v. 2, n. 66, 2022

International Journal of Health Science

DENTAL MANAGEMENT IN CHILDREN WITH DOWN'S SYNDROME: CASE REPORT

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Abstract: Down Syndrome (DS) is a chromosomal disorder resulting from an error in the division of chromosomes in the parents' cells, resulting in an extra chromosome in the 21st pair. characteristics of these individuals, among these, there are several oral alterations. The present work aims to report a clinical case of dental care performed on a 4 (four) year old child with DS, who had not yet been seen by an oral health professional. In addition, the report proposes to understand how the attitude of oral health professionals must be towards the child's behavior, the existing behavioral, pharmacological and sedative management techniques, as well as the acceptance of the proposed treatment and the family's conduct in the case. Therefore, it was noted with this care that patients with DS are difficult to collaborate, and must first be conditioned to clinical care. It is noticed that it is very important to prevent oral diseases, avoiding the appearance of more complex cases or lesions that require aggressive treatments, having a health professional regularly present to accompany, guide and motivate the patient and family to work together. to always have satisfactory oral health.
Keywords: Down Syndrome, Oral Health, Techniques, Child.

INTRODUCTION

Down Syndrome (DS) is a chromosomal disorder first described in 1866 by the English physician John Longden Hyden Down. After 93 years of this discovery, in 1959, two other doctors, Jérôme Lejeune and Pat Jacobs, managed to demonstrate that it is the result of an error in the division of chromosomes in the cells of the parents, obtaining an extra chromosome in the pair 21, denominating the finding of Trisomy. 21. DS manifests itself with physical and mental anomalies at different levels, determining some characteristics of these individuals. In addition, they may suffer from congenital heart and gastrointestinal defects, urinary tract anomalies, respiratory, hearing and vision disorders, mild or moderate mental disability, among others (DEMAV, 2020; VIEIRA; CAMPOS, 2021; GUIMARÃES; VIEIRA; FERREIRA, 2019).

The etiological factors that cause this genetic disorder to this day are not fully defined, but it is known that they are often associated with the advanced age of the pregnant woman (over 35 years old) and the aging of her eggs. Thus, the greater the age of a woman, the greater the probability of having a child with DS, not excluding its incidence in young mothers. Its diagnosis is made by observing the signs and symptoms that the individual presents, and can be confirmed by the chromosomal study exam, which detects the presence of an extra chromosome in pair 2 1 (VILELA *et al.*, 2018).

Clinically, patients with Down Syndrome have a hypotonic face, disproportionately larger head, malformation of the ears, short neck and limbs, short stature and almond-shaped eyes. In the oral cavity, these individuals may present with macroglossia, anodontia and/or hypodontia, delay and modification in the sequence of tooth eruption, dental anomalies (twinning/fusion), TMJ involvement, narrow palate and mouth breathing. However, a misconception, still present in relation to DS patients, is that everyone develops in the same way, presenting the same organic, motor and cognitive characteristics, disabilities and limitations, which is not true. (VILELA et al., 2018).

In addition to these factors, the impairment of the immune system of these individuals contributes to a greater degree of involvement by bacteria (*Actinobacillus actinomycetemcomitans, Capnocytophaga, ochracea and Porphyromonas gingivalis*) capable of promoting the development of periodontal injuries and caries. Periodontal

disease progression is faster and more extensive when compared to non-syndromic individuals who have better motor coordination and oral hygiene. (VIEIRA; CAMPOS, 2021).

In this sense, dentistry for people with special needs (PNE) emerged as a proposal to include this group in better health care. In 2002, the Federal Council of Dentistry (CFO) defined the area as a specialty, justified by the difficulties and lack of knowledge of professionals when caring for these patients. In general, the specialty aims to seek appropriate treatment using approaches and management techniques unique to them (GUIMARÃES; VIEIRA; FERREIRA, 2019; VILELA *et al.*, 2018; ARRUDA et al., 2019).

During consultations with PNE patients, the conduct must be different and individualized, verifying the oral changes and the needs of each one. In addition, periodic monitoring by the dental surgeon is necessary, as well as the insertion of family supervision during the oral hygiene of this individual. The professional must be aware of the family behavior and the daily diet of this group, observing which factors offer difficulties or prevent efficient dental treatment, taking into account the predisposition to gingival pathologies in patients with DS (NETA et al., 2021).

With all this, the main objective of this work is to analyze what conducts the dental surgeon must take in the care of patients with Down Syndrome, including the description of behavioral management techniques and what are the main oral alterations found in these patients arising from the physical characteristics or mental of these individuals. Finally, the work will describe a clinical case of care of a patient with DS, carried out by dental students from Faculdade Evangélica de Goianésia - FACEG.

CLINICAL CASE

Note that the clinical case report does not contain the item. Patient BVOS, male, 4 years old, diagnosed with Down Syndrome (DS), attended the Teaching Dental Clinic (COE) of Faculdade Evangélica de Goianésia - FACEG (Figure 1), asymptomatic, whose mother's main complaint was "My son has never been to the dentist" (SIC).

Figure 1: BVOS patient

Source: Authors, 2022.

