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Case Report

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Unforeseen Event during Routine Dental Procedure: A Case Report

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Abstract:

One of the serious complications during routine dental procedure could be accidental ingestion/aspiration of the instruments or materials of dental and non-dental origin. Considering such risks during dental treatment clinicians must follow safety guidelines and have through knowledge about management of such events. Current case report presents with the accidental ingestion of pin during restorative procedure. Lateral cephalogram was taken to locate the presence of pin and it was situated at C-4 level below the angle of mandible. Attempts were made to retrieve pin, however, the attempts failed. It was decided by the operating general surgeon to allow the pin to move along the normal path of digestion. The patient was continuously monitored in ICU. Laxative was prescribed and next morning patient reported that the pin passed in stool. This article further emphasize that practitioners should make patients aware of all the possibilities of ingestion and aspiration of dental objects. The operator shall instruct the patient to immediately spit if any type of dental material or an instrument is accidentally swallowed during treatment. Nevertheless, it is of prime importance that all the possible precautionary measures should be taken in account including mandatory use of rubber dam whenever possible. In case of such accidents, a line of treatment should be organized, and all the possible emergency management protocols should be followed.

Key Words: Accidental ingestion, aspiration, emergency management, four handed dentistry

Introduction

Incidences of accidental ingestion of foreign bodies are more common in occurrence than that of aspiration, and this can happen when proper safety protocols are not followed. Such events may lead to life-threatening conditions, damage to digestive tract, may cause pneumonia or sepsis.[1] Usually ingested objects do not produce signs and symptoms of complication or distress. The majority of the foreign objects are egested out of body after passage through gastrointestinal tract.[2-4] Foreign bodies in air or food passage are the sixth most common cause of accidental death in the United States.[5] The most common objects of non-dental origin ingested in children and older adults are coins, small toys, pens, batteries, safety pins, needles, hair pins, fish, and chicken bones.[6] However, swallowing of foreign bodies during dental procedure does not occur very frequently.[7,8] The current case report highlights ingestion of a pin during dental treatment which stands as a rare case in dental literature. The article also presents initial management strategies and various safety protocols for managing such events.

Case Report

A 22-year-old male patient reported to the 'Department of Conservative dentistry and Endodontics' with the chief complaint of carious tooth. On examination wide occlusal caries was seen with 36. There was no complaint of pain and sensitivity. Vitality test gave vital result for the tooth 36. A diagnosis of Class I carious lesion with 36 was made. The treatment advised was cast metal inlay. The patient was allotted to an undergraduate student. The student was directed to take direct wax pattern. A stainless steel pin was used to lift wax pattern from the cavity and it will also act as a sprue former. While placing it, the pin accidentally slipped into oral cavity and it could not be retrieved. The operator attempted emergency airway management and used high vacuum suction, but the foreign body could not be retrieved. It was assumed that the pin had slipped into the pharynx or esophagus. As an emergency patient was immediately shifted to the medical hospital, where lateral cephalogram was taken situation ensued the presence of pin at C-4 level below the angle of mandible (Figure 1). Immediately, laryngoscopy of the patient was done and attempts were done to retrieve the pin. When all the attempts failed to retrieve the pin, it was then slipped toward esophagus using 30 * laryngoscopy. It was decided by the operating general surgeon to allow the pin to move along the normal path of digestion. The patient was monitored in ICU.

Figure 1: Lateral cephalogram showing ingestion of pin.

Laxative was prescribed and next morning patient reported it passage in daily routine.

The current article emphasize that practitioners should make patients aware of all the possibilities of ingestion and aspiration of dental objects. In such cases, the patient should be instructed to immediately spit out the dropped object from the oral cavity and provide information to the clinician. It is of prime importance that all the possible precautionary measures should be taken in account including mandatory use of rubber dam whenever possible. In the case of such accidents, a line of treatment should be extremely organized and all the possible emergency management protocols should be followed.

Discussion

Literature has addressed various kinds of objects which were ingested or aspirated during dental treatment. These includes endodontic files, barbed broach, bur, temporary crowns, prosthesis, matrix bands, piece of amalgam, screw posts, extracted tooth, orthodontic brackets, inlay core, molar band, head of dental mirror, toothbrush, dam clamps, denture, impression material, implant parts, restorative materials, and gauge packs.[9-21] The protocol for the management of swallowed/aspirated dental objects is described in Figure 2. The case described in current paper stands as a rare case and it is important to document such incidences to enhance knowledge of the clinician for precautions and management.

