

Complications in the nasal swab COVID-19 test: case reports

Complicações em testes para COVID-19 com swab nasal: relatos de caso

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RESUMO: Introdução: Atualmente, estamos enfrentando uma pandemia causada pela síndrome respiratória aguda grave coronavírus 2 (SARS-CoV-2) que é um vírus de RNA de uma única cadeia pertencente à família de coronavírus. O método mais utilizado para confirmar o diagnóstico da infecção pelo SARSCoV-2 é através de testes moleculares usando rRT-PCR (reações em cadeia de transcrição reversa em tempo real polimerase) para detectar o RNA viral. A maneira usual de colher amostras virais é através de cotonetes nasofaríngeos. Uma das formas efetivas de controlar a transmissão dessa doença é o diagnóstico precoce e isolamento dos pacientes infectados. Nesse relato abordaremos dois casos de complicações com swab nasal na coleta de rRT-PCR para COVID-19, atendidos em um pronto socorro de otorrinolaringologia. Relato de caso: O primeiro foi de uma paciente que teve a haste do cotonete quebrada em sua fossa nasal esquerda, necessitando de remoção do corpo estranho com por nasoesndoscopia. Enquanto o segundo foi de uma paciente que apresentou epistaxe grave devido trauma do cotonete em esporão no septo nasal esquerdo, necessitando de abordagem em centro cirúrgico. Conclusão: É importante ressaltar que mesmo sujeito a complicações possivelmente graves, a realização de testes RT-PCR com cotonete nasal é o padrão ouro no diagnóstico de COVID-19. É muito importante advertir que o profissional treinado ao suspeitar de algum acidente durante o exame deve, precocemente, solicitar avaliação do especialista competente para abordagem adequada.

Palavras-chave: Complicações; Epistaxe; Swab nasofaríngeo; SARS-COV-2.

ABSTRACT: Introduction: Currently, we are facing a pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), a single-stranded RNA virus belonging to the coronavirus family. The most common method to confirm the diagnosis of SARSCoV-2 infection is molecular testing using rRT-PCR (real-time reverse transcription polymerase chain reaction) to detect viral RNA. The usual way to collect viral samples is through nasopharyngeal swabs. One of the effective ways to control the transmission of this disease is the early diagnosis and isolation of infected patients. In this report, we will approach two cases of complications with nasal swabs in the collection of the rRT-PCR for COVID-19, treated in an otorhinolaryngology emergency service. Case Report: The first case was a patient who had a broken swab in her left nasal cavity, requiring removal of the foreign body through a nasal endoscopy. The second was a patient who had severe epistaxis due to trauma caused by the swab in the left nasal septum, requiring an approach in the surgery center. Conclusion: It is important to highlight that, despite the risk of potentially serious complications, performing RT-PCR tests with a nasal swab is the gold standard in the diagnosis of COVID-19. It is important to emphasize that a trained professional who suspects there was an accident during examination should request a timely evaluation from a competent specialist for an appropriate and timely management.

Keywords: Complications; Epistaxis; Nasopharyngeal swab; SARS-CoV-2

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INTRODUCTION

Coronaviruses are viral pathogens that cause various manifestations of respiratory disease in humans, from common colds to possibly fatal infections, such as severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV). Currently, we are facing a pandemic caused by the SARS-CoV-2, a single-stranded RNA virus belonging to the coronavirus family. It is believed that the pandemic started in Wuhan, China, in late 2019, and has spread around the world ever since¹. For the diagnosis of this disease, in addition to a high clinical suspicion based on the most common symptoms, which are fever, cough, shortness of breath and loss of taste and smell, we can use laboratory tests that analyze samples of the respiratory tract² through the rRT-PCR test. Initial tests can result in rapid detection and effective isolation, limiting the transmission and spread of the disease³.

