

Case Report Article

The dental management of a patient maltreatment victim with severe anatomical sequelae: a case report

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Abstract

Introduction: Violence against children and adolescents is a multifaceted phenomenon, influenced by cultural, social, and economic factors, which continues to be a significant concern today. Most injuries resulting from abuse in the age group of 0 to 17 years affect the orofacial region, emphasizing the need for dentists to be trained to identify, treat, and report suspected cases. Regarding surgical and prosthetic rehabilitation, it is crucial to consider the unique anatomical and physiological characteristics of this phase for proper diagnosis, prognosis, and treatment planning. **Objective:** Therefore, the aim of this study was to perform the provisional prosthetic rehabilitation of a teenager, with extensive bone and tooth loss in the maxilla, who was a victim of abuse. **Material and methods:** For this purpose, the patient underwent wrist radiographic exams to confirm the stage of bone development. Upon skeletal immaturity confirmation, a detailed treatment plan was developed,

opting for a conventional transitional removable partial denture to allow modifications and adjustments, without interfering with facial bone development and growth. **Results:** The patient was rehabilitated, restoring masticatory, speech, and aesthetic functions, and regular follow-up was maintained for guidance, maintenance, and adjustments of the prosthesis, as well as evaluation of oral tissue health and involved teeth until treatment completion. **Conclusion:** The importance of proper planning and dental prostheses in the rehabilitation of abuse victims is highlighted, considering the ability of these devices to restore the function of affected organs, preserve remaining structures, and improve the physical, emotional, and social aspects of the patient.

Introduction

The World Health Organization (WHO) defines child maltreatment as abuse and neglect that occurs in individuals under 18 years of age. It encompasses all forms of physical and/or emotional mistreatment, sexual abuse, neglect, and exploitation, whether commercial or otherwise. This pervasive issue, shaped by cultural, social, and economic factors, can manifest in a variety of settings and affect individuals across all social classes [24, 32].

Among its many consequences, injuries to the orofacial region are especially significant, placing dental professionals in a critical position to recognize and respond to signs of abuse. Studies indicate that 40% to 75% of physical abuse cases in children involve trauma to the head, face, and oral cavity, making these regions the most frequent sites of injury [17, 18]. Such trauma includes skull fractures, subdural hematomas, retinal hemorrhages, bruises, burns, and lacerations. In the oral region, typical findings are fractured or avulsed teeth, lacerations of the lips, tongue, and labial frenum, as well as jaw fractures. These injuries not only cause immediate pain and functional impairment but can also result in long-term consequences such as tooth loss, occlusal changes, growth disturbances, speech difficulties, and psychological trauma, including dental fear and anxiety [17, 18].

Because of the chronic nature of such consequences, dental follow-up and early intervention strategies are essential. Treating these patients demands a specialized and sensitive approach that considers the unique anatomical and physiological characteristics of the growing child, especially in the presence of facial growth and ongoing development [11, 12]. Bone maturity and pubertal growth spurts are key factors that influence diagnosis, prognosis, and treatment planning. Radiographic tools such as hand-wrist radiographs and cephalometric analysis are indispensable in assessing skeletal

maturity and guiding interventions, particularly in pediatric dentistry and orthodontics [7, 22]. In cases of severe anatomical damage, prosthetic rehabilitation becomes essential to restore oral function, preserve residual structures, and enhance the child's emotional and social well-being [6].

This case report describes the complex oral rehabilitation of an adolescent who suffered severe orofacial trauma due to physical abuse at the age of four. The treatment, performed within a prosthodontic specialization program and in collaboration with an oral and maxillofacial surgery team, required individualized planning to accommodate ongoing craniofacial growth.

This case is notable in pediatric dental literature for the rarity and complexity of prosthetic rehabilitation following child abuse-related maxillofacial trauma. It highlights the transformative potential of dental care in improving quality of life and psychosocial reintegration, as well as the importance of multidisciplinary collaboration. The successful aesthetic and functional outcomes observed provide valuable insights for similar pediatric cases and reinforce the essential role of dentistry in both healthcare and child protection.

Case report

This case report was submitted and approved by the Human Research Ethics Committee of the Health Sciences Sector – UFPR, under number 84341624.3.0000.0102. Written informed consent was obtained from the patient's legal guardian for the publication of this case report and accompanying images.

A 14-year-old female patient presented to the oral and maxillofacial surgery residency clinic at Federal University of Paraná (UFPR) in August 2023, seeking rehabilitation for aesthetic and functional

concerns due to sequelae from a maxillofacial trauma sustained 10 years prior.