Certain medical and physiologic conditions enhances the chances of such accidents of foreign body ingestion or aspiration such as cases of prisoners, psychotics, alcoholics, mentally disabled, patients with nervous disorders, excessive gag reflex, complete denture patient due to loss of tactile sensation of the palatal region, small oral cavity, short palatal region, macroglosia, and impaired central nervous system functions.[22] In the case of dentition lower molar usually associated more with such incidences as it's closest to the

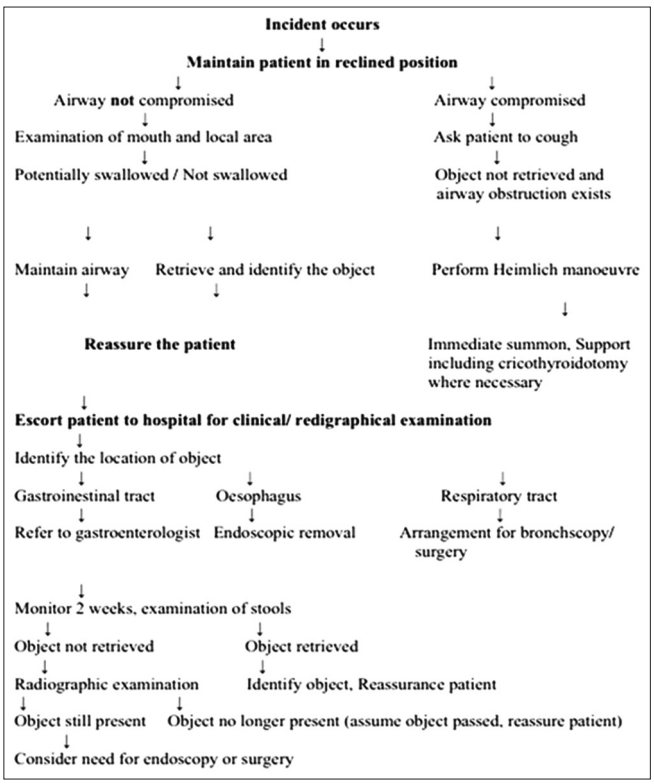

Figure 2: Protocol for management of swallowed/aspirated dental objects.

pharyngeal cavity.[1] Local anesthesia may be some time associated with such incidences as in the case of mandibular blocks or palatal anesthesia cause loss of tactile sensation.[23,24] Patient's position for occurrence of such incidences is controversial as one school of thought says supine position decreases the risk of ingestion or aspiration while others claims increase the incidences.[13,25]

The first line of management in accidental ingestion begins with patients reassurance followed by thorough examination, monitoring the vital signs and quick location of the foreign body. The patient should be properly stabilized and quickly shifted for the diagnostic imaging and emergency management. Various diagnostic modalities are available for the prompt location of foreign body such as abdominal and chest radiographs, endoscopy, and computed tomography scanning.[26] After the localization of the foreign body, it is important to either retrieve it or if present in the gastrointestinal tract then constantly monitor it, till it is egested out of the body. 90% of the accidentally ingested objects pass spontaneously without any kind of complication, but objects sharp in nature may lead to perforations of gastrointestinal tract.[27,28] A rate of complications associated with ingested foreign body is <1% in literature.[28] Ingested objects can be managed by three basic strategic approaches, i.e., conservative approach, endoscopy, or surgical approach.[29] Basic protocol for management of ingested or aspirated object is suggested by Parolia *et al.* in a proper squeal.[26]

Basic armamentarium required for protection of the patient and prevention includes rubber dam, gauge throat pack, floss tied dental small equipment, high vacuum suctions, more upright as possible, and detailed instruction before treatment. Counting the total number of instruments before and after the treatment can be adopted as basic or standard operating protocol for better observation on accidentally lost instruments.[30]

The use of rubber dam act as a basic standard for dental treatment.[31] Rubber dam has many potential advantages including potential to prevent such complications during treatment procedures. The use of rubber dam among clinicians vary worldwide and failures in using it is a universal phenomenon[19,31,32] due to various reasons,[33,34] but it is advised to the clinicians to use rubber dam in standard practice for better enhanced and protected treatment for the patients. It is of at most importance for the clinician to prevent complication for the patient and any kind of legal issue associated.

Conclusion

The clinician must have through knowledge about emergency protocols to manage such emergency conditions. It is wise to have observation of the patient until the foreign body retrieved or egested out of the body, in the absence of specific signs and symptoms. The modern dental practice has reduced the chances of foreign body ingestion with more evolved armamentarium used in the clinical practice as four-handed dentistry. Four-handed dentistry also improves the condition in dentistry with reduced errors. For any endodontic or restorative procedures, it is essential to use all safety measures to avoid potentially serious complications.

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