The virus responsible for the COVID-19 disease is the SARS-CoV-2. It predominantly affects the respiratory epithelium, which extends from the nose to the smallest respiratory units, the alveoli; the highest viral load is usually found in the nasopharynx⁴. The most common method to confirm the diagnosis of SARSCoV-2 infection is molecular testing using rRT-PCR to detect viral RNA. The usual way to collect these samples is through nasopharyngeal swabs of the respiratory epithelium in the nasopharynx⁵. In this report, we will address two cases of complications with the nasal swab in the collection of rRT-PCR for COVID-19 testing in an Otorhinolaryngology Emergency Room at the

Hospital das Clínicas da Universidade Federal de Goiás, which is the only public otorhinolaryngology emergency service in the state of Goiás.

CASE REPORT

The first case is a 45-year-old female patient who presented to the otorhinolaryngology emergency department with a complaint of a foreign body in the left nostril after having a nasal swab COVID-19 test 4 days earlier. The test was part of a population screening carried out on the city where the patient lived and was collected by a biomedical doctor with complete higher education.

She reported that the exam was painful and, after the swab was removed, she started to complain about a foreign body sensation in the left nasal cavity. The health professional did not inform the patient about the probability of a broken shaft and did not refer her for examination of the nasal cavity. The patient did not report any other otorhinolaryngological complaints, comorbidities, or previous nasal surgeries.

Examination showed no visible foreign body in the anterior rhinoscopy. Then, a nasal endoscopy was performed under topical anesthesia, in the outpatient clinic, using a 4mm rigid endoscope 0 degree. The exam showed a foreign body compatible with a fragment of the swab shaft impacted between the posterior part of the left nasal cavity and the rhinopharynx (Figure 1). The foreign body was then removed through the endonasal route, using an alligator forceps, with no difficulties or intercurrents (Figure 2).

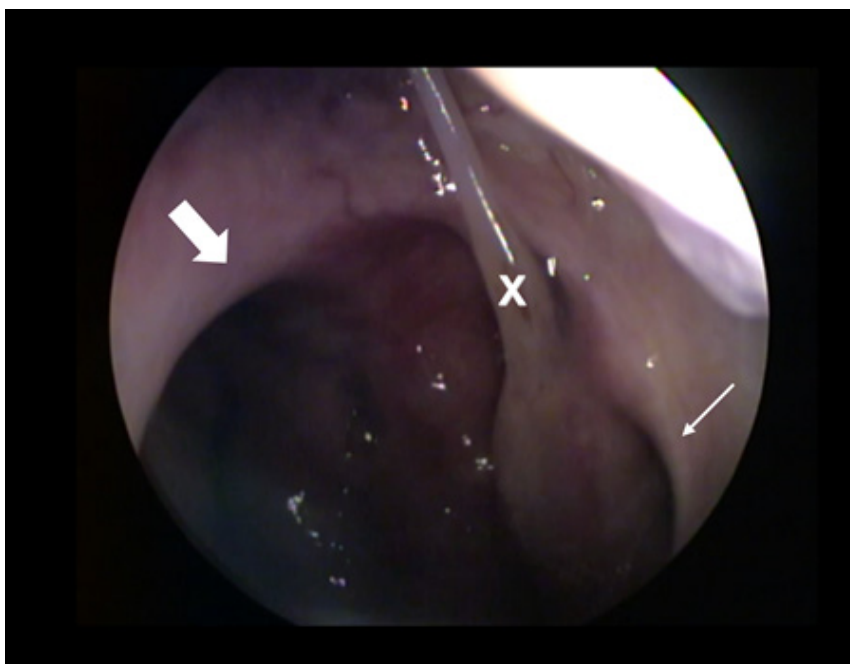


Figure 1. Large arrow: Choanae in the left nasal cavity. X: Swab fragment in the posterior part of the left nasal cavity and in the rhinopharynx. Thin arrow: Pharyngeal ostium of the left auditory tube.