During the anamnesis, the child's mother reported that she had mild to moderate cognitive deficits, slow thinking and hyperactivity, but did not have any systemic, cardiac, allergic or other similar conditions. He also reported that the patient has a diet with a high intake of carbohydrates and sweets, and that tooth brushing is performed only twice a day with great difficulty. In the extraoral physical examination, facial symmetry was observed within the normal range, ganglionic chains, facial and mastication muscles were

normal.

The intraoral examination was not successfully performed due to lack of patient cooperation and management difficulties during the dental appointment (Figure 2). However, it was possible to observe that the patient had macroglossia, a condition that almost always makes him have his mouth open and his tongue protruding (characterizing him as a mouth breather), being one of the decisive factors to make the care and intraoperative examination difficult. oral. Also, during the clinical inspection, a large amount of biofilm was observed throughout the dental arch due to the difficulty of cleaning.

Figure 2: Intraoral examination.

Source: Authors, 2022.

After intraoral examination, prophylaxis was indicated (Figure 3) to remove the biofilm adhered to the tooth. To perform the procedure, the child was conditioned with some handling techniques due to the difficulty of care and hyperactivity. Among the existing techniques were used: tell -show-do (Figures 4 and 5), positive reinforcement (Figure 6), distraction (Figure 7 and 8) and protective stabilization (Figure 9).

Figure 3: Prophylaxis.

Source: Authors, 2022.

Figure 4: Using tell-show-do techniques.

Source: Authors, 2022.

Figure 5: Using the talk-show-do technique.

Source: Authors, 2022.

Figure 6: Positive reinforcement.

Source: Authors, 2022.

Figure 7: Distraction Technique.

Source: Authors, 2022.

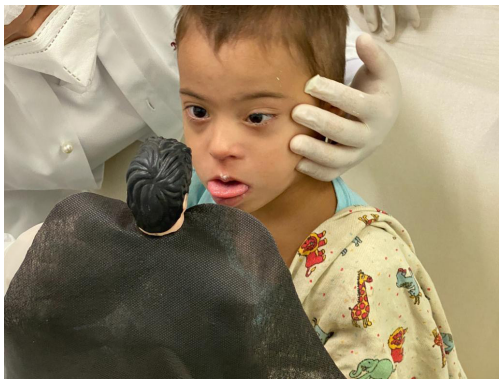

Figure 8: Distraction technique.

Source: Authors, 2022.

Figure 9: Protective stabilization technique.

Source: Authors, 2022.

Subsequently, during the planning of the patient's dental treatment, the installation of a palatal grid appliance was indicated due to tongue protrusion, seeking to minimize the damage caused by the excessive load exerted on the anterior teeth. For this, the patient was referred to a professional specialized in PNE.

Therefore, it was noted with this care that patients with DS are difficult to collaborate, and must first be conditioned to clinical care. Furthermore, more time must be devoted to this consultation, seeking to involve them with attractive tools that let the professional work quickly and definitively. In addition, the importance of preventing oral diseases is perceived, avoiding the appearance of more complex cases or lesions that require aggressive treatments.

DISCUSSION

Considering the need to perform any and all procedures in order to promote the oral health of patients with DS, it is important to qualify professionals who deal with the behavioral characteristics of these individuals. To better serve them, the dental surgeon must be aware of the individualities of each one and know them in depth. For this, carrying out a good anamnesis, the use of management

techniques, carrying out short consultations and simple procedures at first, are some factors that benefit this interaction and acceptance of the treatment. (NETA *et al.,* 2021).

The first dental appointment must take place as soon as possible, essentially before and/or during the deciduous dentition. This is due to the major changes and development of oral and dental structures that occur during this period. In addition, it is important to recommend guidance to parents about the pathological risks to which patients with DS are submitted, seeking to avoid them. For children with DS, prevention is the best way to achieve success, and the dentist is responsible for informing the whole family about harmful habits, eruption chronology, diet, cariogenic risks and efficient oral hygiene. (GUIMARÃES; VIEIRA; FERREIRA, 2019).

The main oral and dental characteristics found in pediatric patients with DS are: microglossia, high palate, hypotonic lips, fissured tongue, oligodontia, macrodontia, microdontia, conoid teeth, fusion, supernumerary, among others. As a consequence of these anomalies, the child may present mouth breathing, anterior open bite, posterior crossbite, difficulties in speech, chewing and swallowing, angular cheilitis due to the difficulty of keeping the mouth closed, dental crowding and mainly biofilm accumulation by mechanical control. insufficient (GUIMARÃES; VIEIRA; FERREIRA, 2019; USUI *et al.*, 2020).

Due to this exacerbated accumulation of biofilm, these patients must receive special attention regarding the appearance of caries and periodontal injuries. These oral diseases are frequent in individuals with DS, since they have poor motor coordination, making brushing and flossing difficult. These factors, together with cariogenic diets and frequency of sweets and carbohydrates intake, facilitate the aggregation of pathogens that cause caries lesions and periodontal diseases. Although several efforts are made to improve the standard of oral hygiene in patients with deficiencies, mechanical actions alone are not enough, and systemic factors that can corroborate this situation must be observed, such as in cases of immune system alterations. (VIEIRA; CAMPOS, 2021; VILELA *et al.*, 2018).

