



## Chronic Sinusitis Blocked the Maxillary Sinus Caused by Displaced Root Along 10 Years: Case Report

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### Abstract

**Introduction:** The maxillary sinus was first found by ancient Egyptians and has been well studied because of its unique structure compared to other paranasal sinuses due to its relation anatomically with the teeth [1].

It has been suggested that any case of maxillary sinusitis with unknown cause needs to be assessed dentally. Thus, that justifies requesting facial radio-graphic imaging to exclude any foreign body displacement into the sinus [3]. The current updates showed between 30% to 40% of chronic maxillary rhinosinusitis caused by dental origin

**Case Report:** A 40-year-old housemaid was referred by an ENT doctor after he noticed in her CT a suspected root in the right sinus associated with chronic sinusitis. The reason for her initial presence at the ENT clinic was generalized pain extended around the right cheek area and difficulty breathing noticed from the right nostril.

The Caldwell Luc approach creates a small hole with a small round bur to create a minimal square shape on the lateral wall of the maxillary sinus. Curved artery forceps, and good lightening, the exact location of the displaced root specified and delivered out of the sinus successfully. An antrostomy was performed to enhance the airflow from the right nostril.

**Discussion:** The recent review articles highlighted the importance of assessing and reviewing the maxillary dentition when requesting a head and neck CT or MRI [6].

Even if they are not causing symptoms, surgical removal is necessary for foreign objects in the paranasal sinuses. This treatment plan was chosen due to the potential tissue reactions caused by the foreign object [7]. The standardized diagnostic process and Caldwell-Luc method for extracting a displaced root from the maxillary sinus is a secure, uncomplicated, and quick technique with few complications [8].

**Conclusion:** It is essential to define the reason for the chronic sinusitis. In case the sinusitis and its associated symptoms develop due to a dental origin, removing the cause surgically is highly crucial to stop the progression of the disease. Caldwell-well luc approach under general anesthesia was efficient and practical without any complication or difficulty during the surgery.

**Keywords:** Chronic Sinusitis; Blocked; Maxillary Sinus; Root

### Introduction

The maxillary sinus was first found by ancient Egyptians and has been well studied because of its unique structure compared to other paranasal sinuses due to its relation anatomically with the teeth [1].

It has been suggested that any case of maxillary sinusitis with unknown cause needs to be assessed dentally. Thus, that justifies requesting facial radio-graphic imaging to exclude any foreign body displacement into the sinus [2]. The current updates showed between 30% to 40% of chronic maxillary rhinosinusitis caused by dental origin [3].

A large group of patients who underwent maxillofacial CT gave a result that only 40% of them were living with normal sinus mucosa, while 60% were living with diseased mucosa [4].

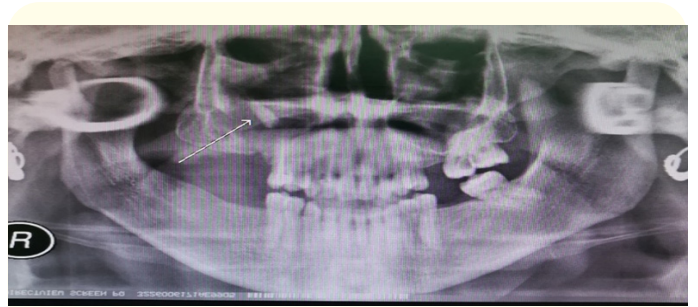
**Case Report**

A 40-year-old, housemaid, women referred by an ENT doctor after he noticed in her CT, a suspected root displaced into the right sinus associated with chronic sinusitis that massively blocked the whole sinus. The reason for her presence initially at the ENT clinic was a generalized pain extended around the right cheek area and difficulty in breathing noticed from the right nostril. ENT doctor mentioned in the referral form that Maxillofacial CT showed the presence of a foreign body that seemed part of a tooth.

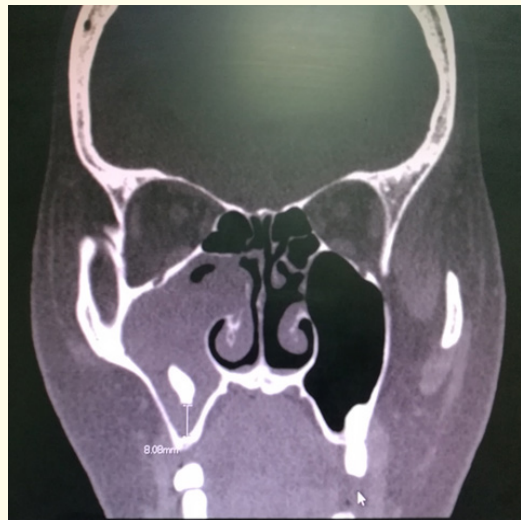
In the maxillofacial unit clinic, information gathered from the patient holistically. She noticed pain in the right cheek and difficulty breathing from the right nostril about 5 years ago, but symptoms became more remarkable and irritating last two years. The patient’s oral hygiene was fair with a history of multiple teeth extraction and fillings. From dental history, she underwent extraction of 16 and 17 at the same visit 10 years ago in her home country. She described that teeth were infected during the time of extraction.

A full workup was done, panoramic imaging, ECG, CBC, chemistry, and liver function tests. After explaining the necessity of removal of the displaced root and enucleating of the associated infected tissue, consent was signed by the patient. Afterward, the patient was referred to the anesthesia department to do the procedure under general anesthesia with nasal intubation from the left side.

