0.05$) incidence rates of clinical errors and complications were determined when assessing the results of restoration of hard tissue defects of SC molars (77.2±3.5%) and premolars (77.5±3.3%), and lower incidence rates were observed in 66.5±3.3% of cases when restoring SC defects of the crown part of incisors (Fig. 1).

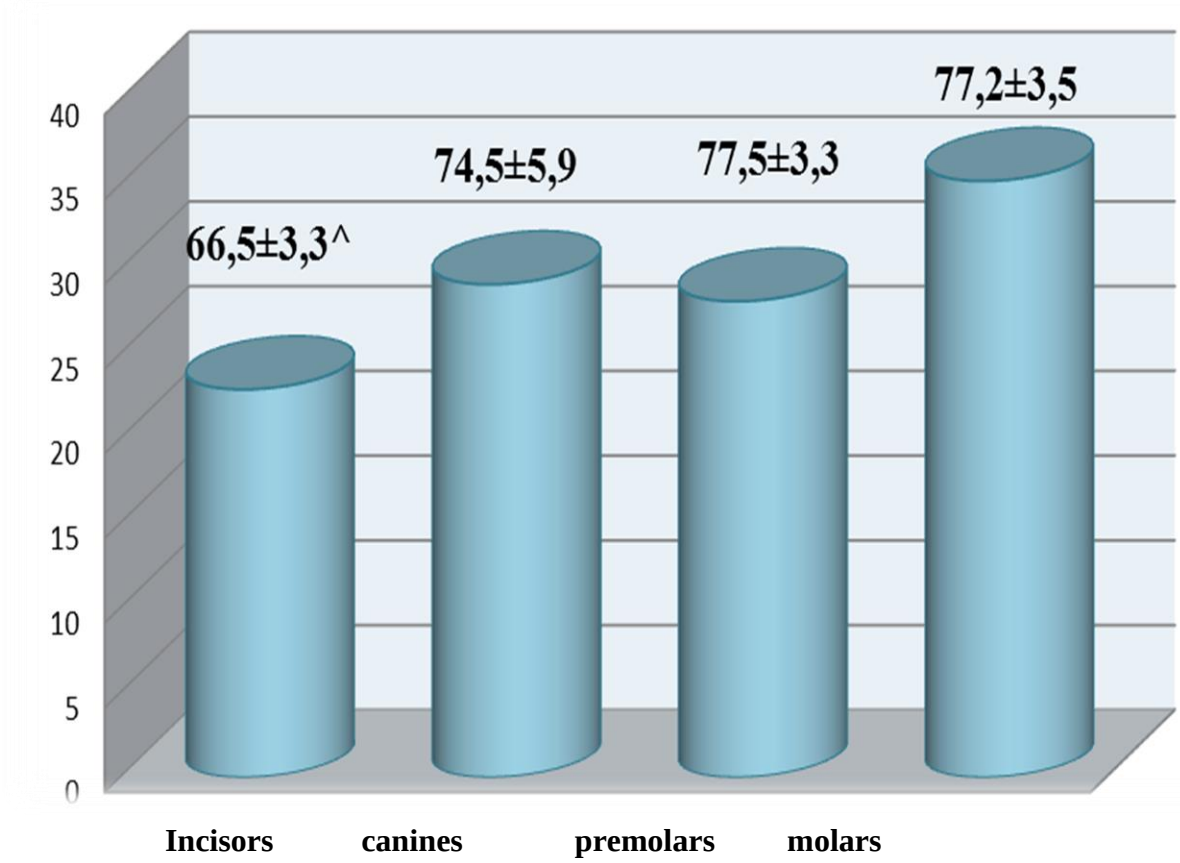

Figure 1. Frequency of clinical errors and complications in the restoration of teeth with post constructions, P±S.

The following clinical errors and complications were made by dentists when restoring crown defects with the use of stump post inlays: irrational use of the root canal length, violation of the root canal axis topography, excessive root canal enlargement, poor-quality filling of the post bed with cement, poor-quality root canal obturation. The study of the frequency of cases of irrational use of the root canal length in the restoration of the hard tissues of teeth with SC showed that this clinical error occurred in 27.9±1.9% of cases. Dentists allowed irrational use of the root canal length in the fabrication of stump post inlays for the restoration of hard tissues of molars in 35.2±4.0%, canines in 29.1±6.1%, premolars in 28.1±3.6% and incisors in 22.0±2.9% of cases, respectively. We have determined reliable differences between the incidence of irrational use of root canal length in incisor and molar restorations. We found a significantly higher ($p<0.05$) value of this characteristic when assessing the quality of root canal restoration in molars.

