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Atypical presence of Hyperplastic Pulpitis in all four first permanent molars in a 13-year old child – A Rare case report.

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Abstract

Chronic hyperplastic pulpitis (pulp polyps) usually occurs in molar teeth of children and young adults and is characterized by an overgrowth of granulomatous tissue into the carious cavity. Here, we report a rare type of case having huge pulp polyps in all four first permanent molars of a 13-year-old male child that not only grew into carious cavity but also extruded in very large size that interfered with occlusion of the teeth and lead to a great negative psychological impact on the child's health and well-being.

Keywords: Dental Pulp Diseases, Pulp Polyp, Hyperplastic pulpitis, Polypus, Chronic Pulpitis, Polypoid Lesion.

Introduction

Hyperplastic pulpitis is an irreversible type of chronic pulpitis that commonly occurs in young teeth with exposed pulp due to caries or trauma.(1) Clinically it appears as a proliferative red mass seen on the occlusal portion of the molars in individuals with higher immunity.(2) Mechanical irritation and bacterial invasion results in a level of chronic inflammation that produces hyperplastic granulation tissue which extrudes from the chamber and often fills the associated dentinal defect. It is periodically associated with mild pain along with huge carious cavitation lesions and may be accompanied with rare history of bleeding. Histologically, it reveals abundant granulation tissue with numerous blood vessels. In reviewing the past literatures, a pulp polyp enlarged to

a size resembling a large mushroom, occupying the oropharyngeal area and that too involving all the first permanent molars, has never been documented, so we intended to report this unique case.

Case Report

A 13-year-old, male child reported to the Department of Oral and Maxillofacial Surgery, with the chief complaint of a huge lump in the right upper back teeth region. According to the patient, the lump had existed since past 6-8 months which was initially small in size but had gradually increased to the extent that it interfered with mastication, phonetics and occlusion. The patient's parents also gave history of blood stains on the child's pillow every morning when he woke up. This made the patient and his parents worry (Figure 1).

On enquiry the parents revealed a history of trauma to the child's tongue with laceration when he was around 4 years old, which was sutured by a private practitioner at their local area. This procedure had caused immense intolerable pain to the child as he was wide awake during the procedure. This particular traumatic incident during his childhood had made him develop a phobia against the doctors making it one of the main reasons; the child never mentioned anything about the presence of the intraoral lumps in his mouth in the first place. The fear to get treated and a visit to the doctor even for a routine checkup made the child throw tantrums at his home.

General examinations revealed thin built with weight about 20 kgs and normal vitals.

Laboratory examinations included CBC differential, WBC, platelet counts, were all within normal limits. His PT test, control PT, prothrombin index, prothrombin ratio, and INR values were as mentioned in Table. 1.

OPG revealed mixed dentition with all carious permanent first molars and some retained deciduous teeth (Figure 2).

Intraoral examinations showed a large polypoid lesion which was bright red in color about 3 cms in height, 3 cms width and 1 cm stalk diameter protruding out from the carious cavity of partially exposed crown of 16 teeth. The lesion overlaid on lingual side of this tooth and obviously presented itself in right oropharyngeal area. On palpation, the lesion appeared fibrous in nature, with firm consistency, non-compressible and non-reducible. Similarly other polypoid lesions were also seen with 26 (measuring about 1 cm in height, 1 cm in width and 0.5 cm stalk diameter), 36 (measuring about 2 cms in height, 2 cms in width and 1 cm stalk diameter) and 46 (measuring about 2 cms in height, 2 cms in width and 1 cm stalk diameter). They were coral pink in color and bled profusely on probing. Considering all the radiographic and clinical data, following differential diagnosis was made:

1. A large pulp polyp
2. Peripheral giant cell granuloma
3. Papilloma

Consultation with a pedodontist revealed its poor prognosis with regards to root canal treatment of all first molars. Hence the patient was advised to undergo extraction of all first molars. Removal of all first molars along with the lesions was performed under general anesthesia protocol (Persocaine-E, Darou Pakhsh-Tehran, Iran). The specimen was sent along with the carious molars and the base of lesion in the carious cavity for histopathology examination (Figure 3). The patient was kept under routine follow-up treatment for rehabilitation of other involved carious tooth in the both the arches. Post-operative one year follow up (Figure 5) of the patient revealed good oral hygiene.

