Case Reports in Odontology

ISSN:2410-0412

Journal homepage:
www.casereportsinodontology.org

An Unusual Aspiration of Hypodermic Needle – A Case Report

[PP: **01-05]**

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ARTICLE INFO

The paper received on: **01/11/2015**
Accepted after review on: **27/12/2015**
Published on: **30/12/2015**

ABSTRACT

Dentistry poses various occupational emergencies such as syncope, allergy and hypotension etc. Few instances such as chances of accidental swallowing of dental materials or smaller instruments can occur. Foreign body aspiration is one of the rare but life threatening situation during a dental procedure. This unusual case report describes an accidental aspiration of a 2 ml hypodermic needle by a 32-year-old male patient during an endodontic procedure, which was totally aymptomatic and left undetected in chest, other x-rays and endoscopy but diagnosed in a conventional computed tomography. It was retrieved by rigid bronchoscopy and emphasizes the use of two major preventive measures namely, rubber dam, oral packing and unolok syringes during all endodontic and conservative procedures to prevent the occurrence of such unfortunate incidence and routine CT for diagnosis of such asymptomatic conditions due to failure of conventional xrays.

Keywords: *Foreign body aspiration, needle, complication, rigid brochoscopy, Accidental swallowing, CT, Radiographs*

Cite this article as:
T. Balaji, I. Karthikeyan, Sakthi Devi, S. Padmaraj, Gaddale, Reetika. (2015). An Unusual Aspiration of Hypodermic Needle – A Case Report. *Case Reports in Odontology 2(2)*, 01-*05*. Retrieved from www.casereportsinodontology.org

1. Introduction

Dental procedures are done under utmost care in spite of anatomical limitations and patient cooperation. In some situations, emergency exists when there is sudden swallowing or aspiration of foreign materials. [1] The foreign objects can be single crowns, endodontic files or broaches, burs, dislodged amalgam fillings which may enter either into oesophagus or trachea.[2] Dentist

along with assistant (four handed dentistry) keeping patient in supine position does major effort to prevent such scenario. [3] The diagnosis of such accidents can be difficult and may be missed even by experienced practitioners because the initial choking episode is not witnessed. Aspiration of needle is of rare occurrence because of its size and nature. In this case report, needle aspiration and its diagnostic enigma has been reported.

2. Case Report

A 32 year old male patient was addressed with root canal treatment for a painful tooth in left lower 1st molar. He was anxious about dental treatment and nervous throughout the procedure. Access opening was done under local anaesthesia and when it was irrigated thoroughly, the bent needle detached from the syringe and was accidentally swallowed by the patient. The patient was immediately evaluated and no signs and symptoms of neither swallowing nor any respiratory obstruction.

Chest x ray (Fig 1a, b) was taken which showed no signs of needle (radioopaque particle). So the patient was referred for endoscopy but even endoscopy proved negative. Clinically he had symptoms of pricking sensation initially but after endoscopy he was asymptomatic.

He was advised to take liquid diet but had vomittings at 3 AM with mild blood. So he went to higher centre for investigation. They took 3 xrays, 1 chest xray (fig 2), 1 abdomen (fig 3) and 1 anteroposterior xray (fig 4a, b). All x rays were negative. He underwent a blood investigation for internal bleeding which proved negative. Patient was totally asymptomatic and fine and was advised to take solid foods. He was reassured that the needle was spat outside after the dental procedure or released in stool unknowingly. That day night he passed bloody stool so he was advised a CT (fig 5a, b) where the needle was traced clearly near the bifurcation of trachea. It was clearly removed by rigidoscopy by a general surgeon.

3. Discussion

Endodontic therapy strongly recommends rubber dam to avoid aspiration or swallowing of instruments to enhance safe and sterile operatory. [4] Barkmeier and Colleagues stated that rubber dam and oral packing are the common preventive measures but missed in routine dental practice. Due to time constraints and uncooperative patients, the preventive measures are not followed in four handed dentistry. [5] In this case report, the patient was placed in a supine position due to which accident took place, though he was immediately evaluated but there were no signs of respiratory obstruction (e.g. dyspnea or cyanosis) observed. Patient was not experiencing any pain or discomfort. [6] Imaging techniques such as direct X-ray, bronchoscopy and computerized tomography are used in the diagnosis of foreign body aspiration. In this case report only CT (fig 6) could detect the foreign body which was missed by other methods. An asymptomatic patient who aspirates or swallows a foreign object needs a routine and early CT investigation. To prevent such accidents, unolok syringes were introduced. [2]

The path of entry of any aspirated material is to the right bronchus, because right bronchus continues from the trachea in a wider fashion than the left bronchi. The left main bronchus skips aspirated objects since it follows a narrow and angled path. But in this case, the needle was found entering left main bronchus which is a rare situation. Rigidoscopy or rigid bronchoscopy under local anaesthesia was

used in this case for needle retrievel. The patient was normal within minutes after the procedure. Post op follow up was done till 2 weeks and the response was satisfactory.