When assessing the quality of restoration of the hard tissues of SC teeth, excessive root canal enlargement was determined in 9.3±1.2% of cases. Most often ($p < 0.05$) this error was detected in 14.4±2.8% of cases when assessing the quality of restoration of premolars and to a lesser extent in 2.8±1.4% of cases (Fig. 2).

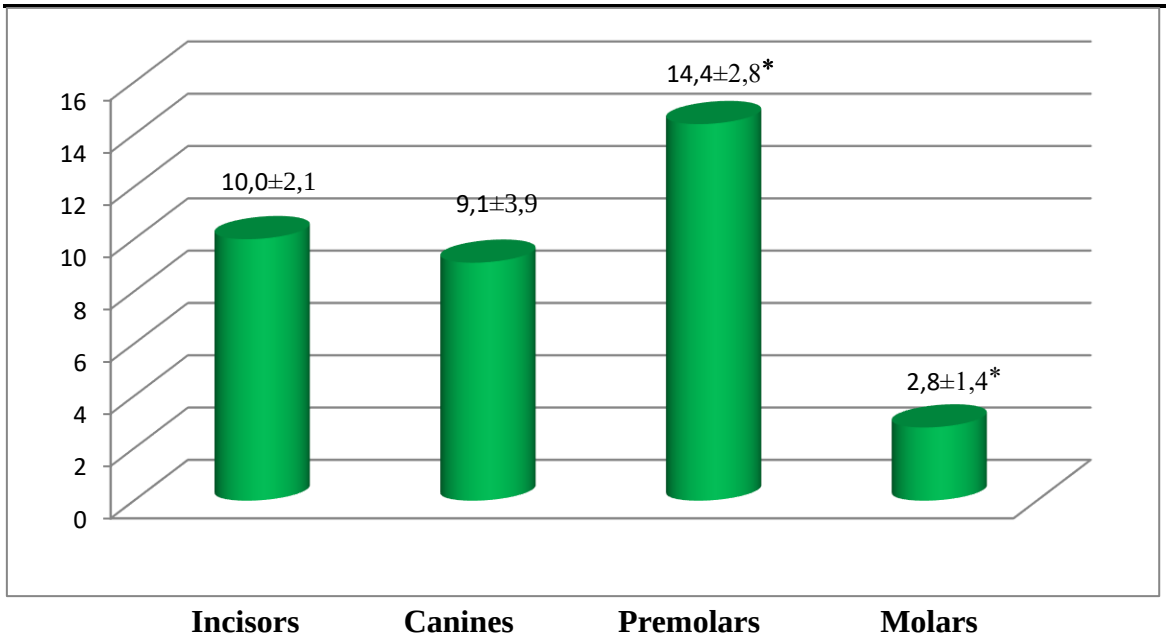

Fig.2. Frequency of cases of excessive expansion of the root canal diameter during the restoration of hard tissue defects of different groups of teeth with post constructions, P±S.

Violation of the root canal axis topography at restoration of the hard tissues of the teeth with SC took place in 18,8±1,6% of cases. The analysis of the results of the study showed that during the restoration of the hard tissues of the teeth with SC there was a violation of the root canal axis topography in 25.5±5.9% of canines, 20.7±3.4% of molars, 17.0±2.7% of incisors and 16.9±3.0% of premolars (Fig.3).

