

Intrusion of an incisor tooth into the contralateral frontal sinus following trauma

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Abstract

Although intrusions of glass fragments into the frontal sinuses are not uncommon in traffic accidents, a case with a tooth in the frontal sinus has never been reported. We report a patient with traumatic inclusion of an incisor tooth in the contralateral frontal sinus. Radiographic investigations demonstrated the tooth in the frontal sinus though no skin damage was recognized on the upper face. The usefulness of CT scan in localizing the missing tooth after facial trauma and its route of entry into the contralateral frontal sinus is discussed.

Key words: Foreign body; Paranasal sinus, frontal; Tooth, incisor

Case report

A 46-year-old male was admitted to the Department of Neurosurgery of Hata General Hospital, immediately after striking his face against the steering wheel in a road traffic accident. He was briefly unconscious but had no facial lacerations except across the frenulum of the upper lip. An upper incisor tooth was totally lost on the right side. CT scan taken on admission revealed a small low density area in the temporal lobe on the right side and a

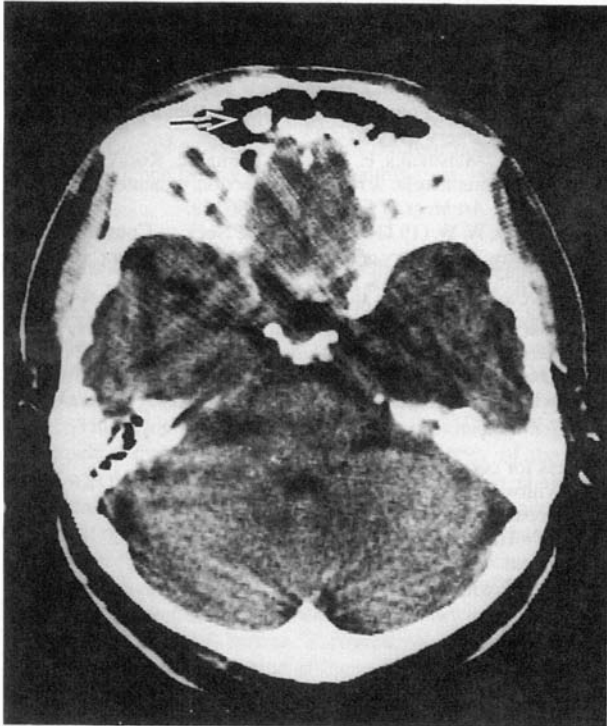


FIG. 1

Axial CT scan showing a high density lesion (arrow) in the left frontal sinus. No remarkable change is recognized in the mucosa of the frontal sinus.

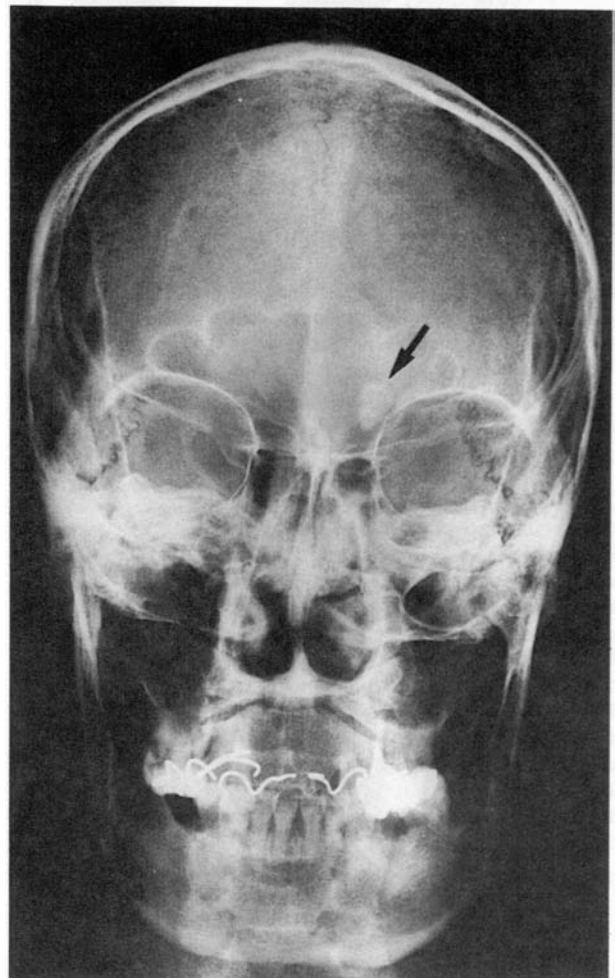


FIG. 2

Anterior view of the paranasal sinuses showing an opacity (arrow) with diffuse shadow in the frontal sinus on the left side.

