

An Accidental Finding of Aural Foreign Body in Panoramic Radiograph

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Abstract

External Acoustic Canal (EAC) Foreign Bodies (FBs) are a common unwanted occurrence which if present could cause harm without proper intervention. Panoramic radiographs showing entire maxillomandibular region could be useful for the diagnosis of the same. A 12 year old patient came to the oral radiology OPD for the purpose of taking panoramic radiograph as advised by his endodontist. On the preliminary examination of the radiograph a well defined radiopacity was noted in the right EAC and it was confirmed by a subsequent double TMJ view. Patient was then referred to ENT department and the foreign body was removed. Proper and careful evaluation of dental radiographs particularly panoramic view may help in the diagnosis and early intervention of hidden conditions which may cause severe complications if left untreated.

Keywords: Aural Foreign body, Panoramic Radiograph, External Acoustic Canal

Introduction

Presence of Foreign bodies (FBs) in the external auditory canal (EAC) is a common occurrence. Although they can occur at any age, they are commonly seen in children and adolescent age groups.¹ Foreign bodies can easily become lodged due to the sigmoid form of the canal, especially at the bony isthmus where the canal narrows at the bone cartilaginous junction, making its removal difficult.² EAC FBs typically don't exhibit any symptoms, and is frequently discovered by accident.^{3,4} Some patients may experience ear fullness, hearing loss, otitis media symptoms, or pain.⁵

The chosen diagnostic tool for the initial assessment of maxillofacial structures in dentistry is the panoramic radiograph. The advantages include its ease of use,

expanded examination parameters, low radiation doses and the capability to project anatomical structures and their bridging components.⁶ A study shows the prevalence of incidental findings on panoramic radiograph as 50% out of which 5% was foreign bodies.⁷ For an appropriate diagnosis based on panoramic radiography, a high-level anatomical knowledge, and a comprehension of panoramic imaging principles, are required.⁸

Currently two cases of EAC foreign body discoveries made during dental exams using panoramic radiography have been published in the literature.^{3,9} Svider *et al.* found a correlation between age and sex and 43rd the frequency of foreign objects implanted into the EAC.¹⁰ The long-standing foreign body in the patient described in this report was first discovered as an unintentional finding in a panoramic radiograph taken to rule out endodontic involvement of multiple teeth. It was then later confirmed by the same finding in patient's double TMJ view.

Case Report

A 12-year-old male patient was referred to the Radiology department, Government Dental College, Trivandrum for taking a panoramic radiograph for the purpose of endodontic evaluation of multiple teeth.

Chief complaint of the patient was a broken upper front tooth. Patient also reported pain in the upper right and left teeth. No significant health changes or medical history were reported by the patient's mother. On clinical evaluation performed by the endodontist, tenderness on percussion was noted in 16 and 24. For further evaluation the patient was advised panoramic radiograph and was referred to the Radiology department, Government Dental College, Trivandrum.

On a preliminary examination of the radiograph, a well defined, ovoid radiopaque mass measuring about 1 x 1

cm was noted at the level of the right external auditory meatus. No communication was noted with the nearby anatomical structures that had a similar radiopacity. (Figure 1)

Further a double TMJ view of the patient was taken to rule out the presence of any artifact. The double TMJ view confirmed the presence of a well defined radiopaque mass measuring about 1x1 cm in relation to right external acoustic meatus. (Figure 2)

The patient's mother was informed of this finding and she reported that there was no history of any discomfort or infection-related symptoms. Also the patient could not remember any history of inadvertently or voluntarily inserting something in his ear. In addition no history of any previous surgery or trauma to the region was reported. The patient was then referred to the ENT department of Government Medical College, Trivandrum and a foreign body was found embedded in the cerumen. The patient then visited a private ENT specialist for a second opinion and from there he was later referred to Department of ENT, Government Medical College hospital, Kollam for its removal.

The ENT specialist removed the foreign body along with cerumen from the right auditory canal after infiltration of local anaesthesia. The tympanic membrane was intact but unhealthy after removal of the object. Though a slight canal edema was present, there was no significant trauma to the external canal. No facial nerve palsy was encountered. Patient was prescribed antibiotics for 5 days and antibiotic ear drops for 1 week. The foreign object was determined to be a button cell battery of 12 mm in diameter and 3 mm thickness. (Figure 3)

Discussion

Foreign bodies in the EAC are fairly prevalent. Patients usually go to the hospital right away because the symptoms are extremely bothersome and occasionally

painful.^{1,11} On the other hand, some EAC FBs are asymptomatic and are accidentally found in routine examinations. If symptomatic, EAC FBs may present with unilateral aural discharge, otalgia, ear haemorrhage, hearing loss, tinnitus, cough, dizziness, and facial palsy.^{1,12} The symptoms of EAC FB are closely related to the characteristics of the foreign substances, including their organic, inorganic, living, metallic, nonmetallic, hygroscopic, or non hygroscopic nature.^{1,13} In a study by Bahannan *et al* the prevalence of inorganic aural FBs was found to be 65% and that of organic aural FBs was 35%.¹⁴

