

**CASE REPORT**

# The hidden dangers of SARS-CoV-2 testing ...

Catarina J. A. Correia<sup>1</sup>  | Nuno Almeida<sup>1,2</sup>  | Lagchar Barreto<sup>1</sup> |  
Pedro N. Figueiredo<sup>1,2</sup>

<sup>1</sup>Gastroenterology Department, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal

<sup>2</sup>Faculty of Medicine, University of Coimbra, Coimbra, Portugal

**Correspondence**

Catarina J. A. Correia, Gastroenterology Department, Centro Hospitalar e Universitário de Coimbra, Praceta R. Prof. Mota Pinto, Coimbra 3004-561, Portugal.  
Email: catarina-jac@hotmail.com

**Abstract**

A foreign body can be intentionally or accidentally ingested. Timing of endoscopy relies on foreign body shape and size, location in gastrointestinal tract, patient's clinical conditions, occurrence of symptoms or onset of complications. In this short case, we present a middle age woman, who accidentally swallowed a portion of a nasopharyngeal swab half-broken during a diagnostic test for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Upper gastrointestinal endoscopy was promptly performed to prevent the swab from crossing the pylorus leading to serious complications and, therefore, risk of surgical intervention. The broken nasopharyngeal swab was detected in the gastric body, and immediately removed with a foreign body forceps. Our hospital performs many nasopharyngeal swabs and to our knowledge, this is only the second reported swab ingestion during SARS-CoV-2 test.

**KEYWORDS**

endoscopia, endoscopy/SARS-CoV-2, SARS-CoV-2, testing, teste

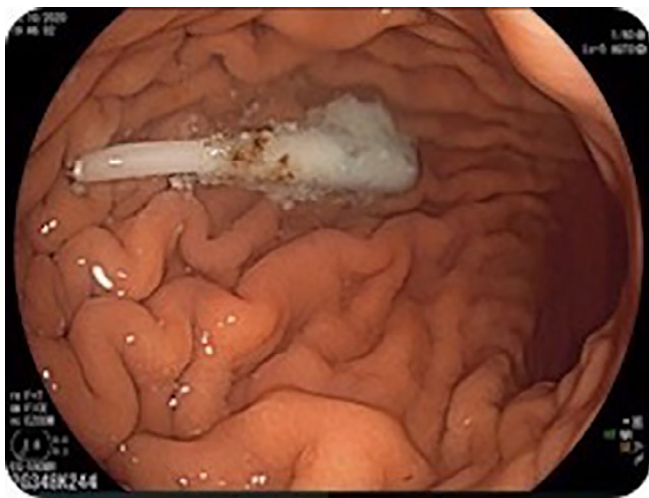
## 1 | INTRODUCTION

In healthy adults, foreign body ingestion is a potentially dangerous clinical problem with an estimated annual incidence of 13/10 000 individuals.<sup>1</sup> A variety of indigestible foreign bodies are found in clinics and in 80% to 90%, it pass spontaneously with no need for intervention, while 10% to 20% require endoscopic removal.<sup>2,3</sup> Surgical approach is necessary if endoscopy fails or for the treatment of complications such as perforation. The endoscopy timing relies on object shape and size, location in gastrointestinal (GI) tract, patient's clinical conditions, occurrence of symptoms (such as choking, dysphagia, odynophagia, or wheezing), or onset of complications. In this report, we present a gastric endoscopic removal of a broken nasopharyngeal swab (NPS) accidentally ingested during a diagnostic test for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

## 2 | CASE REPORT

A middle age woman was admitted to the emergency department of her local hospital on October 2020 due to kidney disease worsening in context of kidney neoplastic, undergoing palliative care. To be hospitalized, it was mandatory a screening for SARS-CoV-2. The screening was done using a lab-developed reverse transcriptase polymerase chain reaction (RT-PCR) assay to detect SARS-CoV-2 from a nasopharyngeal swab. The kit including a plastic swab was approved by hospital regulation and the collection of nasopharyngeal samples was carried out according to the protocol.<sup>4</sup>

During the procedure, the NPS was accidentally half-broken, getting retained in the left nostril. Since the hospital of origin did not have otorhinolaryngology skills, during the night period, the patient was transferred to our hospital (tertiary care medical center).



