Nasal Septal Abscess as a Complication of COVID-19 Nasal Swab Test: A Case Report

Reza Pourmohammadi1, MD; Leila Asadpour2, MD
1Department of Ophthalmology, Darab Hospital, Shiraz University of Medical Sciences, Shiraz, Iran; 2Department of Otorhinolaryngology, Darab Hospital, Shiraz University of Medical Sciences, Shiraz, Iran

Correspondence:
Leila Asadpour, MD;
No.7, Zohreh Alley, 22-Bahman St.,
Postal code: 74819-14965, Darab, Iran
Tel/Fax: +98 31 37294005
Email: Leilaasadpour35@gmail.com
Received: 06 April 2021
Revised: 08 July 2021
Accepted: 28 September 2021

Abstract
Nasal swab tests are widely used to screen for coronavirus disease 2019 (COVID-19). Pain, discomfort, and the urge to sneeze are the most common complications of this screening method. We report a case of a 55-year-old female patient with beta-thalassemia major suffering from a nasal septal abscess (NSA) as a complication of a COVID-19 nasal swab test. Following the test, the patient only had mild nasal congestion. But three days later, her clinical condition deteriorated, and she developed fever, and her level of consciousness decreased to lethargy and drowsiness. Physical examinations revealed a bilateral nasal abscess. She underwent surgical intervention and the abscess was removed. For the first time in Iran, a case of NSA after a COVID-19 nasal swab test is reported. It is strongly recommended to exercise caution while performing nasal swab tests, especially in the elderly and patients at risk of bleeding or hemoglobinopathy.


Keywords ● COVID-19 ● Abscess ● Thalassemia

Introduction
Coronaviruses are a large family of viruses that range from the common cold virus to infectious agents such as severe acute respiratory syndrome (SARS).1 In late 2019, a novel SARS coronavirus 2 (SARS-CoV-2) was identified in Wuhan (Hubei, China) that triggered a global health crisis.2 In early 2020, after the death toll from SARS-CoV-2 infection, exceeded 1,000 people, the World Health Organization (WHO) officially labeled the associated disease as coronavirus disease 2019 (COVID-19).3 The virus is believed to infect both humans and animals. The most common clinical manifestations of COVID-19 are fever, fatigue, dry cough, myalgia, shortness of breath, and gastrointestinal complications such as diarrhea and vomiting.4 Various methods have been used to diagnose COVID-19. Chest computed tomography (CT) has been used to identify affected patients with pulmonary involvement, and more recently, to identify lung lesions related to COVID-19. Laboratory techniques have been widely used to diagnose asymptomatic COVID-19 patients or carriers. Antibody testing and direct sampling from the nasopharyngeal mucosa, to obtain a specimen from nasal mucosa, are the most common COVID-19 screening techniques.5 Pain, discomfort, and the urge to sneeze or cough are the most common complications of nasal swabs. To date, no serious complications related to the COVID-19 sampling nasal swab test have been recorded.6 We herein report a female patient...
Nasal septal abscess following nasal swab

with the diagnosis of a nasal septal abscess (NSA) after nasal swab testing for COVID-19.

Case Presentation

In 2020, a 55-year-old Iranian woman was referred to our medical center at Darab Hospital (Darab, Iran) with complaints of malaise, body aches, and dry cough. The patient was single, worked as a housekeeper, and had a middle socio-economic status. In terms of medical history, she had chronic anemia and was treated for thalassemia major, otherwise, she had no other specific health issues. Her medication history included weekly blood transfusion and maintenance treatment with Desferrioxamine (Ronak Daru, Iran). In terms of family history, her brother died of thalassemia major about 50 years ago at the age of five. Initial physical examinations showed that the patient was pale, and her vital signs were abnormal. Her heart rate was 115 beats/min, respiratory rate 22 breaths/min, blood pressure 135/88 mmHg, oral body temperature 37.6 °C, and capillary oxygen saturation 95%. Physical examination findings of the neck, heart, lungs, abdomen, and limbs were unremarkable. A chest CT scan was performed indicating bilateral diffuse patchy infiltration suggesting SARS-CoV-2 infection. Laboratory results showed anemia (hemoglobin: 6.5 mg/dL) and leukocytosis (white blood cell: 15,300 mg/dL). The result of the COVID-19 nasal swab test upon admission was negative. However, due to high suspicion of COVID-19 and the presence of anemia and hemoglobinopathy, she was transferred to an isolation room in the COVID-19 section of the emergency department. Ceftriaxone 250 mg (Exir Pharmaceutical Co., Iran) and interferon 1/100,000 (Iran Hormone Pharmaceutical Co., Iran) were injected at the site of the abscess under general anesthesia. A 1.5 cm incision was made on the caudal septum and almost 10 cc of purulent material was removed. Necrosis of nasal cartilages was observed requiring the removal of necrotized tissue and cartilage. The abscess site was then washed carefully using normal saline 0.9%. A small Penrose drain was inserted and fixed with a single nylon suture. Quilting sutures were performed using Vicryl 4-0. Bilateral internal splits and tetracycline mesh was inserted. The patient was then discharged from our medical center and prescribed Clindamycin 300 mg tablets (every eight hours), normal saline serum for a nasal wash, and tetracycline topical ointment. The mesh was removed after 48 hours, the drain after 72 hours, and the splits after seven days. After two weeks, no abscesses or complications were observed (figure 2). The patient was followed up for two months during which time no further issues were reported. Written informed consent was obtained from the patients for the publication of this case report.

