Case Report

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Foreign Body Retrival Followed by Endodontic Treatment of Young Permanent Molar- A Case Report

Abstract:

Aim and objective: Case of a foreign object embedded in a permanent tooth.

Background: Children sometimes place foreign objects in their teeth as a means to relieve tooth pain. Such cases are reported more frequently in permanent teeth than in primary teeth.

Case description: This case report describes an instance of a foreign body embedded within a tooth. A 14-year-old boy presented with tooth pain, and examination revealed a ballpoint pen nib lodged in tooth 16. The foreign object was carefully extracted, and because the affected tooth was both permanent and salvageable, endodontic treatment was subsequently performed.

Conclusion: In this case, radiographic examination revealed foreign body lodged within the pulp space. The object was successfully retrieved, and the affected tooth was subsequently treated

Key-words:: Foreign body, Permanent tooth, shepherds hook explorer.

Introduction:

Foreign bodies are extrinsic objects that are not endogenous to the human body[1]. These may enter through ingestion or as a result of traumatic or iatrogenic events. Many foreign bodies can induce abscess formation or septicemia, which may lead to significant hemorrhage, and some may alsoundergo distant embolization. Pediatric patients often exhibit oral exploratory behaviors, increasing the risk of trauma to both osseous and soft tissues due to the insertion of foreign objects into the oral cavity[2].

The likelihood of foreign objects becoming impacted within a tooth increases when the pulp chamber is exposed, either due to traumatic injury or extensive carious exposure. Open carious lesions in the oral cavity serve as entry points for foreign objects, which can lead to pain, swelling, and abscess formation. A comprehensive patient history, meticulous clinical examination, and radiographic imaging are essential for accurate diagnosis and identification of the underlying cause. Radiographic assessment is critical for determining the size, type, and location of the foreign object[2]. Several radiographic techniques—such as parallax views, triangulation methods, stereoradiography, tomography, radiovisiography, and computed tomography (CT) scans—are invaluable for precise localization of foreign objects within the root canal system.

Grossman documented cases of retrieval from the root canals of anterior teeth left open for drainage, including indelible ink pencil tips, brads, toothpicks, absorbent points, and even

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[1]MOHAMMED AHMED,[2]SWATI DWIVEDI, [3]VINOD KUMAR UPADHYAY,[4]AHSAN ABDULLAH

[1-4]Department of Pediatric and Preventive Dentistry, Career P.G. Institute of Dental Sciences and Hospital Lucknow

Address for Correspondence: Dr. Mohammed Ahmed Department of Pediatric and Preventive Dentistry, Career P.G. Institute of Dental Sciences and Hospital Lucknow Email : mohammadahmed311@gmail.com

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tomato seeds[3,4]. Foreign bodies and tissue reactions to these materials are frequently observed in the oral cavity. Frequent iatrogenic lesions include apical deposition of endodontic obturating materials, mucosal amalgam and graphite pigmentation (tattoos), myospherulosis, oil-induced granulomatous reactions, and the traumatic introduction of dental materials and instruments[5].

The retrieval of foreign objects from teeth in pediatric patients presents a complex challenge in pediatric dentistry[1,5]. Objects located within the pulp chamber are typically more accessible for removal; however, when displaced apically, retrieval becomes significantly more difficult[6]. In certain cases, apical surgical intervention may be required. This case report details the retrieval of a foreign object impacted in the right maxillary molar, successfully managed through nonsurgical endodontic techniques without complications.

Table 1: Summary of various studies reported in dental literature.

Year	Authors	Foreign object	Age/ sex	Treatment	Tooth number
1992	Toerdaet	Chop stick	12/M	Extraction	Super numerary tooth region
1998	Prabhakar AR	Screw	13/M	Extraction	26
2009	Aduri R	Stapler pin	12/F	Shepherd's hook explorer	26
2009	Aduri R	Stapler Pin	10/M	Apicoectomy	21
2010	Glahel	Paper clip	12/M	Extraction	51,52
2010	Hella G	Metal wire	10/F	Extraction	53
2010	Hella G	Sewing needle	5/M	Extraction	51
2011	C Pinky	Nails, Metallic pin	1 /M	Saline and K-File	21
2013	Trevilleperrie	Ballpoint pen tip	7/M	Extraction	51
2013	R Leith	Misdiagnose impacted foreign body	2/M	Extraction under G.A	81
2013	Dhull KS	Ball pin	8/F	Ultrasonic scaler	54 and 55
2014	M Alrahabi	Stapler Pin	12/M	H-File	21
2014	R Mahesh	Stapler pin		Extraction	71
2016	PK Kanumuri	7metal wire 1 staple pin	10/M	Extraction	--
2016	PB Kariya	Ball end pin	12/M	Ultrasonic scaler	41
2018	A Gaur	Ball pen tip	12/M	K and H file	21
2019	Nawaf Mohammad	Small Screw	12/M		65
2019	Bhanulakhani	a) Plastic bead b) Small metal ball c) Match stics d) Stapler pin & stick	2/M 8/M 13/M 14/M	Extraction Extraction H.file	75 72 21
2021	Vegesna M	Plastic ring	15month/ M	Extraction	71
2022	NS Pande	Pin	7/F	Extraction	54
2024	N Niharika	Stapler pin	6/F	Extraction	61
2024	Nikhil Chandran	Stapler pin	6/M	Extraction	54

case Report:

A 14-year-old boy came with pain in the upper right back tooth region since 1 week when he poked the tooth with a ball pen and accidently tip of the ball pen left within the tooth. On clinical examination large carious lesion was found in relation to right maxillary permanent first molar along with a pain. On taking intraoral periapical radiograph of the tooth a radiopaque object was noticed in the canal of right maxillary permanent first molar [Figure 1]. A diagnosis of acute exacerbation in chronic periapical abscess was made wrt 16 and the non-surgical management treatment was planned.

After administering local anesthetic access cavity was made in upper right permanent first molar under rubber dam isolation. the access cavity was a coronally flared and latter shepherd hook explorer was used to retrieve the ball point pen nib [Figure 2]. Copious irrigation with 5.2% Sodium hypochlorite (Neelkanth Health Care pvt ltd, Jodhpur) was done during the root canal treatment and retrieval of the foreign body.

Calcium hydroxide was used as an intracanal medicament in between the appointments. Obturation was done using GP in right maxillary permanent first molar the patient was recalled after six months and Stainless steel crown was cemented [Figure 4 and 5].

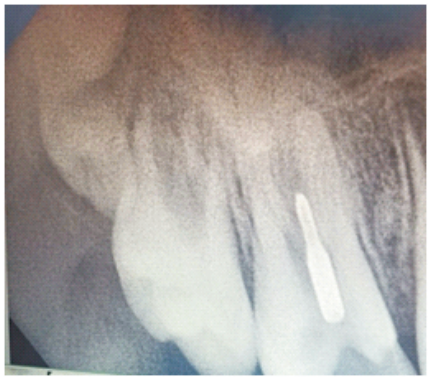

Figure 1: Radiograph shows ball pen nib

Figure 2: Image shows ball pen nib after retrival.

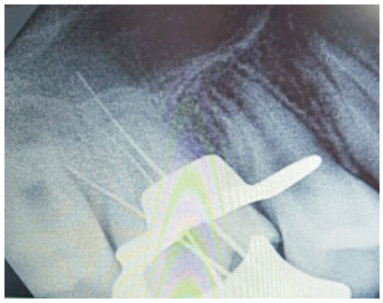

Figure 3: Radiograph shows working length

Figure 4: Radiograph shows S.S crown after 6 month.

Figure 5: Image showing intra oral photograph of S.S. crown irt Tooth no 16.

Discussion:

Foreign bodies are frequently found in the oral and maxillofacial region[19]. Anything inside the body that does not belong there is referred to as a foreign body in medical terminology. The size, shape, type, location, and composition of the foreign object, along with its anatomical proximity to vital structures, limited accessibility, and the complex anatomy of the maxillofacial area, can pose significant challenges for surgeons during removal. Root canals and pulp chambers can become obstructed by various foreign materials, including endodontic files, obturation materials, and objects inadvertently introduced by patients. Pencil leads, darning needles, metal screws, and other items can be among these items[20]. According to Chand et al.careful instrumentation is essential to prevent further apical migration of these foreign objects[20]. In the case report, a ballpoint pen nib was identified within the root canal and confirmed through a diagnostic radiograph .Access to the foreign body was improved by the canal's coronal flaring[1]. In the present case, the removal of ball point pen nib from the palatal root canal was achieved through a straightforward approach, utilizing standard instruments such as a tapered diamond bur and shepherd's hook explorer[21]. Various techniques have been documented for the removal of broken instruments or foreign objects from root canals, including hand instrumentation, ultrasonic tools, the Masserann Kit, the Canal Finder System, and even surgical methods.

Recent studies have shown that ultrasonic tips are the most effective method for removing separated instruments from root canals, as they minimize the removal of sound dentin. However, in the present case, because the foreign body was located in the upper third of the canal, it was retrieved by enlarging the canal and using a explorer to remove the ballpoint pen nib. If a metallic foreign body remains in the root canal for an extended period, there is a risk of corrosion, as observed in this case. Corroded metallic objects can become more fragile and may fracture during retrieval attempts. Undetected foreign bodies can lead to complications such as granulomas, secondary bacterial infections, chronic draining sinuses, fistulas, and disfiguring fibrosis. Beyond adverse clinical outcomes, undetected foreign bodies may also have medicolegal implications if the patient pursues legal action.

Conclusion :

If foreign objects are found in the root canal, prompt, but cautious attempts should be made to retrieve it first by simple nonsurgical means. Finally, when the foreign object resists all efforts for removal a surgical procedure may be the only viable alternative.

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