Case Report

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A Comprehensive Dental Management of Patient with Intellectual Disability: A Case Report

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Abstract

Dental caries is the most predominant oral disease amongst children with intellectual disability and its treatment is the greatest unattended health need. The effective management of oral health care for dental patients with special needs requires multi-dimensional approach including physical, developmental, behavioural and emotional intervention.

Keyword: Dental management; Intellectual disability; Root canal treatment.

INTRODUCTION

Diagnostic and Statistical Manual of Mental Disorders fourth edition, defines mental retardation as significantly sub average intellectual functioning (i.e., IQ no higher than approximately two standard deviations below the mean), which is accompanied by significant limitations in adaptive functioning in at least two of the following areas: communication, functional academic skills, health, home living, leisure, safety, self-care, self-direction, social/interpersonal skills, use of community resources, and work.[1] The American Dental Association (ADA) has described common psychiatric problems like anxiety disorders, mood disorders, psychotic disorders, and eating disorders which requires dental surgeons to design a tailor-made treatment plan for the patient.[2] The treatment and maintenance of oral condition among patients with mental health problem is difficult due to lack of awareness in the family, social phobias and unreceptive attitude of the dental practitioners. Hence, this article reports a case of successful dental management in a patient requiring special care.

CASE REPORT

In mid-2024, a 17-year-old male patient with intellectual disability reported to department of dentistry, AIIMS Bhopal (Madhya Pradesh, India) with a chief complaint of pain in upper front teeth since 3-4 days. The patient was not willing to sit on the dental chair for clinical examination but with the

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help of assisting team of the department an initial screening revealed carious lesions in the permanent maxillary anterior teeth. The parents of the patient were explained the investigation procedure and a written consent were taken from them prior to initiating the process.

An orthopantomogram (OPG) radiographic investigation was planned for the patient who revealed deep carious lesion in tooth number 11, dentinal caries in 12, 21 and 22, root stumps in tooth number 16, impacted 18, 28, 38 and 48. Based on radiographic examination provisional treatment plan including single sitting root canal treatment in tooth number 11, caries excavation and composite restoration in teeth numbers 12, 21 and 22 and extraction in teeth numbers 16, 18, 28, 38 and 48 were planned under general anaesthesia. The provisional treatment plan with the risks involved during procedure were explained to parents of the patient, who gave their consent for root canal procedure, restorative procedure and extraction with but they were not willing for disimpaction of tooth numbers 18, 28, 38 and 48. Subsequently all these procedures were scheduled under general anaesthesia. The patient underwent required blood test, viral marker test, x-ray chest, and clearance from Psychiatrist and pre-anaesthetic check-up for administering general anaesthesia before admission in dental ward.

Fig. 1: Pre operative image of caries in tooth number 11, 21, and 22

Fig. 2: Composite restoration in teeth number 11, 21 and 22

On the day of surgery a team of dental surgeons, anaesthesiologist, operating room nurses and other healthcare providers were present. All the universal precautions before and after surgery were followed by the team in Operation Theatre (OT). The patient was shifted to OT, and monitoring

devices, including electrocardiogram (ECG) monitor, pulse oximeter, sphygmomanometer, thermometer, and end-tidal CO_2 monitor were attached to the patient. Anaesthesia was induced using O_2 and sevoflurane inhalation. A 3 mg dose of vecuronium was administered as a muscle relaxant, and a 6 mm endotracheal tube was inserted once the patient's muscles were adequately relaxed. Anaesthesia was maintained with desflurane, O_2, and N_2O.

The operating theatre technician sterilized and organised the operational tools and equipment, prepared the patient's before operating. The procedure began with thorough intraoral examination of patients, which could not be visualised earlier due to patient's limited co-operation. On clinical examination pit and fissure caries was also found to be present in teeth numbers 17, 26, 27, 35, 36, 37, 46 and 47 and sound but deep pit and fissures in teeth numbers 36 and 37.

Fig. 3: Composite restoration in tooth number 17

Fig. 4: Composite restoration in teeth number 46 and 47

The root canal treatment under local anaesthesia was initiated first as it was patient's chief complaint. The access canal opening was done using high-speed round diamond burs and modified using safe end bur. The working length was determined by using 15 K file (Mani K file 25mm) and apex locator (fifth-generation apex locator). The chemo mechanical preparation by the Crown-Down technique was done using ProTaper universal file (Dentsply-Maillefer, Rio de Janeiro, RJ, Brazil)

system till F5 during the root canal treatment. The irrigation was done using Normal saline, 3% sodium hypochlorite and final irrigation was done using 17% EDTA solution. The obturation was done using calcium based sealer Seal apex (Sybron Endo) and post endodontic restoration was done using composite (Ivoclar Te-Econom Plus Composite Kit).