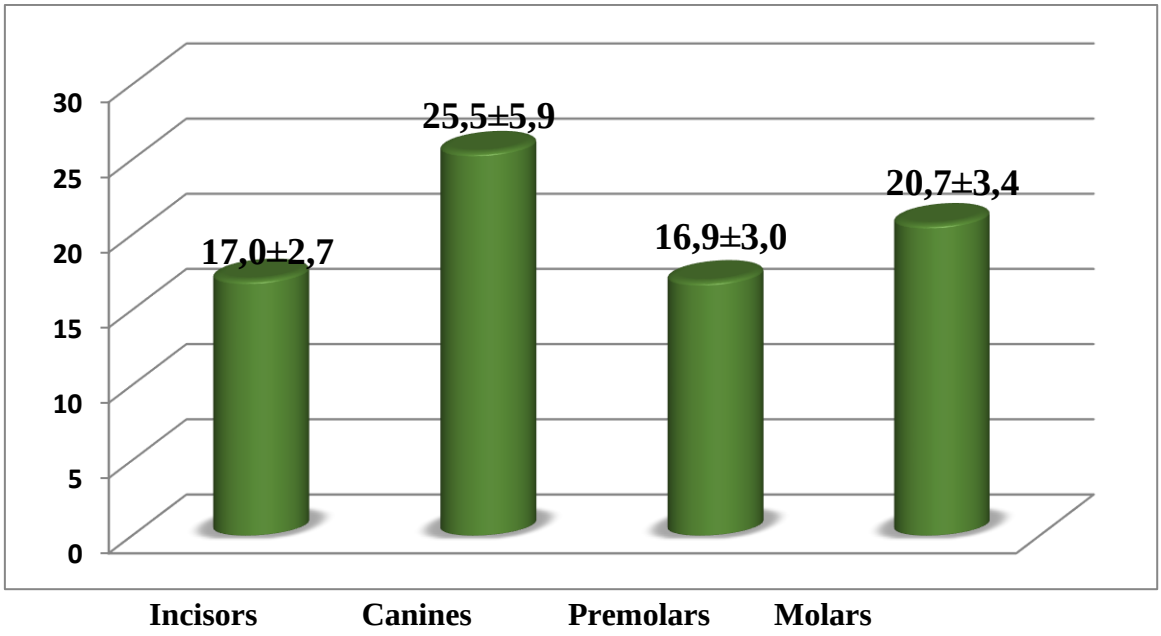

Fig.3. Frequency of occurrence of root canal axis topography violation during restoration of hard tissue defects of different groups of teeth with post constructions, P±S.

The study showed that when restoring the defects of the hard tissues of the teeth with SC the doctors allowed root perforation in 3.6±0.8% of cases, including: molars in 6.9±2.1% of cases and less often premolars and incisors in 3.8±1.5% and 2.0±1.0% of cases respectively (Fig. 4).

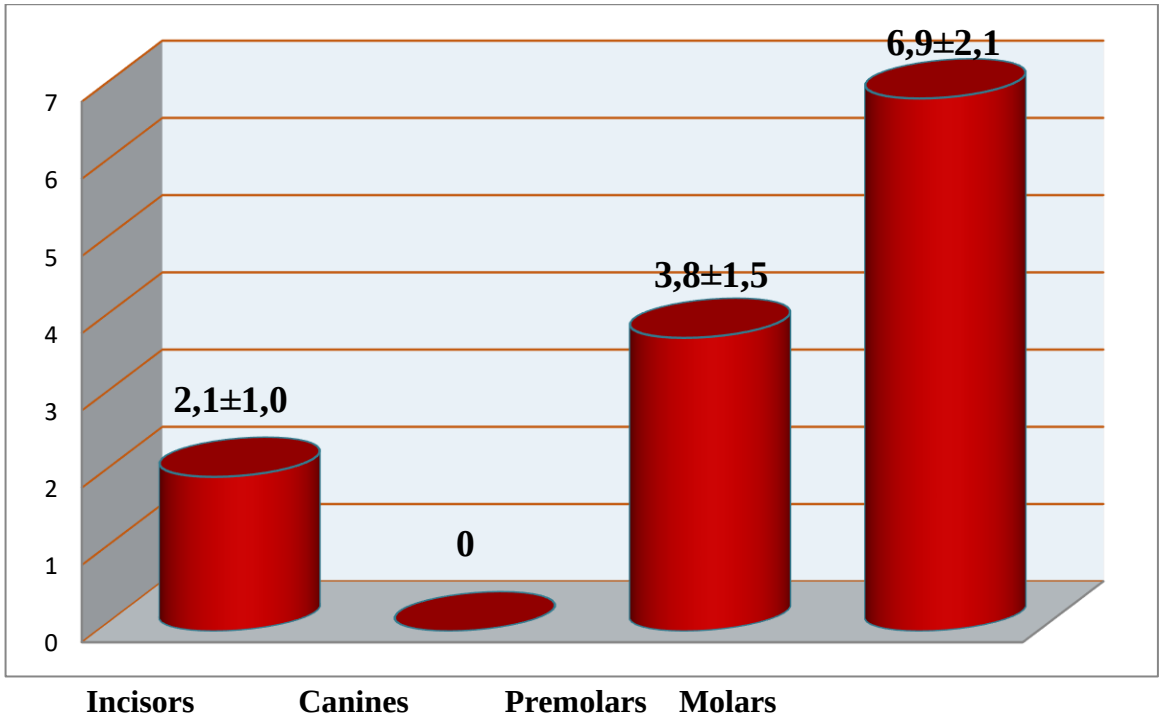

Fig.4. Frequency of root perforation cases during restoration of hard tissue defects of different groups of teeth with the use of post constructions, P±S.

The analysis of the results of the clinical study revealed that poor-quality filling of the post bed with cement was encountered in 8.8±1.2% of cases in the treatment of teeth with SC (Fig.5).