Histopathological Findings

Microscopic findings revealed a mass of delicate connective tissue fibers interspersed with variable numbers of small capillaries, abundant inflammatory cell infiltration, mainly lymphocytes and plasma cells, fibroblast and endothelial cells proliferation in 16 teeth (Figure 4 - A). As for the remaining teeth 26, 36 and 46 only few amount of micro-capillaries, inflammatory cells and endothelial cells proliferation is seen (Figure 4 - B, C, D). The superficial epithelium is stratified squamous parakeratinized type.

The above histological features are suggestive of granulation tissue. (Figure. 4)

Discussion

Hyperplastic pulpitis (pulp polyp) is the most visually dramatic of all pulp response, which exhibits a "mushroom" like living pulp tissue rising out of the carious shell of the crown and is extremely firm and insensitive to touch [(3)].

Pulpitis is a pulpal response to acute inflammation occurring in only young teeth but never in the teeth of old patients which makes this particular response a good indicator of existing underlying pulpal pathology. This is because the young pulp does not undergo necrosis due to presence of its natural defenses and rich blood supply, allowing it to resist bacterial infection efficiently. The inflammatory response products viz. transudates and exudates in the open chronic pulpitis directly drain into the oral cavity rather than accumulating below the pulp.

Due to this, the intra-pulpal pressure does not develop which is responsible for the tissue damage and destruction of the microcirculation [(1)]. Likewise, the patient in our case report showed young pulp in the beginning of formation of the lesion and considering a rich blood supply which resisted the development of bacterial infection and further slowed down the process of carious formation (due to partial impaction of crown to the offending tooth), in turn lead to the development of hyperplastic pulpitis.

The large size of the lesion in this patient maybe due to absence of severe pain as these types of lesions usually tend to occur with no pain and subside within seconds after the stimulus is removed [(2)]. Absence of mobility of tooth and sensitivity to percussion contributes to its presence further [(2)]. The other contributing reasons for appearance of this pathology in this patient are fear of surgical procedures (Tomophobia), or fear of hospitals (Nosocomephobia) and assuming the lesion as a cancer (carcinophobia); mere negligence in taking treatment by the patient for about six months, abundant blood supply to the lesion and continuous trauma from occluding the teeth.

Conclusion

For management of such oral and maxillofacial lesions, we must always consider the clinical findings, past dental history of the patient and also the histopathology report based on which appropriate treatment can be offered for the future welfare and rehabilitation of the patient.

Author Contributions:

All the authors have made substantial contributions to conception and design of the study and have performed data analysis and interpretation. Each one has also performed data acquisition, as well as provided administrative, technical, and material support

Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from the parents of the child included in the above report and all the procedures to be undertaken were well counseled.

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Legend Figure and Tables

Consent Form

AOMSI CONSENT FORM

For A Safer Tomorrow

CONSENT FOR MINOR ORAL &MAXILLOFACIAL SURGERY

PATIENT 'S NAME : AAMIR MOHAMMAD ANSARI
DATE : 11/10/2017
PLACE : ACPM DENTAL COLLEGE, DHULE
DIAGNOSIS : CHRONIC HYPERPLASTIC PULPITIS WITH 16, 26, 36, 46
TREATMENT PLAN : SIMPLE EXTRACTION AND CURETTAGE UNDER GENERAL ANESTHESIA

- My doctor has explained to me that there are certain inherent and potential risks and side effects associated with my proposed treatment and in this specific instance they include, but are not limited to :

1. Post-operative swelling and discomfort that may require several days of recovery.
2. Prolonged or heavy bleeding that may require additional treatment.
3. Injury or loosening of adjacent teeth or fillings.
4. Post-operative infection that may require additional treatment.
5. Stretching of the corners of the mouth that may cause cracking or bruising and may heal slowly.
6. Restricted mouth opening during healing sometimes related to swelling and muscle soreness and sometimes related to stress on the jaw joints(TMJ),especially when TMJ problem already exists.
7. A decision to leave a small piece of root in the jaw when its removal would require extensive surgery or risk of other complications.
8. Fracture of the jaw (usefully only in more complicated extraction or surgery)
9. Injury to the nerve adjacent to teeth, resulting in pain numbness tingling or sensory disturbances on the chin, lip, cheek, gums or tongue and which may persist for several weeks, months, or in rare instances permanently.
10. It has been explained that during the course of treatment unforeseen conditions may result that may require change in the procedure, I authorize my Doctor to use professional judgement to perform such additional procedures that are necessary to complete my surgery.

