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Case Report

Dental management of a 3-year-old uncooperative child under general anaesthesia: a case report

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ABSTRACT

Dental care is medically necessary for the purpose of eliminating and preventing orofacial disease, infection and pain, restoring the form and function of the dentition, and correcting facial disfiguration or dysfunction – American Academy of Pediatric Dentistry (AAPD). Lack of cooperation in young paediatric patients can be a confounding factor for dental rehabilitation procedures and even examination or radiographs. To complete necessary dental radiographs and/or treatment in young, uncooperative children general anaesthesia or deep sedation is often required. This article presents the case of a 3-year-old girl child with a complaint of sharp shooting pain in upper and lower left back tooth region and was extremely uncooperative. She was diagnosed with early childhood caries; full mouth rehabilitation was done under general anaesthesia. Clinical examination, classification and treatment plan are discussed based on the review of current literature available.

Keywords: General anaesthesia, Uncooperative child, Early childhood caries

INTRODUCTION

Dental care is medically necessary for the purpose of eliminating and preventing orofacial disease, infection and pain, restoring the form and function of the dentition, and correcting facial disfiguration or dysfunction – American Academy of Pediatric Dentistry (AAPD). Non-pharmacological and pharmacological behaviour guidance techniques, are used to alleviate anxiety, perform quality oral health care and nurture a positive dental attitude safely and efficiently for infants, children, adolescents, and persons with special health care needs (SHCN).[1]

Lack of cooperation in young paediatric patients can be a confounding factor for dental rehabilitation procedures and even examination or radiographs.[2] Below the age group of six years behaviour problems are commonly seen due to various factors such as restricted coping skills, immature reasoning and anxiety/fear.[3]

To complete necessary dental radiographs and/or treatment in young, uncooperative children general anaesthesia or deep sedation is often required. The hospital, ambulatory surgery centre, or office setting can be used to complete the treatment. Treatment can be efficiently and safely completed under well trained professionals following established guidelines and protocols despite of low incidence of adverse outcomes from GA, deep sedation, or moderate sedation in the dental office setting.[2]

CASE REPORT

A 3-year-old, (weight: 14 kg) female patient accompanied by her parents to the department of pediatric and preventive dentistry, with a chief complaint of sharp shooting pain in upper and lower left back tooth region**.** Patient was extremely uncooperative, crying forcefully falls under Frankel behaviour rating scale 1 (definitely negative). Parent gave history of extended breast feeding.

The patient was diagnosed with Early childhood caries requiring extensive rehabilitation.

Due to her lack of ability to cooperate with others physical restraint were used for oral examination. Intraoral examination reveals Root stumps i.r.t 51, 52, 61, 62, 72, 82, Grossly decayed with abscess formation i.r.t 74, 84, Deep occlusal caries i.r.t 54, 64. Accordingly, extraction, restorative treatment and pulp therapies were planned.

Furthermore, owing to poor oral hygiene status, it was regarded that caries would progress rapidly. It would be difficult to perform dental procedure on multiple teeth under local anaesthesia because of patient's uncooperative behavior. As a result, general anaesthesia was chosen to treat the patient because all dental procedures can be done in single visit. Parents were well informed about the entire procedure, side effects and informed consent form was signed by the parents prior to the procedure.

A complete blood investigation, pre-anaesthesia checkup and paediatric reference was done prior to the procedure. All test results and all vitals were normal with no risk factors associated with general anaesthesia. All monitoring devices like pulse oximeter, sphygmomanometer, end tidal CO_2 monitor, and thermometer were attached to the patient. Patient was nil by mouth since night.

Dental procedures which were done are as follows three pulpectomies i.r.t 54, 64 and 84, one stainless steel crown i.r.t 84, six extractions i.r.t 51, 52, 61, 62, 72, 82. Entire procedure took 2 hours, patient has been observed and was stable with all vitals normal. Required medications were prescribed to patient after the procedure. Patient was discharged next day after the surgery.

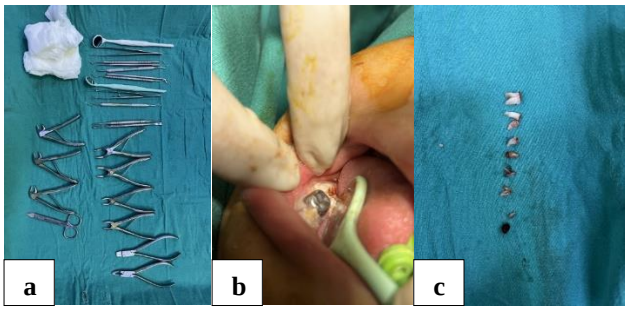

Figure 1: (a) Armamentarium used during the entire procedure, (b) full coverage restoration (stainless steel crown), and (c) extracted teeth.

