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ORAL REHABILITATION OF PAEDIATRIC PATIENT WITH ECTODERMAL DYSPLASIA: A CASE REPORT

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Introduction

Stomatological rehabilitation of children with ectodermal dysplasia is extremely difficult problem and requires the involvement of lot of related medical professionals [1,2]. Children's prosthetic manufacturing of full value in such cases is complicated by the presence of pathological changes of skin in maxillofacial area, oral mucosa, congenital abnormalities of the facial bones of the skull, initial teeth deficiency, alveolar processes growth's lag, non-intensive and slow longitudinal growth of the jaw bones. All orthopaedic dental prostheses for paediatric patients are temporary and require periodic replacement [3].

A decreased teeth number on occlusion formation stages and decreased occlusion height cause abnormal development of the temporomandibular joint's structures.

These different features cause a special range of lower jaw motions which is significantly different from the average range. The common range of lower jaw motions is included to basic rules of dentures modelling on the technical stages of their manufacture [4,5].

Thus, rational prosthetic treatment for patients with ectodermal dysplasia requires a special dental-technician technological measures and manipulations and only dental technician with higher qualification skills is able to perform it.

Pathological saliva quality and quantity changes most common in cases of ectodermal dysplasia patients cause permanent abnormalities in an oral mucosa structure and affect the physiological regeneration processes in mucosal epithelium. This situation causes a limitation of choice of materials and designs for prosthetics [6].

Case report

To paediatric dentistry clinic the parents of male child 6 years old applied with the next complaints: small number of teeth in the oral cavity, aesthetic facial defects, breach of food chewing, a violation of the sounds pronunciation. The pa-

tient's clinical diagnosis confirmed by paediatricians was hypohidrotic ectodermal dysplasia.

Dental status: primary partially edentulous. The dental formula is 55, 63, 65, 73, 83, atrophy of the alveolar processes on upper and lower jaws, redness of oral mucosa, reducing of lower third of face height, chronic fibrous pulpitis of 55, 65.

Panoramic X-ray diagnosing of jaws detected the complete absence of permanent teeth's follicles (Fig.1,2).

The next treatment plan to rehabilitate the patient has been developed:

1. Endodontic treatment of 55, 65 teeth, restoring the coronal parts by filling material.
2. Determination of the occlusion height and articular pathway recording by articulator.
3. Manufacturing of diagnostic models for the planning of orthopaedic treatment.
4. Manufacturing and fixing of fixed dental prostheses.

Justification of planned dental treatment

In the absence of permanent teeth's follicles in the patient's jaws it was decided to maintain the presence of deciduous teeth by endodontic treatment and permanent root canals obturation. To ensure adequate fixation prosthesis in the oral cavity was decided to restore the height and shape of 55 and 65 teeth crowns. To eliminate the defects of dentition a method of non-removable metal-ceramic prosthetic designs was chosen. Such denture was building on existing teeth as removable dentures are impossible to fix properly in the patient's mouth which may increase a risk of trauma of the oral mucosa and aspiration of dentures' parts into the respiratory tract.

The main stages of treatment

Chronic fibrous pulpitis in 55 and 65 teeth was treated by non-vital pulp extirpation method. Devitalization of the teeth's pulp was conducted using weekly exposing of paraformaldehyde-containing paste "Devit-C". A week later the root canals of teeth



55 and 65 were treated by the "Crown Down" method and root canals were sealed with zinc-oxide-eugenol paste. Coronal parts of 55 and 65 tooth were impeccably renovated by material "Dyract Extra" (Dentsply DeTrey GmbH, Germany).

Without prior preparation of teeth the one-moment biphasic dental impressions were taken from patient's jaws with silicone impression material «Zetaplus» (Zhermack Clinical, Italy) using a correction paste.

From these impressions diagnostic and dismountable models of patient's jaws were made. The occlusion height of the patient was determined using wax cylinders due to the absence of occlusion fixing in the patient's oral cavity. Lateral movement of the mandible were recorded to set an articulator.

After fabrication dismountable models were fixed in occludator. Wax reproductions of dental bridges' frameworks were made and replaced with cobalt-chromium alloy using a founding method further. Dental bridges' carcasses were fitted in the patient's mouth (Fig. 3,4, 5).

Then, under the control of the articulator finished metal frames were covered with ceramic mass. Finally, after fitting manufactured dental bridges were fixed using glass-ionomer cement for fixation of prosthetic «Fuji plus» (GC, Japan) (Fig.6, 7, 8, 9).

After the treatment had been finished the patient was transferred to follow-up monitoring in the clinic (Fig.10). Patient's parents got the recommendation to replace fixed prosthesis after 2 years depending on growth of the jaws and other facial bones.

Summary

Stomatological rehabilitation of children with ectodermal dysplasia is extremely difficult problem and requires the involvement of lot of related medical professionals. Common such patients need dental prosthetic treatment. Usually performing of orthopaedic dental treatment is complicated by little teeth number or its total absence, alveolar bone anomalies, chronic injuries of oral mucosa, etc.

The case of successful prosthetic treatment of 6-years boy with hypohidrotic ectodermal dysplasia using the non-removable metal-ceramic dental bridges is described.