The Anaesthetic I have chosen for my surgery is

- ☐ Local anaesthesia
- ☐ Local with oral premedication
- ☐ Local with intravenous sedation
- ☑ General anaesthesia

It has been explained to me and I fully understand that a perfect result is not or cannot be guaranteed.

I have read and fully understood the above and discussed this operation and alternative treatment with Dr. Arif Merchant. He has given me ample opportunity to ask questions about specific points and has answered those questions to my satisfaction.

PLEASE ASK YOUR DOCTOR IF U HAVE QUESTIONS CONCERNING THIS CONSENT FORM

11/10/2017

PATIENTS (OR LEGAL GUARDIANS) SIGNATURE DATE

SURGEON's NAME: Dr. Sharanbasappa Japatti (Professor and Guide)
Dr. Arif Merchant (PG Student)

Table No. 1		
Investigations	**Patient's Value**	**Normal Value**
1. Prothrombin Time	14.4 seconds	14 seconds
2. Control PT	12 seconds	11 – 13.5 seconds
3. Prothrombin Index	83.33 %	
4. Prothrombin Ratio	1.20	
5. INR	1.22	0.9 - 1.1

Figure 1: Pre-operative Intra-oral Images

Figure 2: Pre-operative OPG.

Figure 3: Teeth 16, 26, 36 and 46 (clockwise from left side) with large hyperplastic pulps protruding out of the occlusal cavity.

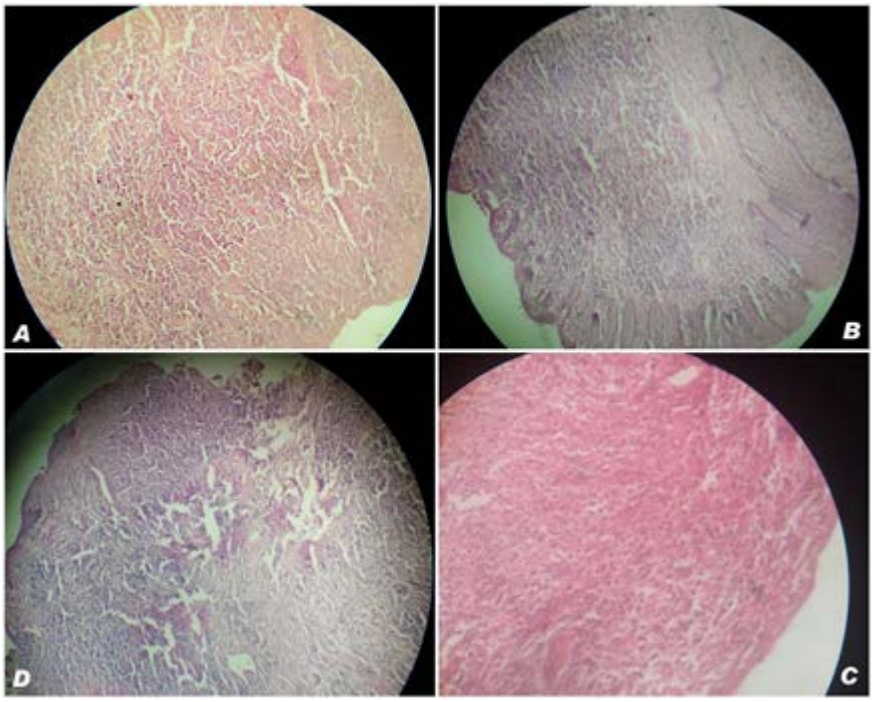

Figure 4: H and E stained sections of 16 (A), 26 (B), 36 (C), 46 (D) teeth in the figure reveal abundant connective tissue fibres interspersed with variable number of new small capillaries, inflammatory cell infiltration, chiefly lymphocytes and plasma cells, fibroblasts and endothelial cells proliferation in A and less number of the above mentioned same H/P features in B, C, D respectively. The superficial epithelium is of stratified squamous para-keratinized type.

Figure 5: Post-operative Images