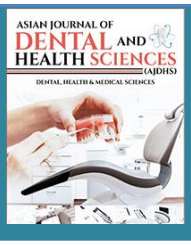

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Full Mouth Rehabilitation of Early Childhood Caries Under General Anesthesia: A Case Report of 2 Cases

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Abstract

ECC is a rising healthcare concern in developing countries. It leads to immediate or late complications, which may affect the overall well-being and development of the child. Hence treating it as well as modifying its risk factors at the earliest is required. Treating s-ECC may require extensive procedures and long appointments to which many children especially under the age of five do not comply. In such situations when all the other means of management has failed, treatment can be done under general anaesthesia which reduces the trauma caused by multiple dental visits. A treatment is successful only if regular recall and checkup is done. This report presents the case a 4 yrs old female patient with Frankel's definitely negative behaviour diagnosed with ECC and describes in detail its restorative and rehabilitative management carried out under General Anaesthesia.

Keywords: General anaesthesia Full mouth rehabilitation, Early childhood caries.

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INTRODUCTION

One of the most prevailing diseases among children worldwide is the Early Childhood Caries.[1]According to AAPD, ECC is defined as "the presence of one or more decayed (non-cavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces in any primary tooth" in a child under the age of six.[2] The WHO oral status and health report (2022) estimated that ECC is 12th most prevailing disease with almost 514 million children suffering from it. The US Department of Health and Human Services reports that early childhood caries (ECC) is five times more common than asthma and seven times more common than hay fever.[3]

It is caused by an imbalance in the oral microflora mainly due to sugar rich diet. Along with it poor oral hygiene, poor socio-economic status to get regular checkups and lack of knowledge leads to fast and aggressive progression of early childhood caries. It affects the general health of children.[1]

The complexity of the ECC treatment depends on a number of variables, such as the child's age, the degree of dental damage, and any coexisting complications. Enamel proximal lesions and white spots in mild cases of ECC may not require extensive restoration. By providing dietary guidance, topical fluoride indications, and parent education, the clinician can stop additional decay and spread.[4]

In cases ranging from moderately severe to advanced ECC tooth extractions followed by space maintainers, extensive restorations, and pulp therapy are utmost necessary. But because of the age group's lack of compliance in most cases, deep sedation or general anaesthesia is used in these situations.[4]

Very often General Anesthesia is required to complete necessary dental treatment in young and uncooperative children. Treatment is done in the hospital, ambulatory surgery centre or office setting. In spite of the low incidence of adverse reactions from General

anaesthesia, deep sedation or moderate sedation can be safely and efficiently used in the completion of dental treatment provided with well-trained professionals following established protocols and guidelines[16].Thus this case report describes the full mouth rehabilitation of a 4yrs old an uncooperative child with ECC under general anaesthesia.

CASE REPORT

A 4-years old female patient came to the Department of Paediatric & Preventive Dentistry of K.D. Dental college and hospital, Mathura; with chief complaint of decayed teeth in upper & lower back teeth region since 8 months. Pt. did not reveal any relevant past dental and medical history. Patient behaviour was rated as Frankel's definitely negative. On extraoral examination no abnormalities were detected. Intraoral examination revealed primary dentition with Grossly decayed teeth irt.64,85; deep proximal caries irt 74,84; smooth surface caries irt 52,51,61,62; occlusal caries irt 54,65,75.

It was diagnosed as case of Early childhood caries and full mouth rehabilitation under general anaesthesia was advised. Consent for the treatment was attained from the parents.

Treatment Planned: No intervention was required in the emergency phase. Antibiotic (Syrup Amoxicillin 5 ml BD) & Analgesic (Syrup Ibugesic 5ml BD) was to be administered in the systemic phase. As a preventive measure oral hygiene instruction and diet counselling was done. Pre-anaesthetic checkup was carried out in the preparatory phase which included blood investigation (Complete Blood Count, Random Blood Sugar, Bleeding Time, Clotting Time, Liver Function Test, Kidney Function Test, Electrocardiography, Chest X-Ray) and viral markers (HIV, HCV, HBV).

Treatment Done: After execution of the systemic phase and the preventive phase and upon normal reports from preanesthetic assessments, patient was admitted one day prior to K.D Medical college and hospital, Mathura, Uttar Pradesh. Preanesthetic Non pharmacological management was carried out by educational videos and pictures about the procedure. Preanesthetic medication of oral Midazolam (0.5-0.7mg/kg) was given to induce anxiolysis and sedation. Intravenous anaesthetic induction was carried out with Propofol (continuous infusion of 500mcg/kg/min for 4-6min up to a max of2-3mg/kg). In the maintenance phase, oral cavity was maintained in an open position with the help of Molt's mouth prop, rubber dam isolation done. Corrective procedures were carried out quadrant wise that included

Corrective procedures were carried out quadrant wise that included pulpectomy irt #84 #85 #74 #64 by obtaining straight line access, adequate irrigation with 1%NaoCl and normal saline alternatively, root canals were obturated with Metapex, post obturation seal was done with Glass ionomer cement and as the crown structure was not sufficient to retain the restoration a stainless-steel crown was adapted on to each pulpaly treated teeth.

