

Full Mouth Rehabilitation in Visually Impaired Children with Modified Behaviour Management Techniques: A compilation of two cases.

Abstract:

The prevalence of childhood blindness is 0.3 per 1,000 children in industrialized countries, 1.2 per 1,000 children in developing countries, and 1.7 per 1,000 children in India. In children with visual impairment, there are limitations to moving around in different surroundings and performing basic activities, due to which managing them becomes a challenging task for Paediatric Dentists. Therefore, there is a need to train the visually impaired child with the aid of customized behaviour management techniques, so that the outcome of the treatment can be optimized. 'Audio-Tactile Performance technique' (ATP) is a multisensory health education method, specially designed for training visually impaired children. The 'Tell-feel-do' and 'Tell-Hear-Do' techniques can be used instead of 'Tell-show-do' to acquaint the patient with the relevant procedures before actual execution. The case reports aim to demonstrate successful full mouth rehabilitation in children with visual impairment, using these modified behaviour management techniques.

Key-words: Visual impairment, Dental care, Audio-Tactile Performance, Tell-Feel-Do, Tell-Hear-Do, Tell-Smell-Do

Introduction:

The term visual impairment refers to a functional limitation of the eye due to a disorder or disease, resulting in a visual handicap. A visual disability is a physical limitation of a person, whereas a visual handicap is a limitation at the personal and social level. As such, visual impairment should not have direct implications on the dentition, but with such a major problem to be faced, dental health is often found to be neglected, and later presents as a major area of concern. Incidents of dental disease and decay are on the rise in these patients due to poor oral self-care, as patients are unable to see what they are doing. Self-inflicted injuries such as traumatic toothbrushing are common, as these children are less aware of proper brushing technique and the appropriate pressure to be applied during brushing. It is difficult for the patient to detect dental disease in the early stage, particularly the changes that are typically recognized through vision. The incidence of dental disease can be due to the indirect effect of an imbalanced diet and poor self-care in the absence of effective

instructions[1]. Management of such patients requires effective communication with the child and parents for overall general and oral health maintenance. These case reports throw light on the dental management of children with visual impairment with the help of effective behaviour management techniques.

Case 1:

A 5-year-old male child reported to the Department of Pediatric and Preventive Dentistry, with a complaint of pain in the left upper and lower back teeth region of the jaw for the past 1 week. The pain was sudden in onset and of short

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Received : 25 Jan., 2024, **Published :** 15 May, 2024

Access this article online	
Website: www.ujds.in	Quick Response Code 
DOI: https://doi.org/10.21276/ujds.2024.10.1.15	

How to cite this article: Dambare, A., Swapnil Mhatre, Rashmi Jayanna, & Priyanka Razdan. (2024). Full Mouth Rehabilitation in visually impaired children with modified behaviour management techniques: A Case Series. UNIVERSITY JOURNAL OF DENTAL SCIENCES, 10(1).

duration. The pain was localized, dull aching and intermittent in nature. It was aggravated on mastication, which lasted for a few minutes, and relieved on removal of stimulus. Past medical history revealed that the child was premature at birth (< 34 weeks), with low body weight i.e. 1.6 kgs, and was admitted to NICU for 21 days for the same. Thereafter, he was diagnosed with “Retinopathy of Prematurity and Retinal Detachment with permanent blindness of lifetime” after 3 weeks of birth.

The patient was well-oriented and cooperative (Frankel's behavior rating scale ++). He was introduced to the dental chair and equipment using the “Tell-Feel-Do technique” (Fig.3.1) and Euphemism. A thorough description of the chair position, and clear, concise instructions were given. It was made sure that sharp objects were kept out of his reach. Initially, the oral inspection was done without any instrument, and later, an examination was done using a mouth mirror, but only after the child was made to touch and feel it. The conversation was continuous throughout the procedure. In the first visit, the general examination was done and records were made. The child was diagnosed with Severe Early Childhood Caries. An Orthopantomogram (OPG) (Fig.2) was preferred for further investigation, to avoid any unpleasant experience that might be encountered while taking Radiovisiograph (RVG) images for multiple teeth. The treatment plan was formulated, which included Composite restorations for 55,65, 71,72,73,81,82,83;Pulpectomy and Stainless-steel crown placement for 74; SDF application and Stainless-steel crown placement (Hall's technique) for 54,64,75,84,85 and extraction with respect to 51,52,61. Desensitization was used i.e., initially the minimally invasive procedures were planned, and later on, more complex procedures were to be carried out.

As the patient could not see a smile, Voice Modulation with a friendly and positive tone was used to keep the patient calm and relaxed. He was asked about his hobbies - singing, making jingles and mimicry being his favorites. He was asked to perform these, and was applauded and appreciated by the members of the department, turning his dental visits into a happy and fun experience. Storytelling and riddles also proved to help maintain a cheerful environment. The parents were asked to record a weekly diet chart for the child, and necessary dietary modifications were done. Brushing technique was explained using the 'Audio-Tactile-Performance Technique'. The patient was cooperative and gave a positive response throughout the appointment.

To give the patient an idea about the procedure, the teeth were wiped with a cotton pellet. Initially, the ultrasonic scaler tip was used on the child's fingernails, to familiarize him with the sensation, and then it was introduced into the oral cavity. Sudden jerky movements or any unexpected sounds and other stimuli were avoided, to ensure that the child was not startled. Topical Fluoride application was done. Morning appointments were preferred. Musical jingles and stories were played for the child for audio distraction.

