

## Localization of foreign body in the maxillary sinus using multi slice CT scan

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### Key words

CT, X-ray, foreign body, maxillary sinus.

### Abstract

Foreign body can be defined as any matter that created out of scope of the body but inter the body due to injury, Plain radiograph, computed tomography scan ,magnetic resonance imaging and ultrasonography could be used to assess and localize the foreign body, In this case report we will explain a case of foreign body established in the maxillary sinus and how CT scan was useful in determine the position of this foreign body, the surgeon reported that computed tomography scan was useful in such cases, so it can be concluded that computed tomography scan can assess the size and shape of the precisely and can give the exact position of foreign body but the patient receive higher dose of radiation rather than the dose has been received from dental panoramic tomography.

### Introduction

Foreign body can be defined as any matter that created out of scope of the body but inter the body due to injury<sup>(1)</sup>.The most common complications of foreign body are pain , infection and inflammation. If the position of foreign body is superficial and can be seen so its easy to remove but when the foreign body located in deep position throughout the body so it is very important to assess whether the foreign body is close to a vital structure or not<sup>(2)</sup>. Plain radiograph, computed tomography scan, magnetic resonance imaging and ultrasonography could be used to assess and localize the foreign body<sup>(2)</sup>. In this case report we will explain a case of foreign body established in the maxillary sinus and how CT scan was useful in determine the position of this foreign

### Case Report

Fifty years old male come to maxillofacial department in Tikrit Teaching Hospital , complain of pain in the region of right maxillary sinus and nasal speech. Clinical examination showed that the patient has sinusitis, then referred to the department of maxillofacial radiology for dental panoramic radiology for dental panoramic radiograph. The image of dental panoramic radiogrph showed that there is a foreign body in his right maxillary sinus(fig 1), and the sinus was filled with inflammatory fluids . The surgeon refer the patient to take Multi slice Computed Tomography scan for further investigation the site and location of this foreign body , the Computed Tomography scan imaging gives the surgeon the information needed to locate the exact position of this foreign body so surgeon now has clear idea for how will remove the foreign body (fig 2-3-4-5-6) .After completing the surgery successfully, the surgeon reported that CT scan was useful in such cases .

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## Discussion and Conclusion

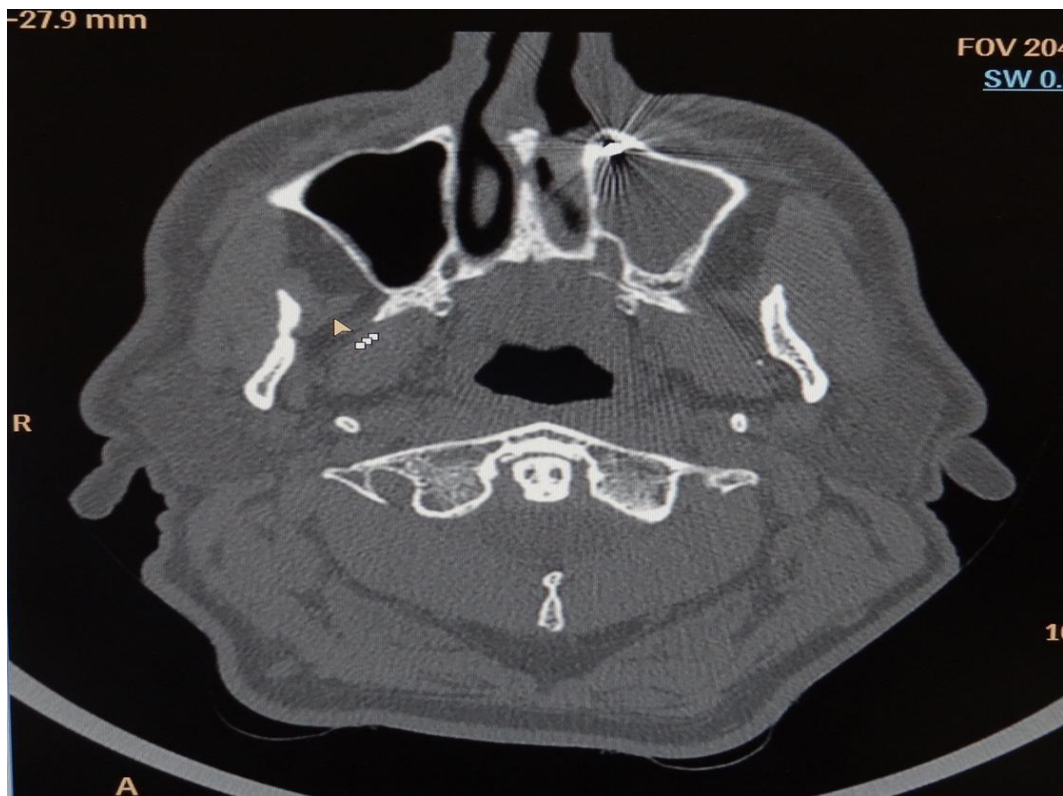
Dental panoramic radiograph consider as a type of two-dimension radiograph and it has the restriction of two dimensional radiography such as distortion and magnification in the image<sup>(3,4)</sup>. Dental panoramic radiograph indicated sometimes to evaluate maxillary sinus diseases<sup>(5)</sup>.The preferred imaging technique for evaluation the foreign body is the conventional plain radiograph as it assess the location of the foreign body and whether the foreign body is close to vital structure or in critical position or no can be determinate by conventional plain radiograph<sup>(1)</sup>.