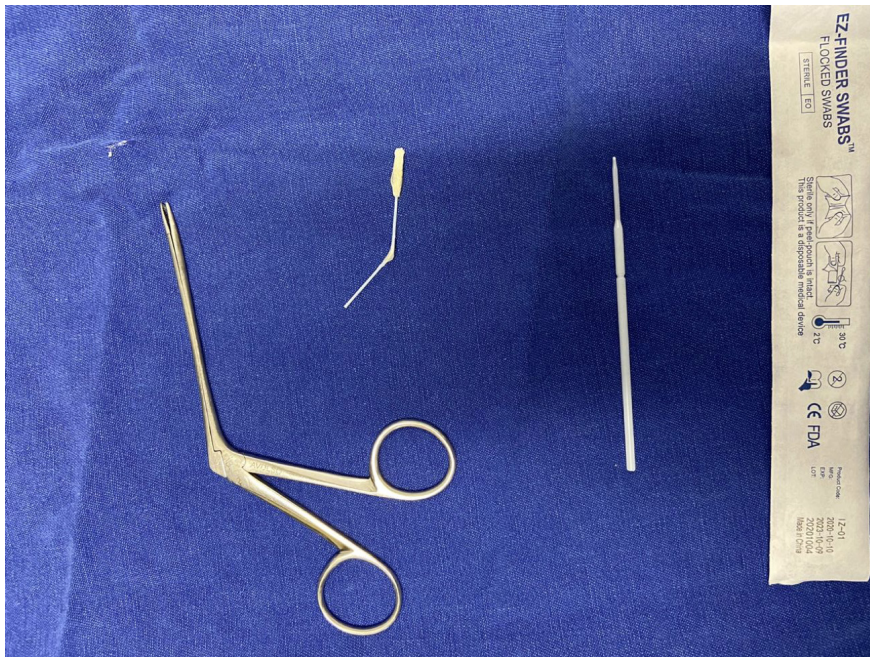


Figure 2. Fragment removed from the left nasal cavity with an alligator forceps.

The second case is a 43-year-old female patient, a teacher, who presented to the Otorhinolaryngology Emergency Department with active epistaxis with large volume bleeding in the left nasal cavity. She mentioned that the epistaxis had started 5 days after having a nasal swab COVID-19 test at the school where she worked. At the time of the test, she had severe pain and epistaxis, but the bleeding was self-limited. Over the days, the patient had episodes of recurrence of epistaxis, which became more intense and non-limited. This motivated the search for the emergency service. She denied systemic arterial hypertension, smoking, alcohol consumption and use of illicit drugs.

The exams performed on admission showed hemoglobin of 10.31 and hematocrit of 31%. Rigid nasal endoscopy was performed and showed active bleeding in the left nasal cavity, with a bleeding point that could not be

visualized due to septal deviation. Bleeding ceased after the insertion of swabs with vasoconstrictors and a hemostatic foam (Gelfoam).

Five days after the first evaluation, the patient returned to the emergency department with active large volume bleeding and in hypovolemic shock. She had blood pressure of 80x50mmHg, hemoglobin of 7.24 and hematocrit of 23%. Left nasal packing, hemodynamic stabilization, and transfusion of 2 red cell concentrates were performed. Then, the patient was taken to the Surgical Center for nasal endoscopy. After a septoplasty, a deep laceration was identified in the posterior nasal septum, in an area associated with the axilla of the left middle turbinate (S-point), which was supposedly caused by the swab (Figure 3). The bleeding was controlled with cauterization. The patient remained in outpatient follow-up, without new episodes of epistaxis.