The patient was brought to the clinic by her mother, who had initially sought implant-based treatment for her daughter due to the longstanding edentulism. However, because of the financial constraints and the patient's skeletal immaturity, implant placement was not a viable option. After an initial evaluation by the oral and maxillofacial surgery residency team, they were referred to the prosthodontics specialization clinic at UFPR for alternative rehabilitation. During the first visit, it became evident that the patient was extremely introverted, she rarely spoke or smiled, and most communication was conducted by her mother. The primary complaint concerned the absence of teeth, which not only impaired mastication but also significantly affected the patient's willingness to socialize with her peers at school. The emotional burden of not being able to smile or participate in social activities had a strong psychosocial impact.

Upon clinical and radiographic evaluation, significant bone loss in the right maxilla was identified, along with the absence of all teeth in the corresponding hemiarch, except for the upper right third molar, which had developed post-trauma. Additionally, the anterior region of the left maxilla was affected, resulting in the loss of the upper incisors in this hemiarch (figure 1).

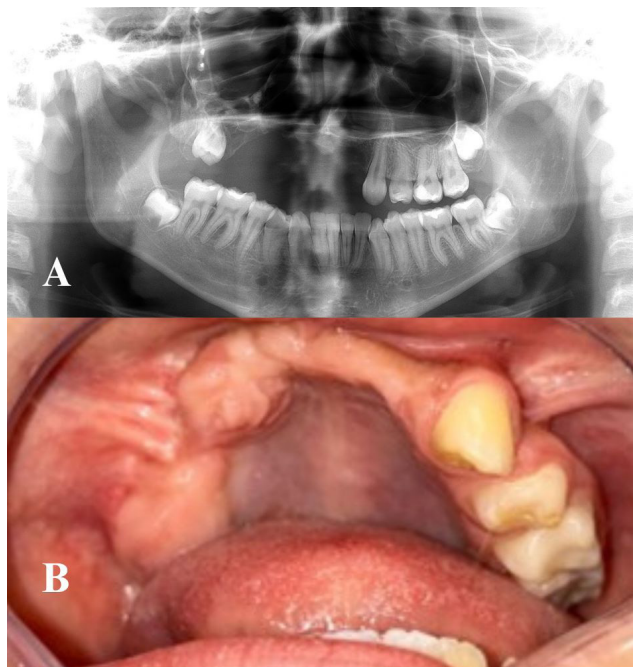


Figure 1 – A and B: Panoramic radiograph and clinical image showing the general dental and bone aspects, with significant volume loss of these tissues

Following the initial evaluation, the patient underwent a panoramic radiograph and a carpal radiograph to assess bone maturation. The results indicated that epiphyseal-diaphyseal fusion had not yet occurred, confirming that the patient was still in the growth phase (figure 2). This assessment was essential to avoid interference with craniofacial growth during prosthetic planning. To provide immediate rehabilitation without compromising facial bone development, a temporary removable partial denture was chosen. This option allows for modifications and adjustments, avoids interference with bone growth, and enables periodic evaluations.



Figure 2 – A and B: Carpal radiographs indicate that the patient is still in the bone growth phase

At the time, a ulectomy on tooth 18 was performed to facilitate subsequent prosthetic rehabilitation by exposing the crown for clasp adaptation. For the procedure, local anesthesia was administered using 2% mepivacaine with epinephrine 1:100,000 (DFL, Rio de Janeiro, RJ, Brazil), and a loop-shaped electric scalpel (Deltronix, Ribeirão Preto, SP, Brazil) was used to expose the

crown to the cemento-enamel junction, sufficient for the adaptation of a prosthetic support clasp. The area was left to heal by secondary intention. Postoperative medication included dipyron 500 mg every 6 hours for pain management (for two days). The patient, accompanied by her legal guardian, received detailed postoperative care instructions. Seven days later, she returned to the clinic with satisfactory healing and was referred for prosthesis fabrication with the prosthetic dentistry specialization team at UFPR (figure 3).

