Prosthetic rehabilitation of a preschooler with induced anodontia – A clinical report

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Abstract

A case of prosthetic rehabilitation with complete dentures for a three year nine months old child is presented. Dental prosthesis are frequently used to avoid psychologic, speech, or swallowing problems in preschooler children. The case was followed up for a period of three years. These prosthesis were modified as the child grew and as the permanent teeth erupted into the oral cavity the dentures were trimmed from the areas of erupting teeth to facilitate their eruption.

Keywords: Complete dentures, early childhood caries, induced anodontia, preschool child

Introduction

It is not uncommon to find children with grossly carious primary teeth. In most of the cases, the only treatment possible is extraction of the decayed teeth, resulting in an increased number of children who require prosthetic rehabilitation with either partial or complete dentures. Prosthetic rehabilitation at this stage is essential to restore masticatory function, appearance and muscle function; to maintain and improve phonetics; prevent development of deleterious oral habits; and, to minimize possible psychological disturbances. The most common cause for premature loss of primary teeth is caries, resulting in multiple extractions of primary teeth; a usual instance is a child with nursing bottle caries. Premature loss of primary teeth can result in unsatisfactory dietary habits and crowding in the buccal segment of the permanent dentition. This is a case report of three year nine month old child whose primary teeth were extracted due to rampant caries and treated with complete dentures.

Case Report

A child aged three years and nine months old, accompanied by her parents reported to the Department of Pedodontics and Preventive Dentistry, Karnataka Lingayat Education Society’s Institute Of Dental Sciences, Belgaum with the chief complaint of several decayed teeth, and not being able to eat properly.

On examination of the child it was found that all the primary teeth were grossly decayed, leaving only root stumps with multiple sinus openings. The case was diagnosed as rampant caries. The parents were informed about the diagnosis and were explained about the treatment plan and need for prosthetic rehabilitation. After motivation of the parents, they were willing for the treatment and ready to keep up with the appointments that was going to take several sittings.

Extraction of all the primary teeth was planned and performed in many sittings. After extraction of all the teeth and following healing of wounds, alveolar ridges were examined for planning prosthetic rehabilitation. The alveolar ridges were firm and well developed, giving the indication of the presence of underlying permanent tooth buds. Radiographic evaluation confirmed the presence of complete permanent dentition.

It was decided to rehabilitate the child with complete dentures. The treatment plan was explained to the parents. The parents were co-operative and gave consent to the treatment plan. Impressions were taken with rubber base material to improve the quality of models. Impressions were taken with rubber base material to improve the quality of models. During hardening of the material, the lips and cheeks were manipulated to record the vestibular sulcus correctly. Shellac base plates were adapted on the upper and lower casts and wax occlusal rims were prepared. Jaw relation was recorded and the occlusal rims were mounted on the articulator. The teeth were arranged on the occlusal rims.

Try in of the waxed dentures was done in the mouth to check tooth positions and occlusal relationships. Trial dentures were processed with heat cure acrylic resin. During
denture insertion, final necessary adjustments were done and the dentures were delivered to the patient [Figure 5]. Advice about speech, eating and daily maintenance of the denture was given to parents.

Follow up
After 24 hours of denture insertion, the patient was recalled for the inspection of mouth, to check whether any necessary corrections to the dentures should be made and for any traumatic ulcers.

The child was recalled after a week, parents were shown to examine the child for evidence of trauma or signs of tooth eruption. The child was happy and seemed to have adjusted to the dentures.

The child was recalled every three months for check-up. Around two years after insertion of dentures, right and left maxillary permanent first molar [Figure 6], left mandibular permanent first molar and lower incisor started emerging [Figure 7]. Necessary trimming of the dentures were done from the areas of erupting teeth, so that the erupting teeth can be accommodated in the modified dentures [Figure 8].

Patient and parents were given instruction with regards to maintenance of proper oral hygiene.

Discussion
Preschool children wearing complete denture are not very common, however, it is not uncommon to find preschool children with grossly carious primary teeth. Most of the parents are negligent towards restorations and maintenance of primary teeth, may be because of lack of knowledge about importance of primary teeth, reluctant to have prosthetic rehabilitation of their child at such an early age, economic constraints and lack of time to follow up with lengthy treatment procedure.

Although the clinical procedure for fabrication of complete denture is similar to that in adults, cooperation of the child and also the parents will influence the treatment. So, when a child presents with premature loss of teeth, it is important to determine the level of cooperation expected from both the child and parents. Clinician can concur that children adapt

![Figure 1](image1.png) Photograph showing alveolar ridges of the patient showing that they were firm and well developed, and giving the indication of the presence of underlying permanent tooth buds

![Figure 2](image2.png) Photograph showing impression of alveolar ridges with rubber base material

![Figure 3](image3.png) Photograph showing teeth arrangement on the occlusal rims

![Figure 4](image4.png) Photograph showing the dentures fabricated with heat cured acrylic resin
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Extremely well to dentures and functions is rarely a problem. Tray selection is carried out by explaining the procedure of impression making to the child. Operant conditioning is utilized in which at first visit the patient is given upper stock tray to take home and practice under the parents supervision. Silicon based impression material is used for making primary impression because of its pleasant taste and acceptable smell, and it is well tolerated by the children than alginate impression material. Impression making is first done for the lower jaw followed by the upper since gagging is frequently encountered in the upper arch. In case of younger children, jaw relation is difficult to record since the neuromuscular development completes only by 7 years of age.

However, there is need to improve the clinical performance of dentures in the child patient. It may be beneficial to improve patient compliance by additional guidance, in the presence of a parent, about denture insertion, removal and overall care, together with accompanying written instructions. Preschool children can wear denture successfully before the eruption of permanent teeth.

Complete dentures prove to be very useful to the preschool children suffering from induced anodontia (due to rampant caries), and also, the dentures are simulated to resemble the deciduous dentition and thereby provide psychological satisfaction to the patient.

Conclusions

Prosthetic management of children with premature loss of primary teeth should be followed up for many years. Periodic recall visits should be advised, as modification has to be made to the dentures with the changes in growth and eruption of permanent teeth.

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