Case Report / Olgu Sunumu

An unusual foreign body in frontal sinus: silicone tube

Frontal sinüste nadir bir yabancı cisim: Silikon tüp

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Foreign bodies in paranasal sinuses are very rare and more than half of them are encountered in maxillary sinus. Most of the foreign bodies are associated with maxillofacial trauma. Foreign body in the frontal sinus is even a rarer condition. Foreign bodies usually present with chronic symptoms and complications due to the delayed diagnosis. In this article, we report an unusual case of mucocele resulting from silicone nasolacrimal duct tube in right frontal sinus which was left or forgotten in nasal cavity after external dacryocystorhinostomy operation. The patient was treated surgically and her symptoms resolved after surgery.

Key Words: Foreign body; frontal sinus; silicon.

Paranazal sinüslerde yabancı cisimler oldukça nadirdir ve yarısından çoğu maksiller sinüste görülür. Yabancı cisimlerin birçoğu maksillofasiyal travma ile ilişkilidir. Frontal sinüste yabancı cisim daha da nadir bir durumdur. Yabancı cisimler genellikle geç tanıya bağlı olarak kronik semptomlar ve komplikasyonlar ile seyreder. Bu yazıda, eksternal dakriosistorinostomi ameliyatı sonrası nazal boşlukta bırakılan veya unutulan silikon nazolakrimal tüpe bağlı gelişen sağ frontal sinüs mukosel olgusu sunuldu. Hasta cerrahi olarak tedavi edildi ve cerrahi sonrasında semptomları iyileşti.

Anahtar Sözcükler: Yabancı cisim; frontal sinüs; silikon.

Foreign bodies in the paranasal sinuses are not common. Most foreign bodies are seen in the maxillary and frontal sinuses[1,2] because these sinuses are more exposed to maxillofacial trauma. Location of a foreign body in the frontal sinus is an extremely rare event.[3-5] Foreign bodies in the frontal sinuses are generally listed as resulting from traffic accidents.[3-6] Foreign bodies may present with chronic symptoms due to delayed diagnosis. Early removal of foreign bodies in these patients prevents frontal sinusitis and possible complications. We present an unusual case of foreign body in the right frontal sinus which was found incidentally during an operation for frontal sinus mucocele. The foreign body was a silicone nasolacrimal duct tube. We thought that the silicone tube probably migrated from the right nasal cavity to the right frontal sinus after an

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Figure 1. *Preoperative coronal computed tomography of the patient shows mucocele in right frontal sinus.*

external dacryocystorhinostomy (DCR) operation. The patient was treated surgically.

CASE REPORT

A 46-year-old woman was referred to our department from the neurology clinic with a history of severe headache in the frontal region for nearly four months' duration because of a suspicious mass in the frontal sinuses. She also complained of right-sided epiphora for three years, with no other visual or nasal symptoms. She had a history of external DCR operations at another medical center three years ago on the left side and twice on the right side (18 months and six months before), but her right-sided epiphora did not resolve after surgery. After the last operation she suffered from gradually increasing frontal headache. She also had diabetes mellitus for 15 years. The rest of her medical history was unremarkable.

On admission, her vital signs and laboratory findings were within normal limits. Physical examination revealed bilateral scars at the lateral sides of the nose. There was no tenderness over the frontal sinus. In addition to magnetic resonance imaging (MRI) which was performed at the neurology clinic we performed computed tomography (CT) scans of the paranasal sinuses. Computed tomography revealed mucocele formation in the right frontal sinus with no indication of a foreign body (Figure 1). Surgery was performed under general anesthesia via Lynch incision (Figure 2). During the procedure we observed a large mucocele which blocked the right frontal sinus and found a silicone nasolacrimal tube, which we removed (Figure 3). After surgery the patient stated that she did not remember if the silicone tube was removed or not