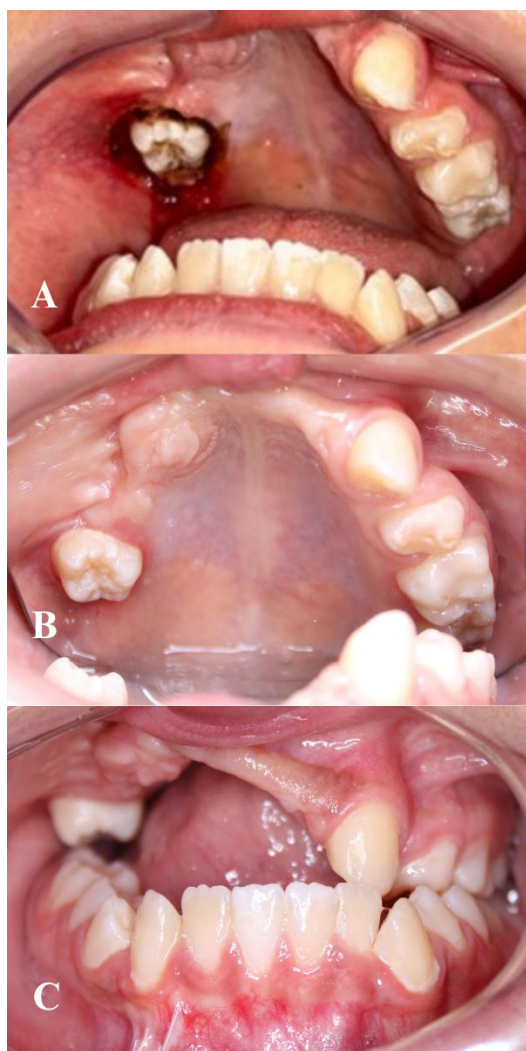


Figure 3 – A: Immediate postoperative image, where a crownectomy of tooth 18 was performed, exposing the crown up to the cemento-enamel junction; B and C: intraoral images demonstrating tissue and dental volume loss, in the occlusal and frontal views, respectively

After the completion of the surgical procedure the next step was the prosthetic planning, aimed at the functional and aesthetic rehabilitation of the patient. The next phase involved the fabrication of a removable partial denture, designed to restore both the masticatory function and the aesthetics of the patient's smile.

Impressions of the upper and lower arches were made using Hydrogum 5 alginate (Zermack®, Badia Polesine, RO, Italy), ensuring accurate capture of peripheral contours, remaining teeth, and soft tissues. The resulting models were used for study and prosthetic planning. The study models were cast in stone plaster, and the working models in type IV special plaster (Herostone; Vigodent, Rio de Janeiro, RJ, Brazil). Initial occlusal registration was performed using wax 7 (Lysandra®, São Paulo, SP, Brazil). The working models were mounted on an articulator in maximum intercuspation.

The cast models were delineated to identify retentive areas. Circumferential clasps, fabricated from stainless steel wire, were selected for the posterior molars. Non-retentive portions of the individual clasps were designed to integrate with the base plate without interfering with occlusion.

During the subsequent appointment, the upper orientation plane was tested, with markings for the upper lip line during smiling, the midline, and the commissural position to indicate the location of the canines. Intermaxillary registration followed (figures 4A and 4B). The occlusal plane was established using a Fox plane guide, achieving parallelism with the bipupillary line anteriorly and with Camper's plane posteriorly.

The next steps involved selecting gingival and tooth color and shape that matched the remaining dentition (figure 4C). These were tested in a follow-up consultation, and the prosthesis was subsequently sent for acrylic processing. At the following visit, the artificial teeth were evaluated, focusing on alignment with the occlusal plane, buccal corridor closure, and labial support (figure 4D).

