Fifty-four Wooden Toothpicks in the Nasal Cavity -A Case Report-

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Introduction

Foreign bodies in the nasal cavity are not common in adults, moreover multiple foreign bodies are extremely rare especially in adults. To our knowledge, there has been no case report of toothpick foreign bodies in the nasal cavity in adult. We report an adult case with fifty-four toothpicks in the nasal cavity.

Case Report

A 26-year-old man, who was in prison, visited our clinic complaining of left nasal discharge and severe headache for the last 11 months. Nasal endoscopy revealed multiple toothpicks with massive bloody purulent granulation tissue in his left nasal cavity. Computed tomography (CT) demonstrated low-density areas in his left nasal cavity, maxillary and ethmoid sinuses without bone destruction (Figure 1). Totally forty-eight wooden toothpicks with 2.25 mm in diameter and 65.5 mm in length were removed from his left nasal cavity at our clinic (Figure 2). Furthermore, another six toothpicks came out when he blew his nose at prison 10 days later. Now 16 months have passed since the treatment, his nasal conditions are normal endoscopically.

Discussion

Nasal foreign bodies are usually diagnosed and treated by otolaryngologists without much effort or trouble. They are more common in children than in adults because children are more likely to put anything into their nose by themselves or by other children. Common nasal foreign bodies in Japan are toys, including plastic bullets used for an air gun, beads, pieces of tissue paper, buttons, plastic toys components, etc. Sometimes, a long time has passed until we, otolaryngologist, see such patients because a foreign body in the nasal cavity does not show characteristic manifestations.

Insertion of foreign bodies is a phenomenon seen not only in small

children and mentally ill persons but also in prisoners who sometimes attempt to temporarily escape justice. It is reported that the rate of hospitalization specifically for the diagnostic entity of foreign body insertion into the gastrointestinal tract was 23 times as large for male prisoners as for male nonprisoners and 290 times as large for female prisoners as for female nonprisoners (1). It is also reported that some prisoners knew that the hospital was more benign environment than the prison, and that if they swallowed foreign bodies and complained of abdominal pain, they would generally be transferred to the hospital for observation (2). In the present case, although we could not obtain his real intention, he might try to break out of prison. We should always keep it in mind that prisoners may have very rare foreign bodies and their related signs and symptoms that may not let us suspect the presence of foreign bodies.

Toothpick-related organic injuries have been reported in the internal organs, such as eyeball, middle ear, extremities and trunk (3). The incidence of toothpick-related injuries was estimated at 3.6 per 100,000 population per year in the United States. Most of ingested foreign bodies usually pass through the gastrointestinal tract uneventfully, however, in toothpick foreign body cases, septic, cardiovascular, pleural, or soft-tissue complications were reported as causes of toothpick-related deaths in the literatures. To avoid these severe complications, we must try to remove the foreign body with adequate facilities and instruments. If necessary, sedation and general anesthesia should be provided.

In the present case, there were as many as fifty-four toothpicks in his left nasal cavity. As the volume of a toothpick that he put into his nasal cavity is approximately 260 mm^3 ($= (1.125 \text{ mm})^2 \times \pi \times 66.5 \text{ mm}$), the total volume of fifty-four toothpicks should be approximately 14040 mm^3 . It is reported that the average of nasal cavity volume in normal Japanese is $7000 \pm 2400 \text{ mm}^3$ (4). Therefore, his nasal cavity might be filled up and abnormally expanded with fifty-four toothpicks and granulation, thus causing severe sinusitis and headache. In fact, his left nasal discharge and headache were improved after toothpicks were removed from his nasal cavity. If they had remained in his nasal cavity for longer time, he might have suffered from more severe complications as mentioned above.

Nasal foreign bodies are usually diagnosed by nasal inspection or by endoscopy. However, since a foreign body in the nasal cavity does not necessarily demonstrate typical signs, CT should be performed to evaluate the spatial relationship between foreign bodies and surrounding organs and to differentiate them from malignancy. A fine-cut CT with axial and coronal images enables us to detect small radioluculent and radiopaque foreign bodies. It provides excellent resolution of the surrounding structures and precisely delineates paranasal sinus, orbital and/or intracranial involvement. However CT is limited in a sense that wood is not adequately distinguished from other soft tissues. Therefore, CT does not always rule out the presence of a wooden foreign body. In the present case, CT performed on the patient did not identify residual six toothpicks in his nasal cavity.

If CT is negative, but a wooden foreign body is suspected, magnetic resonance imaging (MRI) should be performed. MRI showed the retained wooden foreign bodies to be hypointense to skeletal muscle on both T1- and T2-weighted sequences (5). However, MRI should not be performed initially in a patient suspected of harboring a foreign body, since a metallic foreign body may be present and result in a severe or fatal injury if the metal reacts to the magnet of the MRI. Initial CT or even plain film effectively delineates a metallic object. Foreign bodies that are located within the sphenoid sinus and closely approximate the carotid artery may require angiography to rule out vascular injury.

References

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Legend

Figure 1

Coronary CT scan, examined on October 2nd 2002, shows soft-tissue density corresponding to left maxillary (*) and ethmoid (☆) sinuses without bone destruction.

Figure 2

Photograph shows forty-eight toothpicks extracted from the patient's left nasal cavity.