Computed Tomography consider as a standard method of imaging to localize the foreign body because computed tomography scan can reproduce the size and shape precisely and enable the

definitive position of the foreign body inside the body of the patient, so the surgeon has a clear idea for the approach should be used in removing of the foreign body<sup>(6)</sup>. Here in our case after completing the surgery successfully, the surgeon reported that computed tomography scan was useful in such cases . So it can be concluded that three dimensional imaging (using CT scan) can give the exact position of foreign body but on the other hand the patient receive high dose of radiation while the two dimensional imaging has lower dose of radiation than of computed tomography scan but sometimes cannot predict the exact position of foreign body ,so computed tomography scan for localizing foreign body must be indicated in some cases.



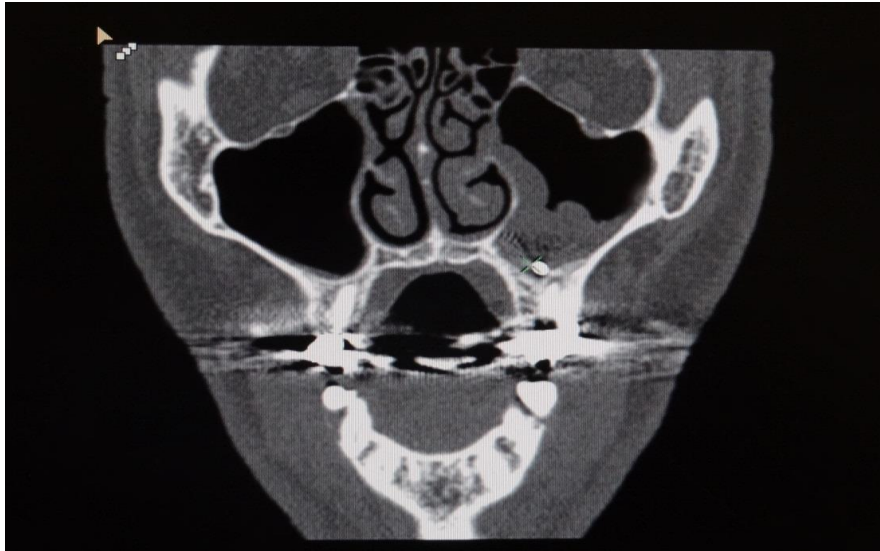
(fig 1. OPG image showed foreign body in the right maxillary sinus)



(fig 2. axial view of maxillary sinus)



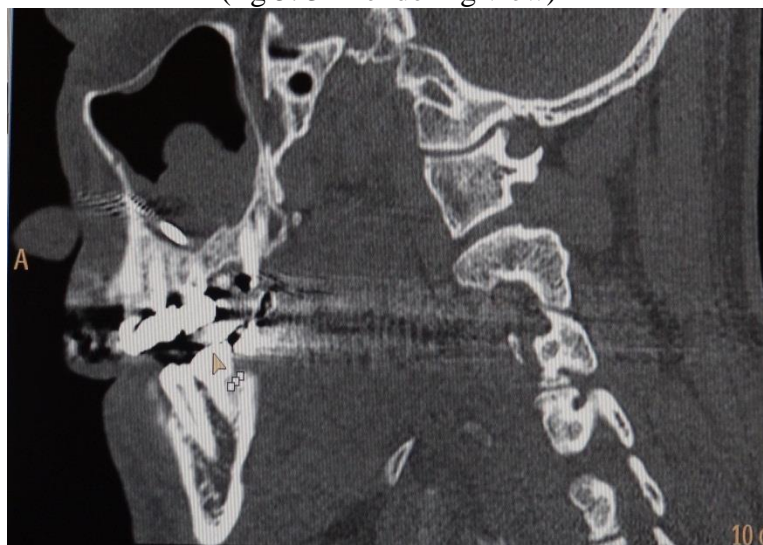
(fig 3. Sagittal view of right maxillary sinus)



(fig 4. Coronal view of maxillary sinus)



(fig 5. 3D rendering view)



(fig 6. Other sagittal view)

## References

1. Eggers G, Welzel T, Mukhamadiev D, Wortche R, Hassfeld S, Muhling J. X-ray-based volumetric imaging of foreign bodies: a comparison of computed tomography and digital volume tomography. *J Oral Maxillofac Surg* 2007; 65: 1880–1885.
2. Hunter TB, Taljanovic MS. Foreign bodies. *Radiographics* 2003; 23: 731–757.
3. White SC, Pharaoh MJ. *Oral Radiology: Principles and Interpretation*, 6th ed. Philadelphia: CV Mosby; 2009:175-182.
4. Sant'Ana LF, Giglio FP, Ferreira O Jr, Sant'ana E, Capelozza AL. Clinical evaluation of the effects of radiographic distortion on the position and classification of mandibular third molars. *Dentomaxillofac Radiol* 2005;34:96-101.
5. Ohba T, Katayama H. Comparison of panoramic and Waters projection in the diagnosis of maxillary sinus disease. *Oral Surg Oral Med Oral Pathol* 1976;42:534–538.
6. Eggers G, Mukhamadiev D, Hassfeld S. Detection of foreign bodies of the head with digital volume tomography. *Dentomaxillofac Radiol* 2005; 34: 74–79.