Figure 2. *Intraoperative view of the silicone tube in right frontal sinus.*

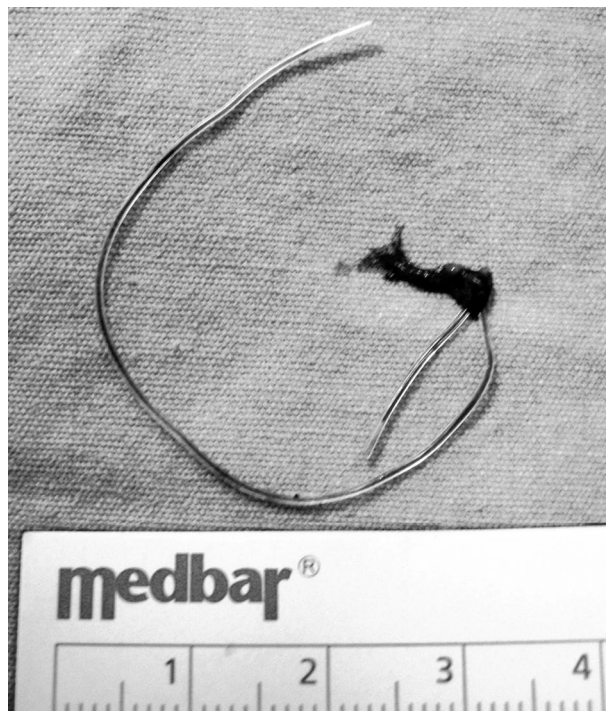

Figure 3. *Silicone tube that was removed from right frontal sinus.*

after the last operation. Her headache resolved completely after surgery. She did well and was discharged on the third postoperative day with no recurrence seen during one-year follow-up.

DISCUSSION

Most foreign bodies in the paranasal sinuses (70%) are associated with maxillofacial trauma, while 30% occur after oral surgery procedures.[2,3] More than 50% of foreign bodies in the paranasal sinuses are located in the maxillary sinus.[1,2] Although rare, foreign bodies can be found in other paranasal sinuses.[1,4,5,7,8] Roots of teeth and fillings, glass fragments, metal fragments, knife blades, splinters of wood, pieces of cotton or gauze, bullets, and pens have been reported as foreign bodies in paranasal sinuses.[3-11]

Foreign bodies in the frontal sinus may be present for weeks or years, with chronic sinusitis or its possible complications. Frontal headache can be the only symptom. If the diagnosis and treatment of these patients is delayed, they may develop severe headache caused by obstruction of the nasofrontal duct and recurrent infection of the sinus.[3,4,6,9,10] Obstruction of the sinus orifice and changes in the mucosal function caused by sinus foreign bodies may induce chronic mucosal inflammation or infection.[12] Mucocele, sinusitis, osteomyelitis, thrombophlebitis of the frontal lobe, focal epilepsy, meningitis, and abscess are also possible complications.[3,4,6,8] Therefore, sinus foreign bodies should be removed immediately to prevent these late complications.

Computed tomography and MRI are useful in the diagnosis of foreign bodies and assessing the condition of mucosa and possible complications.[3,4] However non radio-opaque foreign bodies may often go unnoticed in imaging modalities.

External or transnasal endoscopic sinus surgery approaches can both be used to remove foreign bodies in the frontal sinus. External approaches allow direct visualization inside of sinus and removal of all foreign bodies but take more time to heal and result in scar formation on the face.[4] Endoscopic sinus surgery is the first choice in treating foreign bodies because it is minimally invasive and results in a smaller surgical wound,[1,7,12,13] but the surgeon may not reach all foreign bodies with this approach. We preferred an external approach via Lynch incision due to mucocele formation.

In our patient, the alteration of mucociliary function and obstruction of frontal sinus drainage pathways may have contributed to the consequent mucocele. Since we found no similar case reported in the literature we did not consider the possibility of a silicone tube in the frontal sinus. This case made us understand that neglected foreign bodies in the nasal cavity may migrate into, and present as, foreign bodies in the paranasal sinuses. Therefore, we should consider the possibility of a forgotten or unfound foreign body when patients who underwent DCR operation present with paranasal sinus symptoms.

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