Discussion

A patient with thalassemia major who developed NSA after a COVID-19 nasal swab test is presented. Nowadays, nasal swab testing is commonly used to detect SARS-CoV-2, and

Five days after hospital discharge, she was referred to our otolaryngology clinic following two episodes of epistaxis. Physical examination of the nasal cavity revealed bilateral NSA (figure 1) for which immediate surgical intervention was initiated. Lidocaine 1% (Aburaihan Pharmaceutical Co., Iran) and epinephrine 1/100,000 (Iran Hormone Pharmaceutical Co., Iran) were injected at the site of the abscess before the surgical intervention.

Figure 1: Bilateral nasal septal abscess was observed before the surgical intervention.
complications are not common. However, although the procedure is relatively safe, there are some reports of complications.

In a retrospective study of 4,876 cases, Fabbris and colleagues evaluated complications from oral or nasal swab testing for SARS-CoV-2 screening. They reported that 0.16% of all cases undergone nasal swab testing required otolaryngologic assessment for complications. Moderate anterior epistaxis (n=3), broken and impacted swabs in the nasal cavity (n=2), NSA (n=1), and severe anterior and posterior bleeding from an arterial point of the olfactory area (n=1) were observed among the study population. In another study, as a rare complication, Mughal and colleagues reported a case of premature engagement of a viral swab breakpoint, resulting in impaction in the nasal cavity. Föh and colleagues conducted a systematic review of 11,476 swab procedures and reported only 3 (0.026%) adverse events, namely the break of a nasal swab by triggering the swab’s breakpoint mechanism, severe epistaxis needing medical help, and cerebrospinal fluid leak requiring endoscopic surgical repair. Koskinen and others retrospectively screened 643,284 cases for complications after COVID-19 nasal swab testing. They reported eight cases with complications immediately after sampling, namely nasal bleeds (n=4) and broken swabs (n=4). The reported frequency of complications requiring treatment was 1.24 per 100,000 performed COVID-19 tests. Despite the low number, they emphasized the importance of the correct implementation of sampling techniques to avoid complications.

As a rare complication of the nasal swab test, we report a case of NSA in a patient with thalassemia major. We believe that this is a rare but highly possible complication in cases with baseline hematologic diseases, and the insertion of a nasal swab was associated with injuries to the nasal mucosa. Some previous studies have reported intracranial hemorrhage and hematoma in patients with beta-thalassemia major. Some cases of splenic and liver abscesses in patients with thalassemia major, as a secondary infection, have also been reported. Abshirini and colleagues also reported a case of a patient with thalassemia major diagnosed with idiopathic NSA without any history of trauma. They recommended further research on a possible association between NSA and thalassemia major.

**Conclusion**

For the first time in Iran, a case of NSA as a complication of a COVID-19 nasal swab test is reported. NSA is treated as an emergency in otolaryngology and intracranial infections are life-threatening. It is strongly recommended to exercise caution while performing nasal swab tests, especially in the case of the elderly and patients at risk of bleeding or hemoglobinopathy.

**Acknowledgment**

We would like to thank the Medical Records Department of Darab Hospital and Dr. A. Rafiee-Zadeh for providing the patient information. We also express our gratitude to the patient for her cooperation.

**Conflict of Interest:** None declared.

**Author’s Contribution**

RP contributed to the conception and design of the work, drafting the work, LA contributed to design of the work, revising the work critically for important intellectual content, All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

**References**


Nasal septal abscess following nasal swab