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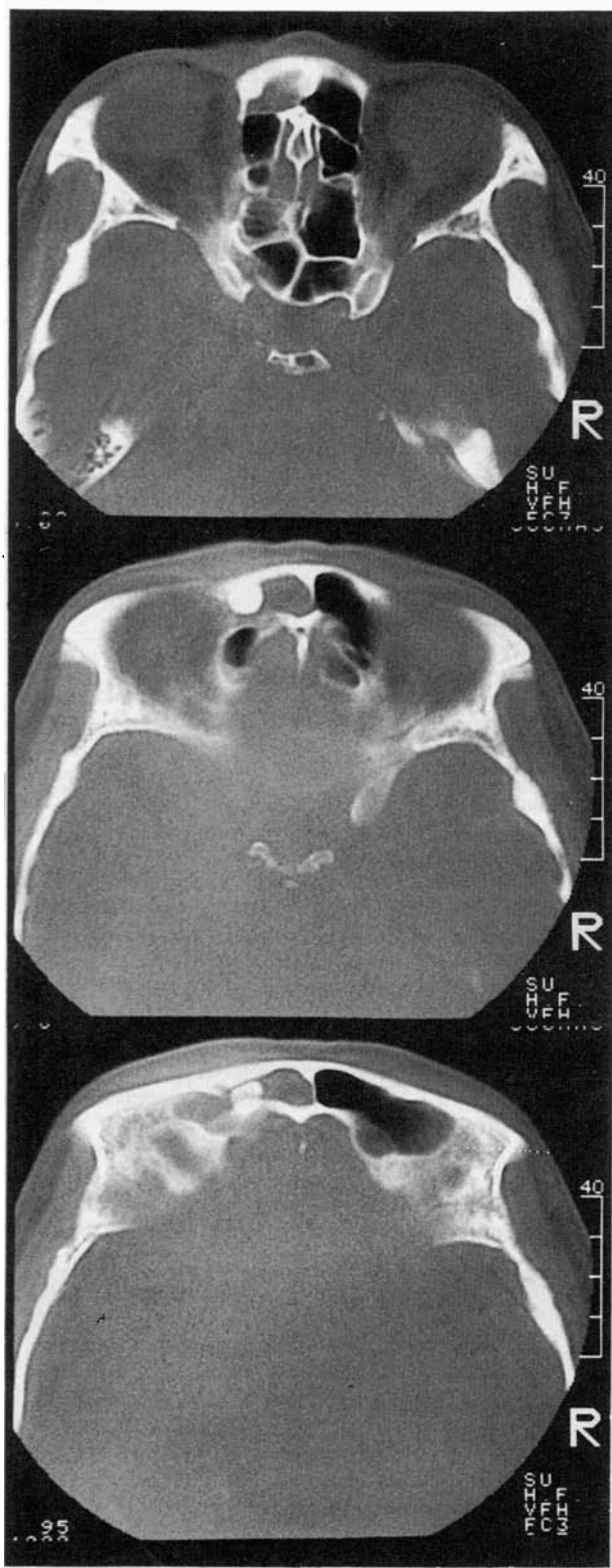


FIG. 3

Axial CT scan showing a foreign body (an incisor) in the frontal sinus and the diffuse shadow in the frontal sinus and anterior ethmoid cells.

high density lesion in the left frontal sinus (Fig. 1). After 12 days no further change was observed in the frontal sinus and the patient was discharged.

Two weeks later, he developed profuse rhinorrhea and nasal obstruction. Antibiotic treatment proved ineffective. The patient was later referred to the ENT Department of the University of Tsukuba two months after the trauma. Repeated X-rays (Fig. 2) and CT scan (Fig. 3) confirmed a high density lesion in the left frontal sinus with diffuse opacification of the sinus and ipsilateral ethmoid air cells. An exploration of the frontal sinus was performed under a general anaesthetic 77 days after the trauma. No bony defect in the anterior wall of the ethmoid cells or the frontal sinus was noted.

The mucous membranes of the ethmoidal and frontal sinuses were thickened and polypoidal. The frontal sinus was filled with purulent material. After completely removing all the unhealthy mucosa, small bony defects were recognized in the floors of the ethmoid cells and frontal sinus. The incisor tooth was found embedded in the medial-superior angle of the left frontal sinus and was removed. A polyethylene drainage tube was inserted down through the enlarged naso-frontal duct and was sutured to the external nares. The post-operative course was uneventful and the patient was discharged on the 10th day. He has been asymptomatic for 20 months since surgery.

Discussion

Of the paranasal sinuses the maxillary sinus is the most common lodgement site of foreign bodies (Garces and Norris, 1972). A review of the English literature revealed that reports on foreign bodies in the frontal sinus are quite rare: Foreign bodies described have included windshield glass, a metallic holder of a rearview mirror, a stone, a nail, a steel bolt and a bullet (Payne, 1967; Lancer, 1982; Calhoun *et al.*, 1988). Ruprecht and Halhoul (1979) described a case of a lateral incisor in the maxillary sinus, but there has been no report of a tooth in the frontal sinus.

The route of entry of the incisor tooth into the contralateral frontal sinus is interesting. It was concluded from the operative findings that the incisor, dislodged by the trauma, had entered into the nasal cavity of the opposite side via the wound across the frenulum of the upper lip, and thus into the frontal sinus through the anterior ethmoid cells.

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