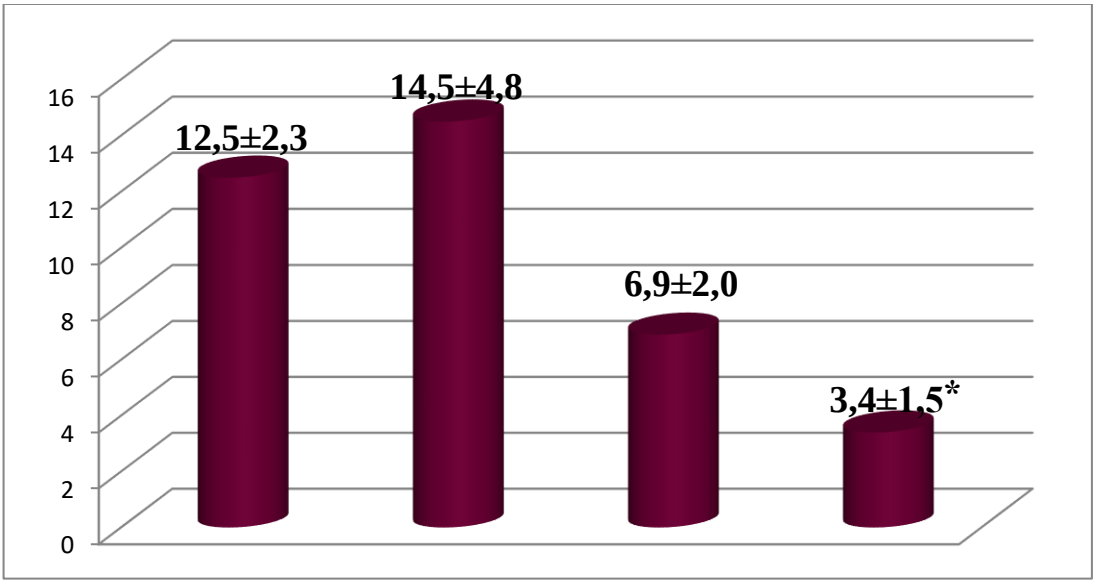

Fig.5. Frequency of occurrence of cases of poor-quality filling of the post bed with cement during restoration of hard tissue defects of different groups of teeth with post constructions, P±S.

This clinical error was most frequently determined by us when we evaluated the restoration of incisors in 12.5±2.3% of cases, and less frequently in molars in 3.4±1.2% of cases, and when restoring the hard tissues of canines and premolars in 14.5±4.8% and 6.9±2.0% of cases, respectively.

Conclusions

1. In clinical practice, various clinical errors and complications occurred in 76.3±1.8% of cases in the restoration of crown defects of SC teeth. Significantly higher rates of errors and complications were encountered in the restoration of hard tissue defects of molars (77.2±3.5%) and premolars (77.5±3.3%), and lower rates in the restoration of crown defects of incisors (66.5±3.3%).
2. High defect rates of the completed treatment of SCs are determined (0.67±0.08). Significantly high defect rates of the completed treatment level in restoration of the crown part of the teeth with SC are determined on the lower jaw (0,84±0,07), defects of the crown part of canines (0,64±0,04), premolars (0,78±0,05) and molars (0,80±0,11).
3. Methodical approaches proposed by us contribute to the prevention and elimination of clinical errors and complications in the treatment of patients with defects of dental hard tissues with post constructions.

REFERENCES

1. Kogan E. Evolution and integration of current restorative endodontic concepts *I* E. Kogan, S. Rubinstein, G. Zyman et al. *II* Alpha Omegan. — 2007. — Vol. 100, №3. — P.120-126.
2. Baibekov I.M., Kholmanov B.A., Rakhmanov Kh.Sh. Scanning electron microscopy of teeth with wedge-shaped defects, //Stomatologiya.- 2010,- No. 2.- P. 6-8
3. Ortikova N. Kh., Rizaev Zh. A., Melibaev B. A. Psychological aspects of constructing a dental appointment for pediatric patients //editor coordinator. – 2021. – P. 554.
4. Ortikova N. Trend in the effectiveness of preventive measures by correcting psychological stress in children at dental appointments // Society and Innovation. – 2022. – T. 3. – No. 6. – pp. 181-189.
5. Rizaev Zh. A., Akhmedov A. A. Fundamentals of dental care in the Republic of Uzbekistan based on the development of general medical practice // Journal of Dentistry and Craniofacial Research. – 2023. – T. 4. – No. 3.
6. Ortikova N., Rizaev J. THE PREVALENCE AND REASONS OF STOMATOPHOBIA IN CHILDREN //E-Conference Globe. – 2021. – C. 339-341
7. Ortikova N. The influence of psycho-emotional stress in children on the state oral health // Society and innovation. – 2023. – T. 4. – No. 7/S. – P. 328-333.
8. Nazarova Nodira Sharipovna, Islomova Nilufar Bustanovna. Assessment of clinical and morphological changes in the oral organs and tissues in post-menopause women. Frontline medical sciences and pharmaceutical journal. Volume 02 Issue 05, 2022. P. – 60-67.

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