The caries excavation in teeth numbers 12, 17, 21, 22, 26, 27, 35, 36, 37, 46 and 47 was done using round bur and straight fissure bur for cavity preparation followed by etching with 37% phosphoric acid and bonding with One-bottle, one-layer adhesive system. A2 shade composite (GC) was used to restore the tooth. The enameloplasty procedure was performed on teeth numbers 36 and 37 and pit and fissure sealant (Prevest Denpro PF Seal) application was done.

The atraumatic extraction of root stumps of tooth number 16 was done after injecting local anaesthesia using periosteal elevator and Bayonet root Forceps (GDC Extraction Forceps Kit) followed by adrenaline pack to arrest bleeding.

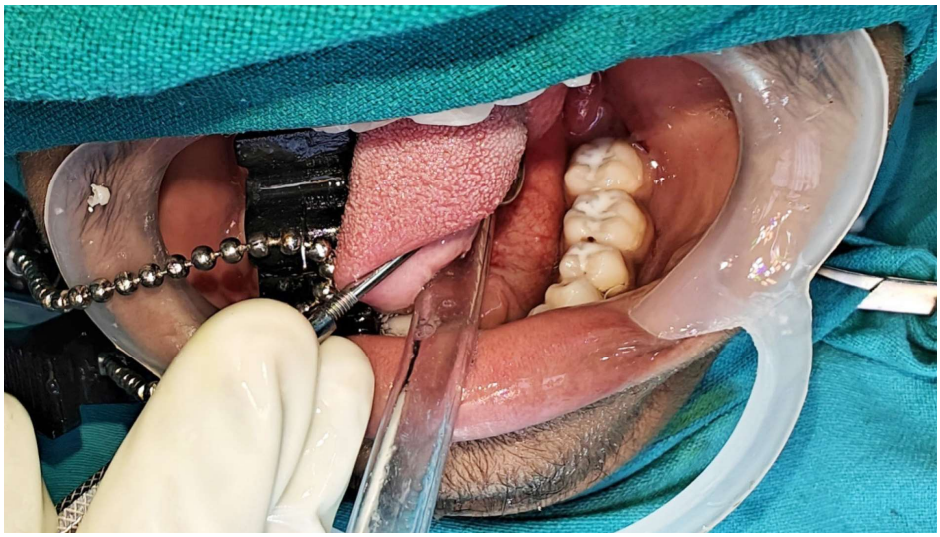

Fig. 5: pit and fissure sealant application in teeth number 35, 36 and 37

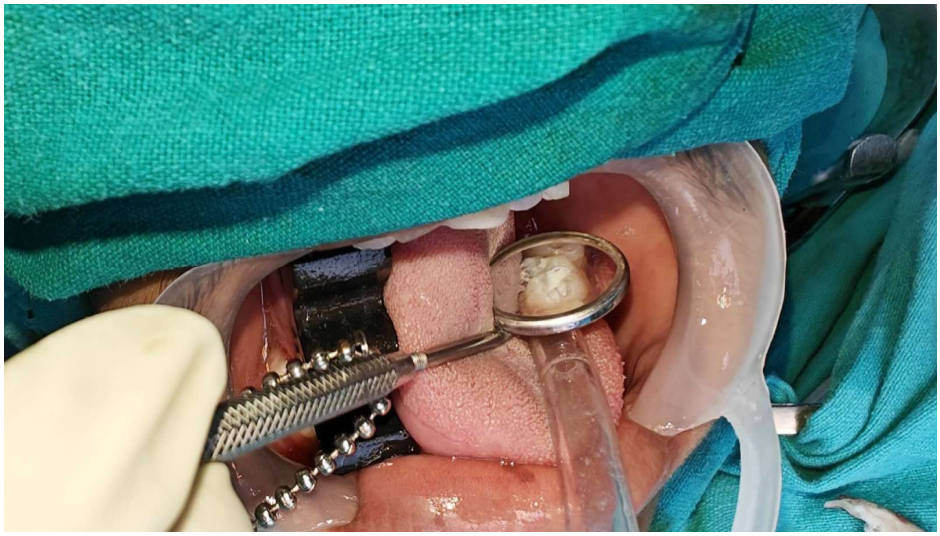

Fig. 6: Composite restoration in teeth number 26 and 27

Ketorolac 20 mg was administered intravenously before the end of the procedure to manage postoperative pain. Dexamethasone 4 mg and ondansetron 4 mg were also administered to prevent postoperative nausea and vomiting. The postoperative period was uneventful, and the patient was discharged on the second day after surgery. The patient was recalled after 1 week for evaluation and no further dental complaint or oral symptoms were elicited by him. Disability