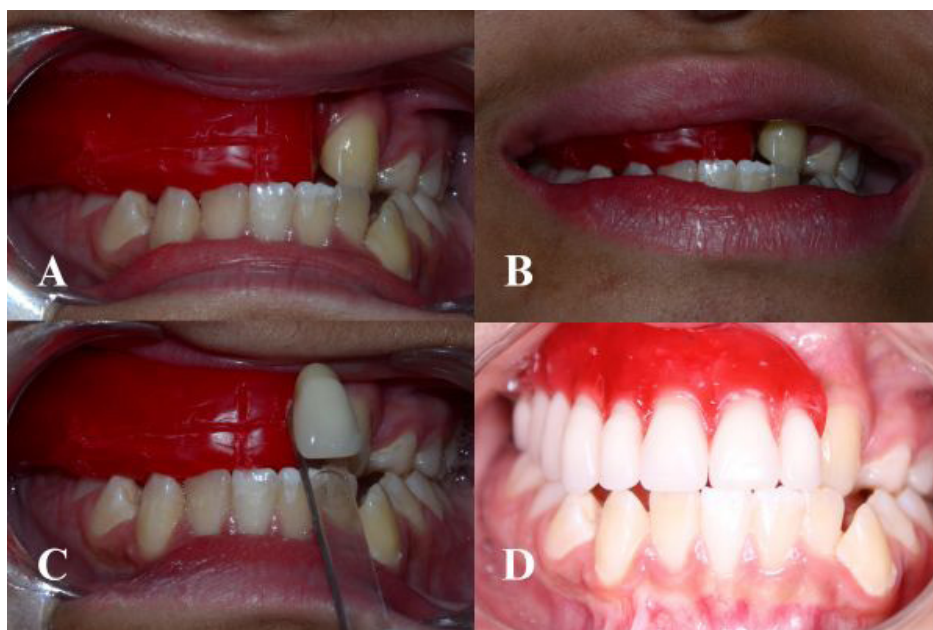


Figure 4 – A and B: Trial of the upper guidance plane with markings of the smiling upper lip line, midline, commissure position, and canine location; C: shade selection of the teeth matching the remaining ones; D: trial of the artificial teeth in wax

During installation (figure 5), the prosthesis was assessed for resin interference, particularly in interdental spaces that could hinder proper seating. Stability, comfort, and occlusal adjustments were checked, including guidance during lateral and protrusive movements.

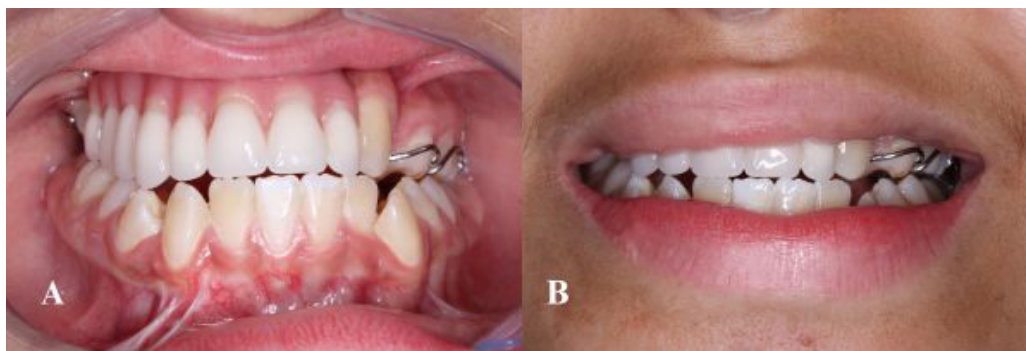


Figure 5 – A: Intraoral image of circumferential clasps on molars and premolar, made with steel wire; B: smile image after the placement of the provisional conventional removable partial denture

The patient received written instructions on hygiene, an initial soft diet, and subsequent care, including the recommendation to remove the prosthesis during sleep. Follow-up appointments were scheduled every 2 to 3 months to monitor growth using carpal radiographs and to evaluate the prosthesis for wear, relining needs, and patient-reported symptoms.

Due to the visible consequences of the trauma and tooth loss, the patient demonstrated signs of low self-esteem and avoided smiling, which further emphasized the psychosocial relevance of the rehabilitation process. After receiving

the removable partial denture, she expressed increased confidence and satisfaction with her appearance, she wrote a letter to the supervising doctor, thanking for the care and support received throughout the treatment. Nevertheless, she continues to show signs of emotional distress, remaining reserved and struggling with verbal expression and eye contact. Thus, beyond the continuity of prosthetic rehabilitation, ongoing psychological support will also be essential. Upon completion of craniofacial skeletal growth, a definitive surgical rehabilitation plan will be considered, involving bone grafts, dental implants,

and implant-supported prostheses to restore long-term function and esthetics.

Discussion

Various forms of violence against children are recognized, including physical, psychological, sexual, patrimonial, institutional violence, neglect, and child labor [7]. It is important to emphasize that, in many cases, such aggression is perpetrated by individuals close to the victims who are trusted by them, with early childhood being one of the most reported age groups for physical, psychological, and sexual violence [6]. In this specific case, the violence was perpetrated by a family member of the patient, who was also a minor and was later diagnosed with schizophrenia.

To enhance the protection of these individuals, the Menino Bernardo Law (Brazil, 2014) incorporated into the Statute of the Child and Adolescent the prohibition of physical punishment and violence as methods of education, practices normalized for decades but no longer tolerated [4]. With the enactment of the Statute of the Child and Adolescent (ECA) in 1990, specific regulations highlight the role of health and education professionals in identifying and reporting cases of child violence [5, 8].

