Journal of Dental Sciences (2013) xx, 1–5

Available online at www.sciencedirect.com
SciVerse ScienceDirect
journal homepage: www.e-jds.com

CASE REPORT

Foreign body of endodontic origin in the maxillary sinus

Marta Tanasiewicz [a*], Anna Bubilek-Bogacz [b], Henryk Twardawa [a], Małgorzata Skucha-Nowak [a], Tomasz Szklarski [c]

[a] Department of Conservative Dentistry with Endodontics, Medical University of Silesia, Bytom, Poland
[b] Department of Dental Surgery, Medical University of Silesia, Bytom, Poland
[c] Department of Dental Materials Science, Medical University of Silesia, Bytom, Poland

Received 1 February 2012; Final revision received 12 March 2012

Available online ■ ■ ■

KEYWORDS
extrusion of endodontic obturation materials;
foreign body;
maxillary sinus

Abstract Foreign bodies found in the maxillary sinus include tooth roots, burs, dental impression material, root-filling materials, dental implants, and needles. The purpose of this paper was to present an unusual case of a large foreign body of endodontic origin (root-filling material) removed from the maxillary sinus. A 45-year-old generally healthy male patient reported to the Department of Conservative Dentistry with Endodontics of the Medical University of Silesia, because of orbital and buccal pain on the right side of his face and headaches in the preceding 6 months. Those symptoms were associated with the end of endodontic treatment of teeth 14 and 16. Periapical X-rays, including of teeth 14 and 16, showed the presence of root canal filling with extrusion of endodontic obturation material beyond the apices of tooth 14. In the case of tooth 16, a completely filled palatal canal and incompletely filled buccal canals were found. There was also an irregular dimness at the upper edge of the X-ray image. Panoramic radiography and computed tomography demonstrated a foreign body in the right sinus. Sinus exploration was performed via a surgical procedure conducted using topical anesthesia. The root apices of tooth 14 were resected, and foreign substance was removed. The practitioner did not correctly recognize a complication that occurred during endodontic treatment, which resulted in extrusion of endodontic material beyond the root apices of tooth 14. This case emphasizes the potential impact that an involved maxillary sinus may have on endodontic therapy. Detailed diagnostic identification based on the medical interview, physical and histopathological examinations, and diagnostic imaging allowed rapid surgical intervention and

* Corresponding author. Department of Conservative Dentistry with Endodontics, Medical University of Silesia, Plac Akademicki 17, 41-902 Bytom, Poland.
E-mail address: martatanasiewicz@sum.edu.pl (M. Tanasiewicz).

http://dx.doi.org/10.1016/j.jds.2013.02.033

prevented local and general complications. It is important to realize that the range of the periapical X-ray projection is not always sufficient.

Introduction

Foreign bodies found in the maxillary sinus include tooth roots, burs, dental impression material, root-filling materials, dental implants, and needles.[1] In most cases, these materials gain entry via oroantral communication. Extruded material that remains in place forms an oroantral fistula. In some less-common cases, materials gain access to the sinuses via a tooth socket, via the pulp chamber of a tooth, or during an operation near the antrum.[1,2] A complication following the root canal therapy occurs as the result of overinstrumentation and extrusion of endodontic obturation materials.[3–5] Although some objects remain asymptomatic, others result in chronic sinusitis because of invasion by highly virulent bacteria from the oral cavity into the sinus,[1] as systemic and local conditions of patients differ in each case.[6] Orbital pain and headaches have been found to result from pain caused by local compression of obturation material in many cases.[2] It is possible for small foreign materials to spontaneously be expelled, but in most cases, they require removal.[6] Sometimes the foreign body can move some distance in the space of the maxillary sinus from the place of origin, and the smallest pieces may be transported by the cilia of the epithelium lining the maxillary sinus, contained in the mucus fluid against the forces of gravity, up to the nasal wall of the sinus, and out into the nose via the ostium. Small foreign bodies may be silently inhaled, especially during sleep. If inhaled in this way, there is a real danger of occurrence of pneumonia or lung abscesses.[7]

The purpose of this paper was to present an unusual case of a large foreign body of endodontic origin (root-filling material) removed from the maxillary sinus.

Case report

A 45-year-old generally healthy male patient reported to the Department of Conservative Dentistry with Endodontics, Medical University of Silesia, because of orbital and buccal pain on the right side of the face and headaches in the preceding 6 months. The symptoms were associated with the end of endodontic treatment of teeth 14 and 16. Periapical X-rays, including of teeth 14 and 16, showed the presence of root-canal filling with extrusion of endodontic obturation material beyond the apices of tooth 14. In the case of tooth 16 a completely filled palatal canal and incompletely filled buccal canals were found. There was also an irregular dimness at the upper edge of the X-ray image, which suggested an artefact that appeared during the X-ray preparation (Fig. 1). Panoramic radiography revealed an irregular, radiodense foreign body in the right maxillary sinus. A foreign body with irregular borders was observed to have spread to the maxillary sinus wall away from the apical region of the involved tooth 14 (Fig. 2). Computed tomography (CT) in the frontal plane and three-dimensional reconstruction CT in the lateral plane demonstrated a foreign body in the right sinus (two pieces; Figs. 3 and 4). Subsequently, the patient was adequately informed about the results of the examination, potential complications, and the need for additional surgical treatment. Maxillary sinus exploration was performed via a surgical procedure conducted using topical anesthesia in the Department of Dental Surgery, Medical University of Silesia. The root apices of tooth 14 (filled using paste without gutta-percha points) were resected, and the foreign substance was removed through fenestration (1.0 cm × 1.0 cm) at the frontal wall of the sinus and similarly in the area of the maxillary sinus (Figs. 5–7). In order to obtain an accurate clinical diagnosis of the state of the sinus maxillaris, a sample of mucosa was taken for histopathological examination, which later showed sinusitis chronica. The sinus was irrigated with a saline solution. The wound was then cleaned, and the flap was sutured into its original position (Fig. 8). A postoperative panoramic radiograph was taken

Figure 1 X-ray projection, including teeth 14 and 16.

Figure 2 Panoramic radiograph revealing a radiodense, irregular foreign body in the right maxillary sinus.

Please cite this article in press as: Tanasiewicz M, et al., Foreign body of endodontic origin in the maxillary sinus, Journal of Dental Sciences (2013), http://dx.doi.org/10.1016/j.jds.2013.02.033