The soft caries excavation was carried out using a sharp spoon excavator. Then, he was introduced to the Airotor by making him touch and feel it (Tell-Feel-Do), and it was explained using the Euphemism of a 'whistling train' (Tell-Hear-Do) (Fig.3.2). The child was familiarized with dental materials like Cements by asking him to smell them (Tell-Smell-Do) (Fig.3.3). Periodic time-out breaks were given to play with his favorite toy, to avoid boredom during long appointments. Physical contact was made reassuringly, and it was made sure that no sudden grabbing or movement was made without prior notice. The child was appreciated with a pat on the back and encouraging words for his good behavior throughout the procedure.

As the patient had multi-surface caries on multiple posterior teeth, caries excavation followed by stainless steel crown placement was planned. The patient was made to feel the crowns, and was told that he would get new silver teeth. SDF application on the carious lesion, followed by stainless steel crown placement (Hall's technique), was done in the posterior teeth with Asymptomatic Reversible Pulpitis. Pulpectomy of the mandibular left first molar followed by placement of a Stainless-steel crown was done. Lastly, extractions were done. The patient was rewarded with gifts and toys as positive reinforcement.



Figure 1- Case 1- Pre-operative intraoral photographs

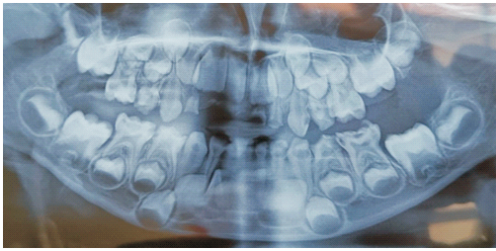


Figure 2. Case 1- Radiographic investigation (Orthopantomogram)



Figure 3.1

Figure 3.2

Figure 3.3

Figure 3. Tell-feel-do (3.1), Tell-Hear-Do (3.2) and Tell-smell-do (3.3) techniques



Figure 4. Case 1- Post- operative intraoral photographs and Orthopantomogram

Case 2:

A 5-year-old female child reported to the Department of Pediatric and Preventive Dentistry. The parents reported pain

in the upper left back teeth region for two days. The pain was localized, sudden in onset, sharp shooting type, and of a short duration (a few minutes). The pain was intermittent in nature, aggravated by having cold food, and relieved on removal of stimulus. Past medical history revealed that the child was visually impaired since birth.

The patient was anxious and reluctant on her first visit, but was cooperative after she was introduced to the dental chair with the “Tell-Feel-Do technique” and by utilizing Euphemisms. The investigation was done using Radiovisiography. The patient had disto-proximal caries with respect to 54,64,74,84 and mesio-proximal caries with respect to 55,65,75,85. The soft caries was excavated using a sharp spoon excavator, and later with high-speed diamond burs. Stainless steel crown placement was done with all the posterior teeth. The child was appreciated with encouraging words, and presented with gifts as a positive reinforcement.



Figure 5. Case 2- Pre-operative intraoral photographs

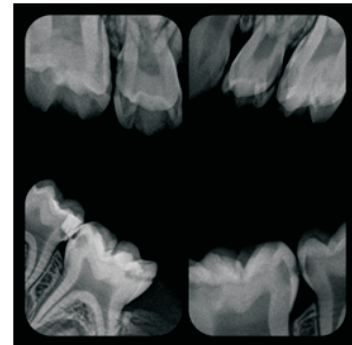


Figure 6. Case 2- Radiographic investigation

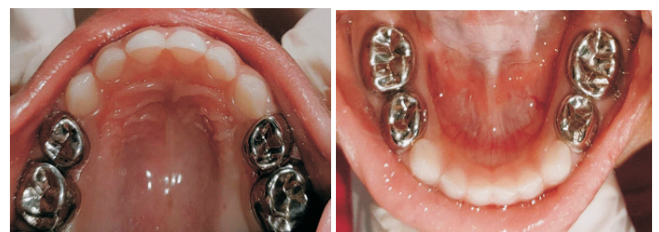


Figure 7. Case 2- Post-operative intraoral photographs

Discussion:

Audio Tactile Performance technique' (ATP), a specially designed health education method, was used to educate the

children regarding oral hygiene maintenance[2]. The method is so called, as the children are first verbally informed about the importance of teeth and the method of brushing. Then they are encouraged to touch the teeth on a large-sized model with their fingers, so as to appreciate their size and shape. Thereafter, they are asked to practice brushing on the model, using the Fone's method with assistance. This is repeated until the children can perform the exercise on their own with ease[3]. Both Fone's method and Modified Bass method of tooth brushing were found to be very effective in improving the oral hygiene of visually impaired children, when it was taught using an effective communication tool, the ATP technique[4]. A 'Tell-Feel-Do' technique can be used instead of the 'Tell-Show-Do' technique to demonstrate the relevant procedures to the patient.

The main goal of the Dentist or hygienist should be to train and encourage visually impaired individuals to achieve these tasks independently. Self-reliance is an extremely essential, and sometimes sensitive aspirational virtue in the visually impaired person's life. Achievements, both small and big, have a positive impact on the individual's self-esteem⁸.

Conclusion:

Maintenance of oral health and prevention of oral diseases should be encouraged since birth, especially in children with visual impairment. Parents and caregivers play a major role and should be guided effectively about the same. Modified behavior management techniques and oral hygiene maintenance techniques need to be implemented, for the successful dental treatment and enhancement of the overall health of the Special Smiles!

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