Dentistry professionals with curricular training focused on identifying child abuse are better equipped to provide relevant guidance and support to other professionals regarding oral and dental aspects of this issue [3]. A thorough evaluation of the oral and perioral cavity in victims of abuse and/or neglect is crucial, as manifestations may include lacerations, bruises/hematomas on the lips, burns from hot foods or cigarettes, and oral injuries from contact with heated food or utensils [4, 13, 16]. Other common complications include dental alterations such as pulp necrosis, fractures, luxations, avulsions, or mobility [8, 14, 17]. Severe cases involving maxillofacial injuries caused by acts of violence have more profound physical and psychological effects due to deformities and damage to facial structures [26].

If maltreatment is suspected, even without confirmation, the dentist has a legal responsibility to report it to the appropriate authorities (figure 6) without the need for evidence. Furthermore, in line with ECA recommendations, the dentist must not interfere personally in the situation [2].

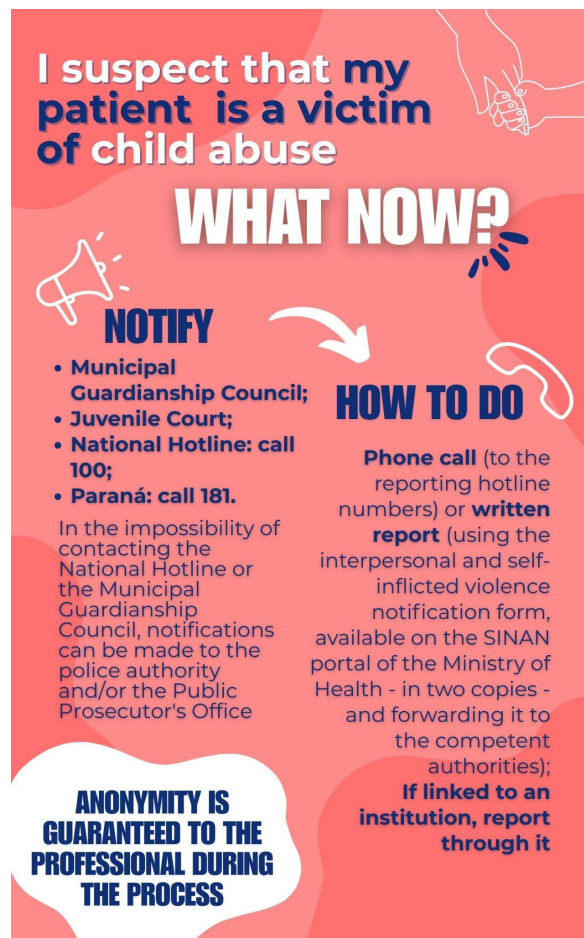


Figure 6 – Informative folder for dentists in Brazil outlining recommended procedures when suspecting cases of child maltreatment

Prosthetic rehabilitation in these cases is highly valuable, as the absence of prostheses in edentulous areas can lead to oral complications such as tooth migration, alveolar bone loss, and occlusion impairment, negatively influencing the proportional development of orofacial structures [10, 31]. The most commonly employed therapeutic approach to restore oral structures in childhood is prosthetic treatment using removable full acrylic-based dentures, partial dentures, and overdentures [30].

The planning and installation of removable dentures must adhere to several criteria, aiming to effectively restore masticatory and speech function, ensure acceptable aesthetics, and promote proper development of oral structures and overall bodily growth [16]. An advantage of using removable

prostheses in children is their ease of modification and adjustment during the growth and development of the maxillary and mandibular bones. These prostheses improve nutrition during growth, enhance social interactions, boost self-esteem, and significantly contribute to quality of life [13].

Once the patient's facial growth stabilizes, a new rehabilitation phase will be planned, involving collaboration between the prosthetic dentistry and oral and maxillofacial surgery teams. This multidisciplinary approach will be crucial for restoring functionality and aesthetics, considering both physical and psychosocial aspects of the patient. Surgical correction, including orthognathic surgery, aims not only to correct the position of the maxilla and teeth relative to the cranial base but also to promote facial balance and improve the patient's quality of life [33]. Facial deformities caused by previous trauma, coupled with psychological impacts, significantly affect the patient's well-being, influencing self-esteem, social interactions, and overall quality of life. Therefore, beyond functional aspects, the treatment seeks to minimize the psychological effects of the deformity, providing a more holistic and restorative rehabilitation [27].