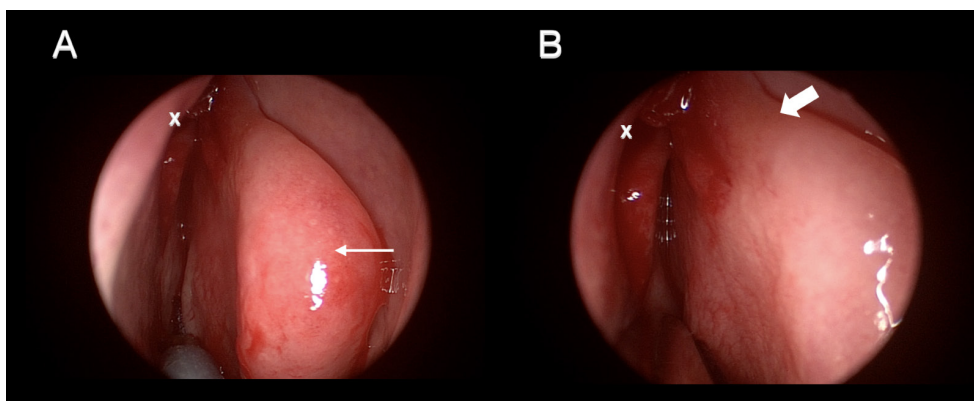


Figure 3. A: Left nasal cavity. Thin arrow: Head of left middle turbinate. X: Laceration in the posterior nasal septum, near the axilla of the left middle turbinate (S-point). B: Large Arrow: axilla of the left middle turbinate. X: Laceration in the posterior nasal septum, near the axilla of the left middle turbinate (S-point).

DISCUSSION

Despite being considered a low complexity test that can be performed in places with simple structure, there are some reports of rare serious complications related to nasal swab tests. Cases of cerebrospinal fluid leak and breaking of the swab shaft inside the nasal cavity have already been reported in the literature^{6,7}. In this sense, some reports of complications in the collection of samples for the rRT-PCR were associated with factors such as uncooperative patients and anatomical changes in the nasal cavity. There is a case report of a 70-year-old male patient who was hospitalized for post-operative care after a hip pinning surgery and needed to get a COVID-19 test due to flu symptoms during hospitalization. This patient had signs of dementia and was uncooperative during the exam, which caused the swab to break inside the nasal cavity. The swab was visualized with a flexible nasal endoscopy and removed using a Tilley forceps⁶.

Another example was a rare complication in a 40-year-old woman, who, after nasal swab testing for COVID-19, developed unilateral rhinorrhea, metallic taste, headache, neck stiffness and photophobia. Physical examination revealed clear rhinorrhea from the right side. Flexible nasopharyngoscopy revealed a mass in the right anterior middle meatus, but did not identify the source of the fluid. The nasal drainage tested positive for β 2-transferrin. Imaging tests identified a 1.8 cm encephalocele extending through the right ethmoid fovea into the middle meatus. The main hypothesis is that this cerebrospinal fluid leak occurred as a result of direct trauma of the swab to the nasal mucosa, due to an important septal deviation that bent the path of the shaft⁷. As reported in our second case, anatomical changes in the nasal cavity are important factors for potentially serious accidents during sample collection.

It is important to emphasize that a trained professional who suspects there was an accident during examination should request a timely evaluation from a competent specialist for an appropriate management. In this sense, there is a report of a 99-year-old man who had a nasal COVID-19 test and, during collection, the trained

and experienced professional noticed that the distal part of the swab was missing and was certain that the material was intact before the exam. The patient denied foreign body sensation and any other symptoms. Imaging exams did not show any alterations. Rhinoscopy and oroscopy showed no alterations. Even so, he was referred to the otorhinolaryngologist and the presence of a foreign body in the posterior nasal region was evidenced through a nasal endoscopy. The foreign body was wedged under the inferior turbinate and was removed with an alligator forceps, with no complications⁸. This case demonstrates an appropriate conduct of the health professional when there is a suspected complication, unlike our first case, in which the patient was not instructed about the probable fracture of the shaft in the nasal cavity.

It is important to highlight that, despite the risk of potentially serious complications, performing RT-PCR tests with a nasal swab is the gold standard in the diagnosis of COVID-19⁹. However, measures to minimize the risks during the exam should be discussed, especially for patients with anatomical alterations in the nasal cavity. An assessment of nasal septum deviation and nasal obstruction in the interview before the exam or even with direct rhinoscopy can guide the professional to use the swab only in the side that is not obstructed, avoiding trauma. Another alternative for patients with alterations in both nasal cavities would be to collect the material in the oropharynx instead of in the rhinopharynx, despite of the slightly lower accuracy of the exam¹⁰.

CONCLUSION

The rRT-PCR nasal swab test for COVID-19 is considered the gold standard for the diagnosis of the disease. Knowing this, measures to minimize the risks during the exam should be discussed, especially for patients with anatomical alterations in the nasal cavity. When there is any suspected complication, the patient should be promptly referred to the otorhinolaryngologist for immediate intervention.

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