In dentistry, panoramic radiography is a crucial imaging method which is now widely utilised in dental practices and can be an important diagnostic tool for dentists.¹⁵ According to the Council on Dental Materials and Devices, the advantages of panoramic radiography include that it is a simple technique to carry out, patients find it convenient, it is not problematic in patients with unresolvable gagging issues. Short amount of time for the procedure and relatively modest patient dose also come under its merits. They may also be used for patient education as a visual aid.^{6,16}

Despite its advantages, it is important to keep in mind that the diagnostic quality of panoramic radiograph may be affected due to magnification, a lack of definition and the superimposition of structures. To recognise the presence of any abnormalities, it is essential to have a thorough awareness of the typical anatomy.¹⁵

Conclusion

Incidental findings in radiograph are a common occurrence. They often provide guidance towards hidden pathologies and diseases of the body. Dental radiographs and particularly panoramic views are important in that aspect since they include most of the maxillomandibular region in a single film. Understanding the typical

anatomy of the head and neck as well as to examine panoramic radiographs in a methodical and repeated manner is advised to ensure that important findings are not missed.

References

1. Kim K-H, Chung JH, Byun H, Zheng T, Jeong J-H, Lee SH. Clinical Characteristics of External Auditory Canal Foreign Bodies in Children and Adolescents. *Ear, Nose & Throat Journal*. 2020;99(10):648-653.
2. Heim, S.W.; Maughan, K.L. Foreign bodies in the ear, nose, and throat. *Am. Fam. Physician* 2007, 76, 1185–1189.
3. Maspero C, Abate A, Inchingolo F, Dolci C, Cagetti MG, Tartaglia GM. Incidental Finding in Pre-Orthodontic Treatment Radiographs of an Aural Foreign Body: A Case Report. *Children*. 2022; 9(3): 421.
4. DiMuzio, J., Jr.; Deschler, D.G. Emergency department management of foreign bodies of the external ear canal in children. *Otol. Neurotol*. 2002, 23, 473–475.
5. Chalishazar, U.K.; Singh, V. Correlation between a foreign body in the external auditory canal and otitis media with effusion. *J. Laryngol. Otol*. 2007, 121, 850–852.
6. Mervat M. Alattar, Ronald A. Baughman, William K. Collett. A survey of panoramic radiographs for evaluation of normal and pathologic findings. *Oral Surgery, Oral Medicine, Oral Pathology*. 1980;50 (5):472-478
7. Vaseemuddin, S. Incidental findings on panoramic radiograph: A clinical study. *J. Adv. Med. Dent. Sci. Res*. 2016, 4, 223–226
8. Maeda N, Hosoki H, Yoshida M, Suito H, Honda E. Dental students' levels of understanding normal

panoramic anatomy. *Journal of Dental Sciences*. 2018 Dec 1;13(4):374-7.

9. Schafer, T.; Riggs, B.; Murakaru, J.; Kalathingal, S. Incidental Finding of a Foreign Object on a Panoramic Radiograph. *Paediatr. Dent.* 2015, 37, 453–454.
10. Svider PF, Vong A, Sheyn A, et al. What are we putting in our ears? A consumer product analysis of aural foreign bodies. *Laryngoscope*. 2015;125(3): 709–714.
11. Taheri A, Mehmandari SN, Shahidi M, et al. Popularity and harms of aural foreign bodies: a descriptive study of patients in Baqiyatallah University hospital, Tehran, Iran. *Int Tinnitus J*. 2017;21(2):31–35.
12. Gold KR, Wester JL, Gold R. Foreign body in external ear canal: an unusual cause of chronic cough. *Am J Med*. 2017;130(4):e143–e144.
13. Wada I, Kase Y, Iinuma T. Statistical study on the case of aural foreign bodies [in Japanese]. *Nihon Jibiinkoka Gakkai Kaiho*. 2003;106(6):678–684.
14. Bahannan AA, Aljabry AO. Aural foreign bodies among patients presenting to IBN SINA teaching hospital, Mukalla, Hadhramout province, Yemen. *Indian J Otolaryngol Head Neck Surg*. 2018;70 (2):194–199.
15. Perschbacher S. Interpretation of panoramic radiographs. *Australian dental journal*. 2012 Mar;57: 40-5.
16. Council on Dental Materials and Devices: Advantages and Disadvantages of the Use of Dental Tomographic Radiography, *J. Am. Dent. Assoc.* 94: 147, 1977.

Legends Figures

Figure 1: Panoramic view showing a radiopacity irt right EAC region



Figure 2: Double TMJ view confirming the presence of a radiopaque mass irt right EAC region

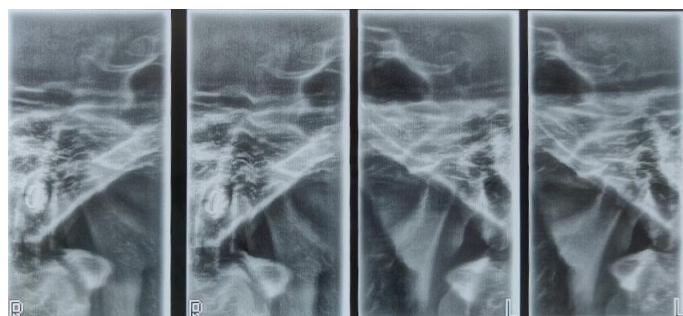


Figure 3: The button cell battery removed from the patient's ear