#52, #51, #61, #62 were affected by smooth surface caries involving more than two tooth surfaces. Celluloid strip crown (3M ESPE, USA) was selected according to each teeth size and was cut to appropriate length, vent holes were made in the proximal region. After customising the crown to fit the teeth, caries were excavated from teeth surface using hand instruments, teeth surface cleansed with water to remove caries debris, followed by etching with 37% phosphoric acid, dentin conditioning and photoactivation , the strip crown was filled with composite resin (3M ESPE St, Paul, MN, USA)(A1 shade) and adapted to the tooth surface, excess material was removed with a probe and it was photoactivated for 40sec.occlusal adjustments and polishing was done soon after.

Occlusal caries irt #54, #65, #75 were excavated, cavity air dried and restored using GIC (GC Gold Label- High strength Posterior Restorative).

Topical fluoride (Duraphat®) was applied and rubber dam removed. Thorough intraoral examination was carried out to ensure that the oral cavity was devoid of any foreign bodies/Dental materials.

Post operative care: After successful treatment pt. was stabilised and was discharged after 6 hours of monitoring. Antibiotics and Analgesics were prescribed, post operative and oral hygiene instructions were given and soft diets was advised and patient was recalled for check-up after 1 week followed by successive visits every 6 months.

Pre-Treatment Photographs

FRONTAL VIEW

MAXILLARY OCCLUSAL VIEW

MANDIBULAR OCCLUSAL VIEW`

Post- Treatment Photographs

PLACEMENT OF SSC CROWN IN 64

PLACEMENT OF SSC CROWN IN 74

PLACEMENT OF SSC CROWN IN 84,85

DISCUSSION

Despite many recent awareness and advancements in the preventive measures, ECC continues to be most prevalent among pre-school children hence requiring intervention by a dental professional at an early stage[4].Oral health related quality of life is a vital part of general health and well-being.

Early childhood caries has a negative impact on children life including pain while sleeping or mastication, reduced appetite, weight loss, alteration in sleep wake cycle, low self-esteem and decrease in academic performance[7].Adding to it the dental impact it can have on the successor teeth increases the need to intervene the situation with appropriate treatment.

The management of patients with ECC is not a simple task keeping in mind the tender age of the patient adding to the anxiousness and uncooperativeness towards the dental treatment. Success of the treatment depends on the cooperativeness during the dental procedure.

In this case report, the child was very reluctant and uncooperative on her first dental visit. So patient was counselled and behaviour shaping was done with various non pharmacological behaviour modification techniques, which did not give a positive outcome and hence lowered the success rate of future treatments[6].Although dental care under GA is a more costly option, there are situations like this when it is the best course of action for treating children who are difficult to manage.

The oral rehabilitation of child suffering from ECC depends on the age of child, their cooperation throughout the procedure, any underlying medical history etc. Apart from functional rehabilitation, aesthetic rehabilitation in young children also is a key factor concerning aesthetics and phonetics[8].

In this case primary molars #84 #85 #74 #64 pulpectomy was done 1%NaoCl was used as suggested by Paragliola et al and Pashley et al)[9,10] and normal saline alternatively, root canals were obturated with Metapex. Etman A et al, Ramar K et al[11,12]suggested in their studies that metapex was a better than other dental materials Post obturation seal was done with Glass ionomer cement and as the crown structure was not sufficient to retain the restoration a stainless-steel crown was adapted on to each pulpally treated teeth. Moskovitz et al had suggested that the endodontically treated primary teeth should be given stainless steel crown if there was no adequate tooth structure to retain the post endo restoration for long-term prognosis[13].

The premature loss of deciduous anterior teeth will alter the path of eruption of permanent incisors. This will lead to a great arch length discrepancy, finally resulting in malocclusion. The age of 2-4 is considered very significant because there are increased risk primary incisors being affected by Trauma/ ECC. Partial or total loss of anterior teeth at this age will cause phycological imbalance on children and thus effecting their self-esteem and social skills[14,15].

Hence in this case #52, #51, #61, #62 were affected by smooth surface caries. Since it was not pulpally affected, restoration using strip crown was done (Thribhuvanan L et al). This restored the aesthetics and aided in establishing the phonetics.

Success of a treatment depends on the recall visits and proper follow-up. Recall appointments should be planned depending on the clinicians' assessments of patient's caries risk (Negi D et al)[6]. Hence in this case patient was recalled after 1 week followed by successive visits every 6 months.

When dealing with extensive ECC damage in uncooperative children, general anesthesia may be preferable in some instances. However, strict adherence to post-operative plans is essential to preserve any positive rehabilitation outcomes. Unreported caries recurrence may be the result of poor follow-up compliance or participant withdrawal[16].

CONCLUSION

Early childhood caries is a deleterious condition that requires prompt intervention. The aim of treating under General Anaesthesia is to restore the oral health of the patient in a single visit and prevent any anxiety

associated with frequent dental visits as treatment for ECC requires extensive work. To ensure complete success of the treatment the risk factors associated with ECC should also be identified and appropriate treatment should be initiated to prevent the decline of oral health and regular oral hygiene should be maintained and monitored.

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