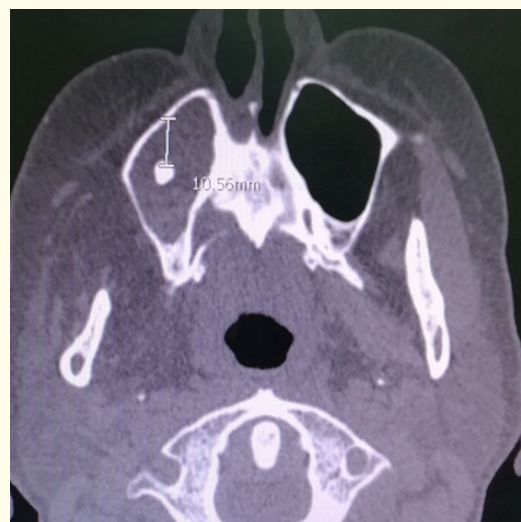
The plan set to perform the surgery via Caldwell-luc approach. Intraoral Infiltration was done in the sulcus of the area, two dental carpule of local anesthesia using 2%xylocaine/1:100,000. A small hole was created with a small round bur to create a minimal square shape on the lateral wall of the maxillary sinus. With the help of high-volume suction, curved small artery forceps, and good lightening, the exact location of the displaced root specified, and delivered out of the sinus successfully. A significant amount of pus and granulation tissue were removed from the sinus. An antrastomy was performed to enhance the airflow from the right nostril and to remove the residual infected tissue completely.



**Figure 1:** Panoramic radiograph showed the displaced root into the right maxillary sinus.



**Figure 2:** Coronal view shows the locatn of the root related to the lateral wall of the maxillary sinus.



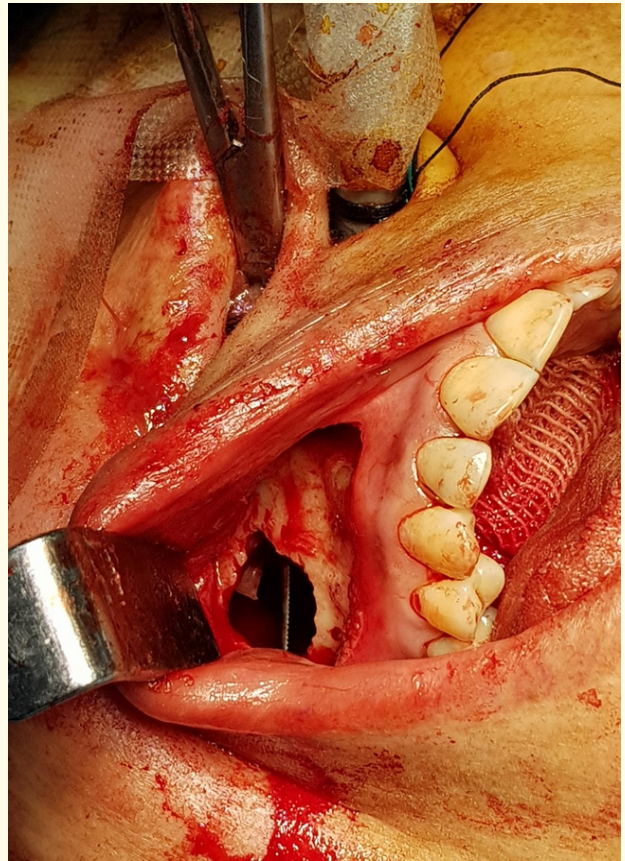
**Figure 3:** Axial CT shows the location of the root and the RT maxillary sinus that appeared as it filled with a fluid.



**Figure 4:** Mucoperiosteal flap elevated and holes made to create a square shape with long fissure bur and complete the fracture with small hammer and mallet.



**Figure 5:** Root removed and pus aspirated from the sinus.



**Figure 6:** Inferior meatus antrostomy.



**Figure 7:** 3D CT shows the amount of bone removed during the surgery from the lateral side of the maxillary sinus.

**Discussion**

The recent review articles highlighted the importance of assessing and reviewing the maxillary dentition when requesting a head and neck CT or MRI [5].

Even if they are not causing symptoms, surgical removal is necessary for foreign objects in the paranasal sinuses. A treatment plan has been chosen due to the potential tissue reactions caused by the foreign object [6].

The standardized diagnostic process and Caldwell-Luc method for extracting a displaced root from the maxillary sinus is a secure, uncomplicated, and quick technique with few complications [7].

Displacement of root into the maxillary sinus is one of the devastating incidents to the patient and dentist too. Plethora of les-

sons learned from this report. Firstly, it is essential to reach the cause of chronic sinusitis because it might be due to dental origin. Secondly, taking preventive measures is ultimately crucial for dentists to achieve best-practice dentistry and avoid the consequences and complications of root displacement into the sinus. Thirdly, If displacement of the tooth or foreign body occurs, connecting the patient to a specialized expert will benefit the patient in making the right decision as early as possible and also make the treatment less invasive.

Extraction of maxillary teeth requires preventive measures including educating patients before the procedure about the proximity of the sinus to the maxillary posterior teeth that increases the risk of displacement, appropriate imaging pre-operatively and CBCT if needed, choosing safe technique, good lighting, and using high volume suction. Safe techniques that we suggest to reduce the risk of displacement includes: raising the flap, bone removal, tooth sectioning, finding enough part of the root to facilitate the elevation or creating enough grasp, avoiding directing force towards the sinus, and removing more bone if that needed when benefit outweighed the risk.

## Conclusion

It is essential to define the reason for chronic sinusitis and subsequently decide the appropriate treatment for each case. In case the sinusitis and its associated symptoms develop due to a dental origin, removing the cause surgically is highly crucial to stop the progression of the disease. Caldwell-well luc approach under general anesthesia in order to retrieve the displaced root and enucleate the infected tissue was efficient and practical without any complication or difficulty during the surgery.

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