DISCUSSION

Behaviour management plays the key role in the management of paediatric patients during dental procedure. *Wright and Kupietzky* have defined behaviour management as the dental health team efficiently and effectively performs treatment for a child patient and inculcate a positive dental attitude.[3]

Early childhood caries (ECC) is one of the most important conditions of oral health in children. Infants and preschoolers are most commonly affected. ECC is the presence of one or more decayed, missing, or filled primary teeth in children aged 71 months (5 years) or younger. It begins with white-spot lesions in the upper primary incisors along the margin of the gingiva.[4]

Classification based on the severity of ECC and etiology

It is given in Table 1.[4]

Table 1: Classification based on the severity of ECC and etiology.

Type	Characteristics
Type I (mild to moderate)	The existence of 'isolated carious lesion(s)' involving molars and/or incisors. The most common causes are usually an amalgamation of solid or semisolid food and lack of oral hygiene.
Type II (moderate to severe)	ECC was described as 'labiolingual lesions' affecting maxillary incisors, with or without molar caries, depending on stage of the disease and age of the child. Typically, the mandibular incisors are unaffected. The cause is usually unsuitable use of a feeding bottle or at-will breast-feeding or a combination of both, with or without poor oral hygiene.
Type III (severe)	ECC was described as carious lesions affecting almost all teeth including the mandibular incisors. A combination of cariogenic food substances and poor oral hygiene is the cause of this type of ECC

General anaesthesia is appropriate for the paediatric patients who are uncooperative and not ready to open mouth for the treatment. In order to manage patient uncooperative or aggressive behaviour increasing number of dental procedures use anaesthesia, common anaesthetics are used during general anaesthesia due to their good reversibility and rapid onset of action upon ceasing the administration.[5]

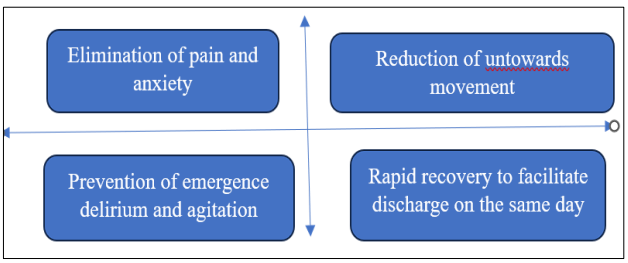

Figure 2: Pediatric dental procedures - anaesthetic goals,

Puri et al quoted in a study, dental procedures that may require general anaesthesia in children are as severe early

childhood caries requiring full mouth rehabilitation, tooth extractions, odontogenic infections, oral pathological conditions, trauma, frenulum attachment.[6]

Complex dental treatment, cognitive development, medical status, adequate available source and manpower altogether determine the technique of anaesthesia suitable for the child. Guiding principles for administration of general anaesthesia are given below.[6]

On an ambulatory basis most of dental procedures are performed. Under general anaesthesia most of the dental procedures are overtreated to avoid any kind of second visit failure like extractions are done over pulpectomies for abscessed teeth, pulpectomies over pulp therapies with questionable diagnosis. Overall treatment duration may have direct correlation with time and duration of postanaesthetic recovery.[7] Furthermore in this case patient was diagnosed with early childhood caries Type II, following the treatment protocol full mouth rehabilitation was planned for this patient, the treatment was performed under general anaesthesia after pre-anaesthetic evaluation as it permits the dentist to perform preventive and comprehensive treatment in single appointment. In the recent case scenario three pulpectomies, one full coverage restoration and six extractions were performed.

Malamed cited conscious sedation and improvement in anti-anxiety medications have markedly reduced the use of general anaesthesia. But there are few special cases in which still general anaesthesia should be use due to few advantages.

Advantages includes rapid onset of action, no response to pain, to produce the desired effect titration of drug is possible, patient cooperation is not required, amnesia is present after the procedure.

However, few disadvantages are also cited which includes protective reflexes and vital signs of patient are depressed, professional team is required for the treatment, intraoperative and postoperative complications are more in GA sedation as compared to other sedations, preoperative refrain from fluids and solids, preoperative evaluation and testing is also needed.[8]

CONCLUSION

Early childhood caries is a chronic, infectious, multifactorial disease and has been advocated as a severe public health problem. ECC is rising worldwide and is the most preventable disease. Child's well-being, quality of life and learning capacity is also affected by this. Hence, promotion of oral health and prevention of oral disease should be embraced as an essential part in prevention of chronic disease and promotion programs for general health.

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