



Editorial

DOI: 10.36959/605/546

A Nasopharyngeal Swab Specimen: How to Perform?

Bayram Şahin, MD^{1*} and Hande Gürbüz Aytuluk, MD²

¹Department of Otorhinolaryngology & Head and Neck Surgery, Kocaeli Health Sciences University, Derince Training and Research Hospital, Kocaeli, Turkey

²Department of Anesthesiology and Reanimation, Kocaeli Health Sciences University, Derince Training and Research Hospital, Kocaeli, Turkey



The diagnosis of COVID-19 is essential for detecting and isolating the active and asymptomatic cases to direct the treatment, and for filiation, and thereby to control the pandemic. The accurate diagnosis of COVID-19 involves collecting the correct specimen with the proper method. In a study involving 1,014 patients, while 88% of patients had positive chest computerized tomography scans, only 59% of them had positive polymerase chain reaction (PCR) results [1]. Additionally, it was also reported that although severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) ribonucleic acid (RNA) was detected in 63% of nasopharyngeal swabs, only 32% of oropharyngeal swabs were positive [2]. After then, the World Health Organization has recommended collecting upper respiratory specimens with nasopharyngeal swabs [3].

Nasopharyngeal swab specimens are easy to collect; however, an evident COVID-19 infection can be missed for several reasons, including incorrect timing and improper method of obtaining a sample [4]. Therefore, testing specimens repeatedly and from multiple sites in patients who are strongly suspected with COVID-19 infection according to clinical and radiological findings is recommended [2,4,5]. This situation shows a close relationship with the expertise and training of the medical professional who is performing the procedure. During the COVID-19 outbreak, most of the medical staff have been assigned from various departments to other wards which they are unfamiliar, to ensure personnel support. Nevertheless, the physicians, except for otolaryngologists who collect nasopharyngeal swab, may not have sufficient information about nasal anatomy. Thus, numerous illustrations and videos have been suggested to help non-otolaryngologist physicians [6].

During sample obtaining, personal protective equipment such as N95, PFF2 or masks with a higher level of protection, eye protection or face shield, long-sleeved gowns, and gloves should be used [7]. To our practice, the easiest way to obtain a sample is to insert the swab into the nasal cavity and gently direct it to nasopharynx from below the inferior turbinate along nasal floor (**Figure 1**). This technique has already been used by otolaryngologists during some procedures such as nasal endoscopy, nasal packing and nasogastric tube inser-

tion. Also, slightly tilting the patient's head back makes the nasal passage more accessible. Asking from which nostril the patient can breathe better and obtaining the sample from that nasal cavity will help to perform the process easier too. There are no absolute contraindications for taking specimens with nasopharyngeal swabs.

Recently, anosmia has been described as a frequent symptom of COVID-19. Post-viral infection olfactory loss is a well-known symptom, usually resolving within a few days, while the mean duration of COVID-19 related anosmia has been reported as nine days [8]. COVID-19 is an infection primarily manifesting respiratory system; however, neurologic component of the disease has already been described [9]. By following these findings, the reason for anosmia can be related to the affinity of the virus to the olfactory epithelium rich for olfactory nerve endings. Accordingly, if the nasopharyngeal swab is negative for SARS-CoV-2 RNA in clinically suspected patients with anosmia, as an option, the following specimen can be obtained from olfactory area and superior turbinate.

Authors' Contributions

All the authors contributed equally.

Sources of Funding

No financial supporter of this study.

Conflicts of Interest

The authors declare that they have no conflict of interest.

***Corresponding author:** Dr. Bayram Şahin, Department of Otorhinolaryngology & Head and Neck Surgery, Kocaeli Health Sciences University, Derince Training and Research Hospital, İbni Sina Mah, Lojman Sok, 41090, Derince/Kocaeli, Turkey, Tel: (+90)-262-317-80-00, Fax: (+90)-262-233-46-41

Accepted: November 23, 2020

Published online: November 25, 2020

Citation: Şahin B, Aytuluk HG (2020) A Nasopharyngeal Swab Specimen: How to Perform?. J Head Neck Surg 2(1):92-93



Figure 1: The schematic view of obtaining of a swab specimen from both nasopharynx and olfactory area.

References

1. Ai T, Yang Z, Hou H, et al. (2020) Correlation of chest CT and RT-PCR testing in coronavirus disease 2019 (COVID-19) in China: A report of 1014 cases. *Radiology* 296: E32-E40.
2. Wang W, Xu Y, Gao R, et al. (2020) Detection of SARS-CoV-2 in different types of clinical specimens. *JAMA* 323: 1843-1844.
3. World Health Organization (2020) Laboratory testing for coronavirus disease 2019 (COVID-19) in suspected human cases: Interim guidance.
4. Loeffelholz MJ, Tang YW (2020) Laboratory diagnosis of emerging human coronavirus infections - the state of the art. *Emerg Microbes Infect* 9: 747-756.
5. Hornuss D, Laubner K, Monasterio C, et al. (2020) COVID-19 associated pneumonia despite repeatedly negative PCR-analysis from oropharyngeal swabs. *Dtsch Med Wochenschr* 145: 844-849.
6. Karligkotis A, Arosio A, Castelnovo P (2020) How to obtain a nasopharyngeal swab specimen. *N Engl J Med* 383: e14.
7. Lavinsky J, Kosugi EM, Baptistella E, et al. (2020) An update on COVID-19 for the otorhinolaryngologist- a brazilian association of otolaryngology and cervicofacial surgery (ABORL-CCF) position statement. *Braz J Otorhinolaryngol* 86: 273-280.
8. Klopfenstein T, Kadiane-Oussou NJ, Toko L, et al. (2020) Features of anosmia in COVID-19. *Med Mal Infect* 50: 436-439.
9. Ellul MA, Benjamin L, Singh B, et al. (2020) Neurological associations of COVID-19. *Lancet Neurol* 19: 767-783.

DOI: 10.36959/605/546

Copyright: © 2020 Şahin B, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