The correct functioning of the immune system provides this individual with a balance between the microorganisms present in the oral cavity and the organism. However, the imbalance of this system makes it susceptible to infections, which can trigger different types of diseases. To prevent this from happening, access to health services in a specialized way contributes to the reduction of these diseases and a better quality of life for these syndromic patients. (VILELA *et al.*, 2018).

Based on the behavior of this child during the dental appointment, the professional can change his approach and use some management methods, seeking to reassure and not make this service traumatic. Also, knowing how to interpret the individuality and personality of each patient is essential to establish a relationship of trust between the dentist, the patient and their family. This way, good communication promotes family motivation/insertion in activities related to oral hygiene and contributes to success in preventing oral diseases. (DEMAV, 2020; NETA *et al.*, 2021; CARRADA *et al.*, 2020).

Among the main dental management techniques performed in the care of these children are: talk-show-do, positive reinforcement, distraction, more playful behavior and protective stabilization. The talk-show-do technique is currently the most used for conditioning children to dental care. It consists of talking and demonstrating to the patient through an object what will be performed on him and after his acceptance,

performing the procedure. This technique requires a simple explanation according to age and understanding. During this management, the child monitors and visualizes the process, establishing trust between patient and professional (NETA *et al.*, 2021).

In the voice control technique, the dental surgeon maintains a certain tone and volume during his care, directing his patient to the desired behavior. Along with the facial expression, the professional establishes the child's cooperation, directly reflecting on the course of the treatment. Positive reinforcement is characterized by the child's motivation through praise, positive gestures and gifts during or after the procedure. (NETA *et al.*, 2021).

Another technique used is that of distraction, where attractive elements are introduced during the service that divert the child's attraction, reducing their anxiety and fear. As a last resort, when the child does not allow himself to be conditioned, the professional can talk to the parents or guardians about the use of protective stabilization. This technique aims to contain the child's undesirable movements during dental care, seeking to protect the patient and the professional from any possible harmful behavior. (NETA *et al.*, 2021).

Even with the support of behavioral management techniques, caring for children with DS can become very difficult, especially when related to pain and oral problems. If this happens, after correct diagnosis and treatment planning, the dental surgeon may propose some types of differential approaches, one of which is the possible use of conscious sedation to perform the procedure. This sedation can happen inside the office itself, if the professional is qualified and has the necessary tools, or in a hospital environment. (DEMAV, 2020).

The ideal drug for sedation is characterized by a number of factors such as accessibility, safety, cost-effectiveness, patient age, presence of allergies to some component, desirable type of sedation, among others. Some authors report that there are no studies that prove the best drug on the market, however there is the one most suitable for the patient, considering all its physiological and systemic characteristics. (GUEDES-PINTO, 2016).

These sedative agents are classified according to their route of administration (parenteral or enteral) or the class to which they belong (analgesics, sedatives, inhalational agents, etc.). Currently, the most used in dentistry are inhalational agents and sedative-hypnotics. In the class of inhalational agents, we have sedation by nitrous oxide and oxygen (N2O-O2) on the market, where, through its anxiolytic potential, the patient is in a state of relaxation. In this sense, the professional is able to use this technique as an auxiliary method for psychological conditioning, increasing patient cooperation and minimizing the patient's discomfort in the face of the procedures. (GUEDES-PINTO, 2016).

In cases where behavioral, pharmacological and sedative management has failed, dental treatment under general anesthesia must be chosen. This type of procedure must be performed in a hospital environment, where the patient will be in a state of unconsciousness controlled by an anesthesiologist. (GUEDES-PINTO, 2016).

Therefore, dental care is a key factor in the prevention and promotion of oral health in patients with Down Syndrome. Several dental problems can be avoided or minimized when assisted by comprehensive and continuous dental care, through early and regular consultations. This fact strengthens the issue of the health professional's approach not being restricted to their specialty, avoiding a reductionist and fragmentary view of the

patient. (ARRUDA *et al.*, 2019).

The practice of integrality does not only translate into the development of protocols or routines capable of identifying and offering preventive actions. This professional needs to understand the life context of the individual who seeks care, because from there he will be able to identify the risks and the real needs of the individual and his family. Thus, the importance of holistic professional training is observed, emphasizing the importance of implementing the PNE discipline in the curriculum during graduation, ensuring that the professional is more prepared to serve any type of public. (FRAGÔSO *et al.*, 2021).

CONCLUSION

In the present study, it can be seen that pediatric patients with Down Syndrome encounter certain difficulties when seeking dental care, due to professional unpreparedness in relation to PNE. Therefore, one of the main measures for this to change is the early insertion of these patients in dental consultations, preventing any oral aggravation and the need for invasive treatments. In addition, knowledge of techniques for the management of these patients is one of the essential points during this care, establishing bonds of trust. If behavioral management is not successful, the professional may forgo more invasive approaches, such as conscious sedation or general anesthesia in a hospital setting.

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