Psychological trauma resulting from childhood abuse can significantly affect a patient's ability to engage in dental care [2, 14, 17, 32]. In this case, the adolescent patient presented with restricted verbal communication, avoided eye contact, and exhibited discomfort when seeing herself in the mirror. These behaviors reflect deep emotional scars that persisted even after functional rehabilitation [2, 14]. Throughout the treatment process, the patient was accompanied by her mother and received care from a multidisciplinary team composed of postgraduate prosthodontics students, oral and maxillofacial surgery residents, and supervising professors. This environment ensured a supportive atmosphere tailored to the patient's emotional needs [10, 13, 31].

Although the prosthetic rehabilitation improved her function and appearance [10, 13, 30], the psychological consequences of trauma remained evident, emphasizing the need for ongoing psychological support [7, 32]. The patient expressed her gratitude through a heartfelt letter addressed to one of the doctors involved, highlighting the emotional impact and importance of compassionate, patient-centered care [2, 6, 19].

Quality of life is shaped by personal experiences, expectations, and lifestyle. In dentistry, oral health-related quality of life (OHRQoL) reflects how oral conditions affect daily activities, emotional well-

being, and social interaction [20]. Although not formally applied in this case, instruments such as the *Early Childhood Oral Health Impact Scale* (ECOHIS) are valuable in assessing the impact of oral health on both the child and their family. This highlights how dental trauma can affect not only clinical conditions but also everyday life and interpersonal relationships. In this context, the presence of a supportive caregiver, such as the patient's mother, proved essential for facilitating treatment adherence and emotional safety.

Traumatic dental injuries (TDIs), particularly in children, have lasting physical and psychological effects and require more than functional rehabilitation alone [29]. In such cases, dental treatment becomes a tool for rebuilding self-image and promoting social reintegration [23]. Ethically, the treatment of patients with a history of abuse requires a trauma-informed approach grounded in empathy, respect for autonomy, and clear communication with both the patient and their legal guardian. A sensitive clinical setting is essential to avoid re-traumatization and foster treatment engagement. Literature shows that respectful, compassionate interactions help build trust and promote continuity of care, while negative experiences may lead to secondary victimization and avoidance of healthcare systems [23].

Surgical approaches such as maxillary advancement and the potential placement of zygomatic implants will be carefully planned, considering the complexity of the bone defect and the need for reconstruction that ensures functional and aesthetic outcomes [21, 27]. The patient also presents diplopia, which will be assessed in consultation with an ophthalmologist to determine the best course of action. Before any surgical intervention, a consultation will be held to explain the process to both the patient and her mother. This step is crucial to ensure they fully understand the proposed procedures, as well as to manage expectations, especially given the patient's extensive facial defects [19].

Other potential long-term rehabilitation options include the placement of osseointegrated implants and the use of bone grafts to reconstruct lost facial and alveolar structures. These procedures are typically postponed until facial growth is complete to avoid complications related to implant positioning and stability [1, 15]. Technological advancements such as 3D printing have also expanded the possibilities of creating customized prostheses tailored to the individual's facial anatomy, enhancing both functional and aesthetic outcomes [25].

Treating children and adolescents with extensive craniofacial trauma presents unique challenges, such as the need for frequent adjustments of prostheses due to ongoing maxillofacial growth, the importance of psychological support, and the interdisciplinary nature of care. These aspects require close coordination between specialties to ensure rehabilitation is both effective and developmentally appropriate [10, 13, 27, 30].

Additionally, it is important to highlight that childhood trauma is closely associated with long-term psychological distress in adulthood [30]. Hence, it is imperative that the dentist guides the patient to seek psychological support from a qualified healthcare professional. Whenever indicated and viable for the patient, psychological follow-up should be considered to prevent future problems for the child [28].

Conclusion

This case reinforces the vital contribution of dentists to the interdisciplinary management of child abuse survivors, particularly in the planning and execution of prosthetic rehabilitation. Beyond recognizing clinical signs of trauma, dentists can play a pivotal role in restoring function, esthetics, and self-esteem, which are essential elements in the broader healing process. For clinicians, this underscores the importance of individualized treatment plans that consider not only anatomical challenges but also the psychological needs of the patient. Close collaboration with psychologists, surgeons, and caregivers is essential to ensure consistent communication and to build trust over time. Finally, the long-term success of prosthetic treatments in such complex cases depends not only on technical excellence but also on structured follow-up protocols that support the patient's adaptation and well-being in the years following rehabilitation.

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