Key words: Dental rehabilitation, children, prosthesis.

Стоматологічна реабілітація у дітей з ектодермальною дисплазією. Випадок з практики

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Резюме. Стоматологічна реабілітація дітей з ектодермальною дисплазією – це надзвичайно важке завдання і вимагає участі багатьох суміжних медичних працівників. Такі пацієнти потребують загального зубного протезування. Зазвичай виконання ортопедичного стоматологічного втручання ускладнюється невеликим числом зубів або їх повної відсутності, альвеолярних аномалій кісток, хронічних травм слизової оболонки порожнини рота і т.д. Описано випадок успішного протезування 6-річного хлопчика з ектодермальною дисплазією гіпогідротичного типу з використанням незнімної металокерамічної зубної конструкції.

Ключові слова: стоматологічна реабілітація, діти, протезування.

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Fig. 1.



Fig. 2.



Fig. 3.

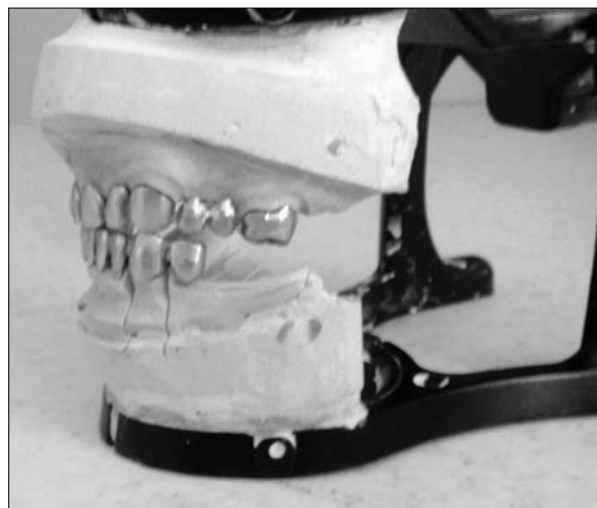


Fig. 4.

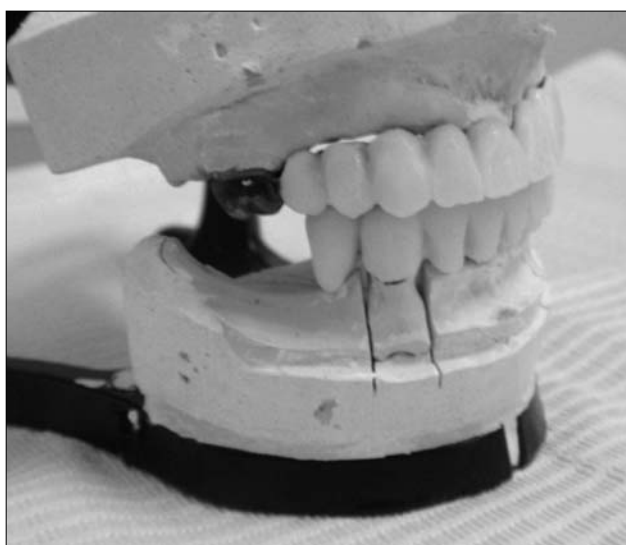


Fig. 5.



Fig. 6.

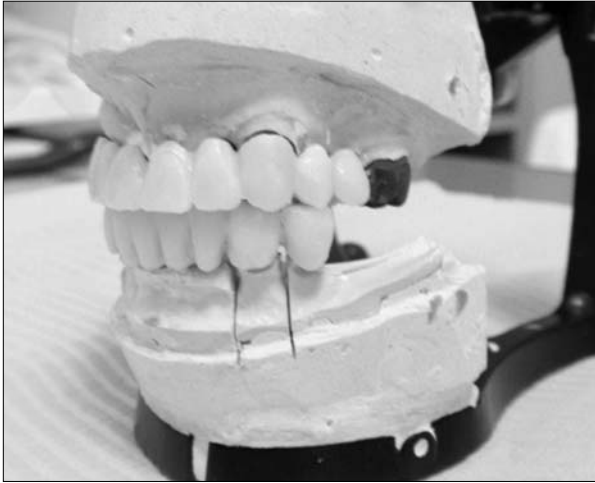


Fig. 7.



Fig. 8.



Fig. 9.



Fig. 10.

Legend of pictures

Article

Oral rehabilitation of paediatric patient with ectodermal dysplasia: A case report

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Fig.1. Primary partial anodontia on lower jaw.

Fig.2. Primary partial anodontia on upper jaw.

Fig.3. Cobalt - chromium carcasses of prostheses: frontal view.

Fig.4. Cobalt - chromium carcasses of prostheses: left lateral view.

Fig.5. Manufactured dental metal – ceramic dental bridges on jaws' models: right lateral view.

Fig.6. Manufactured dental metal – ceramic dental bridges on jaws' models: frontal view.

Fig.7. Manufactured dental metal – ceramic dental bridges on jaws' models: left lateral view.

Fig.8. Manufactured dental metal – ceramic dental bridges on upper jaw's model.

Fig.9. Manufactured dental metal – ceramic dental bridges on lower jaw's model.

Fig.10. Prostheses at the fixation stage.