4. Conclusion

Radiography in various planes were adequate investigation for aspiration of dental materials. Anteroposterior, lateral, Sagittal chest and abdominal radiographs will be taken to detect a foreign body, but if misdiagnosed Computed tomography should be done. Since this case was asymptomatic, routine radiographs missed the diagnosis of aspirated needle; this created a mandatory situation for a CT. To conclude, asymptomatic patients with suspicion of aspiration should be directed early for CT to avoid fatal emergency.

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Figure: 1a Chest X-ray

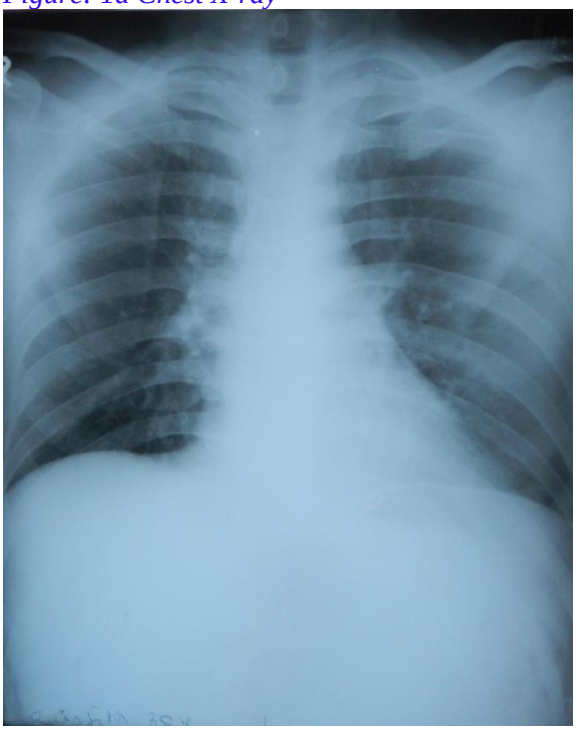

Figure: 1b Chest X-ray

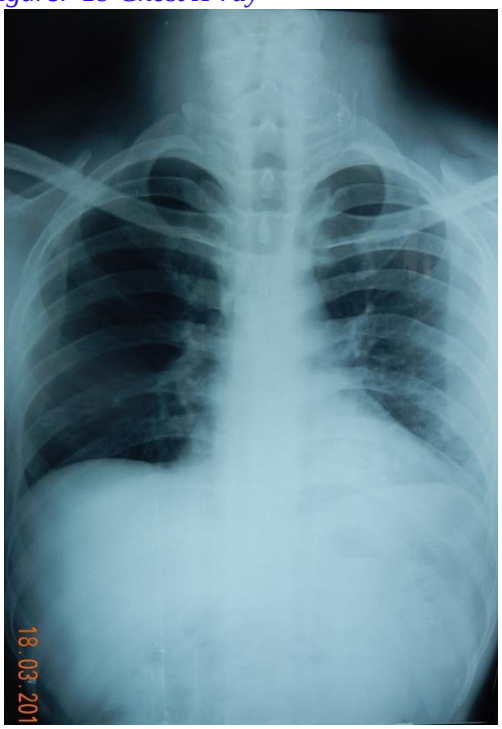

Figure: 2 Chest X-ray from different center

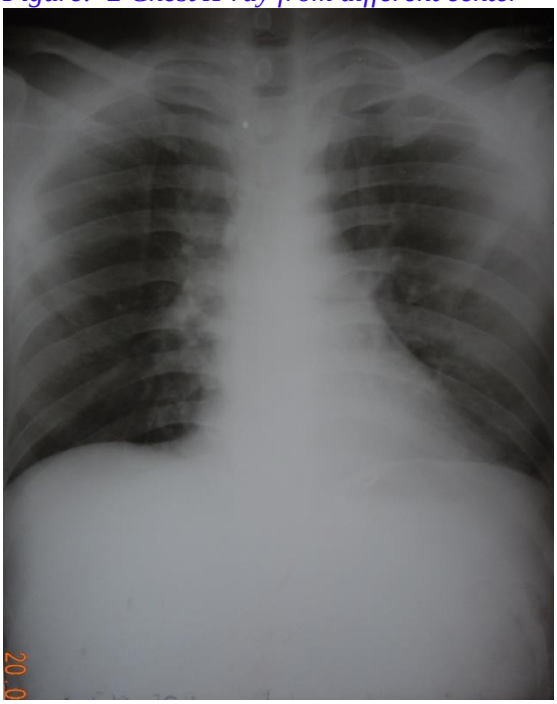

Figure: 3 Abdomen X-ray

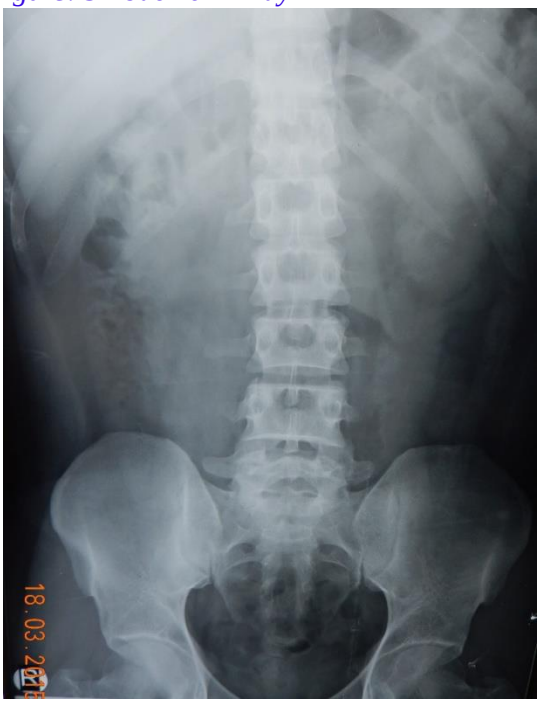

Figure: 4a Lateral view Head & Neck

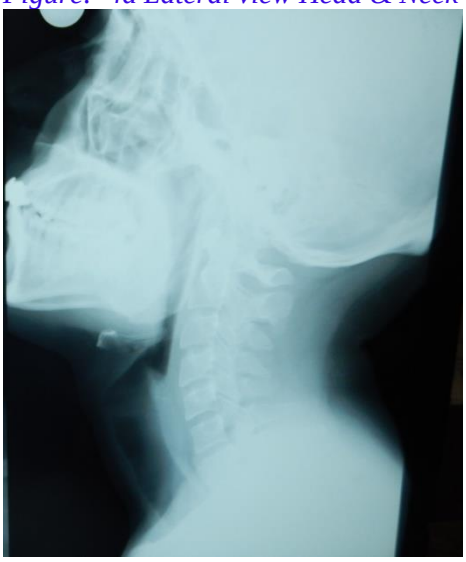

Figure: 4b PA View of Head & Neck

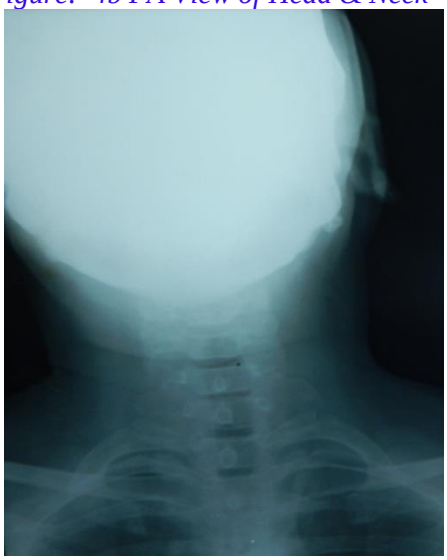

Figure: 5a Computed Tomography showing needle

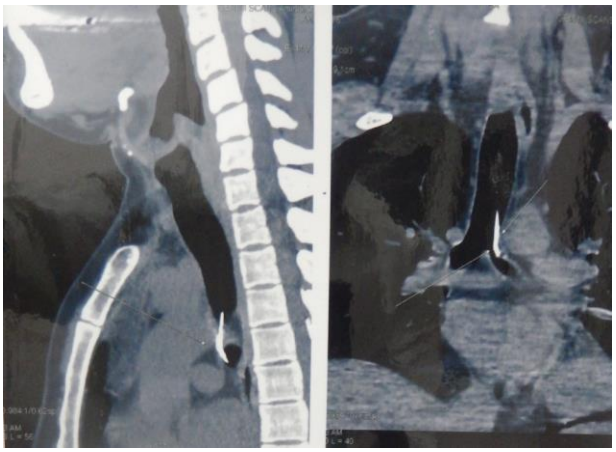

Figure: 5b CT tracing needle at left bronchus

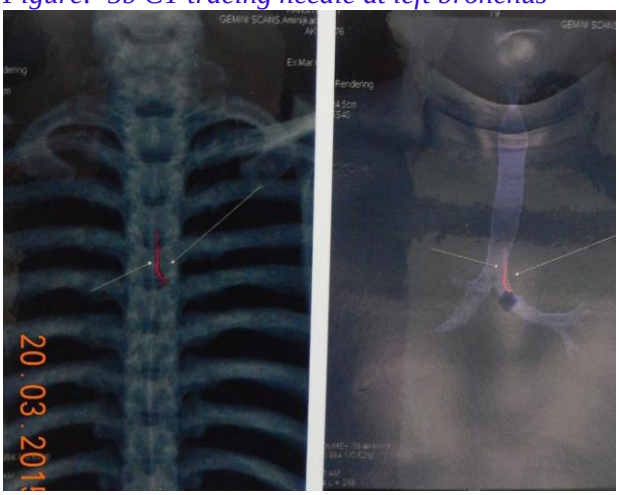

Figure: 6 Pictorial view of needle