causes ambiguity and concern among dentists as it involves advanced skills.

DISCUSSION

Mental retardation has a new name "Intellectual disability" or "Intellectual Developmental Disorder or General Learning Disability".[3-4] The reported incidence of untreated dental caries is higher is such patients than usual children.[5] The management of children with intellectual disability causes ambiguity and concern among dentists as it involves advanced skills gained through special training, enhanced understanding, accommodative measures and resources.[2] The dental management includes desensitisation of patient making patient familiar with dental environment, positive reinforcement and effective communication.

An orthopantomogram (OPG) is an equally useful tool for radiographic examination in mentally challenged patient since it helps to identify any abnormality in the upper and lower arches along with skeletal structures.[6] The root canal treatment in such special need patients should be carried out by specialist dental practitioners with the help of pharmacological approach for behaviour management to perform single-visit treatment as compared to general patients. A multidisciplinary approach for special needs patients who require root canal treatment provides an opportunity for these patients to retain their dentition.[7]

The composite resin restorations in posterior teeth have become a routine in clinical practice, due to numerous benefits as compared to traditional amalgam restorations. The layering technique reproduces the natural appearance of dentition, as well as compensate polymerization shrinkage.[8]

The prevalence of dental caries is highest in permanent first molars, followed by second molars, due to their early eruption in oral cavity and variability of occlusal morphology of molars. The pit and fissure sealants provides a physical barrier which inhibits microorganisms and food particle from accumulating in order to prevent caries initiation and also arrest its progression.[9] The effectiveness of pit and fissure sealants depends on its long-term retention in oral cavity.

CONCLUSION

A significantly low level of oral hygiene and a high level of caries prevalence were found in patient with intellectual disability as compared to healthy cohorts. In the last few years effective management of dental caries using preventive and therapeutic strategies in people with disabilities have been published. The current case report presents successful treatment using minimal invasive procedures which are suitable and effective in the comprehensive management of caries lesions under general anaesthesia.

Conflict of Interest: Nil

REFERENCES

1. National Research Council. 2002. *Mental Retardation: Determining Eligibility for Social Security Benefits*. Washington, DC: The National Academies Press.https://doi.org/10.17226/10295.
2. Mahilary F. Indian Journal of Forensic Medicine & Toxicology, October-December 2020, Vol. 14, No. 4
3. Solanki J,Khetan J, Gupta S,Tomar D, Singh M.Oral Rehabilitation and Management of Mentally Retarded. J Clin Diagn Res. 2015 Jan; 9(1): ZE01–ZE06.
4. Nursing General 12th Std - Lecture Notes, Study Material, Important Questions Answers, Question Paper. Chapter 12th Nursing: Mental Health Nursing. [Internet]. Available from http://www.brainkart.com/subject/Nursing-General-12thStd_417/.
5. Practical-oral-care-intellectual-care.pdf. [Internet].Available from https://www.nidcr.nih.gov/sites/default/files/2017-09/practical-oralcareintellectual-care.pdf.
6. Cosson J. Australian Journal of General Practise Vol. 49, No. 9, September 2020.550-555.
7. Yap E, Parashos P, Borromeo GL. Root canal treatment and special needs patients. Int Endod J. 2015 Apr; 48(4):351-61. doi: 10.1111/iej.12321. Epub 2014 Jul 5. PMID: 24871933
8. Hirata, Ronaldo. (2015). Two Techniques for Posterior Composite Restorations. Journal of Cosmetic Dentistry. 30. 120-133.
9. Liu W, Xiong L, Li J, Guo C, Fan W, Huang S. The anticaries effects of pit and fissure sealant in the first permanent molars of school-age children from Guangzhou: a population-based cohort study. BMC Oral Health. 2019 Jul 16; 19(1):156.