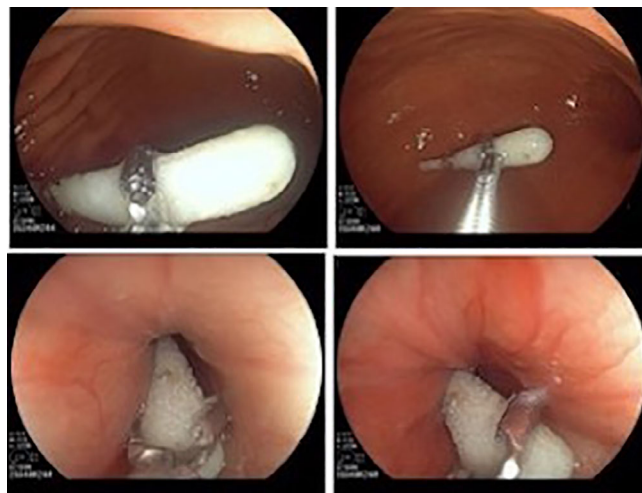
**FIGURE 1** Upper GI endoscopy revealed in the gastric body part of the broken swab

Upon arrival, the patient only revealed nasal discomfort with no respiratory distress, dysphagia, or odynophagia. Due to the nasal location patient was first observed by otorhinolaryngology. When performing rhinoscopy, part of the swab was visualized, although when trying to manipulate, it was no longer visible. In the evaluation of the oropharynx, nasopharynx, and larynx, it was not possible to identify any foreign body, assuming the possibility of ingestion, passing into the digestive tract. Thus, the emergency gastroenterology team was contacted to perform upper gastrointestinal endoscopy. According to the guidelines, given the foreign body length and the probability of having a sharp pointed side, we decided to perform promptly an upper GI endoscopy. After explaining to the patient, the potential risks of the procedure, including the inability to retrieve the foreign body and the possibility of complications, we obtained his informed consent and set up the endoscopy room with all personal protective equipment for SARS-CoV-2. During endoscopy with a standard endoscope the broken NPS was identified in the gastric body (shown in Figure 1). Since the swab was not very long (<5 cm), it was decided to use a foreign body forceps for removal. We firmly grasped this foreign body by the fabric-covered edge (shown in Figure 2).

The procedure was carried out with no complications and she was asymptomatic with no respiratory distress, dysphagia, odynophagia, or abdominal pain. Afterwards, the patient was discharged to the origin hospital.

### 3 | DISCUSSION

To our knowledge, this is the second report of a NPS ingestion, in particular during a SARS-CoV-2 screening.



**FIGURE 2** Foreign body grasped and being extracted

Although, this is the first case who report a NPS broken in the nasal cavity, followed by ingestion. The unique reported case in literature, describe a NPS broken in the mouth and then swallowed.<sup>5</sup>

Testing for COVID-19 involves inserting a 15 cm-long swab into the nasal cavity and/or in the mouth and gently rotating it for 15 seconds, to make sure that enough material is collected. The swabbing could be done by two different ways, performed in the mouth and then in the nasal cavity or only in both sides of the nose. In this case, swabbing was only done in nasal cavity. Technically, swab should be inserted gently along the nasal septum, just above the floor of the nasal passage, to the nasopharynx, until a small resistance is felt. However, if resistance is felt to the tampon, we should step back and try to reinsert it at a different angle, closer to the floor of the nasal canal, leaving the swab in place for several seconds to absorb secretions and then slowly removing the swab by twisting it. The swab is then inserted into a proper container and sent to the laboratory for analysis.

In the case described, swabbing was carried out by the nursing staff in another hospital, so we are unable to establish whether the rupture of the NPS was attributable to a defective kit or to excessive pressure during the test by the operator.

Published studies indicate that between 52% and 97% of foreign body ingestion in the general population are accidental.<sup>6</sup> Foreign body ingestions more frequently occur in pediatric population, adults with psychiatric disorders, prisoners, or edentulous individuals. The vast majority of them (80%–90%) pass through the GI tract spontaneously and without complications.<sup>7</sup>

Foreign body ingestion can be classified in blunt objects (eg, coin, button, batteries, magnets, and small

toys), sharp pointed objects (eg, needle, bone, glass pieces, and razor blade), long objects (eg, cord, toothbrush, pen, and cutlery), or packed illegal drugs. Long objects (>5 cm) more commonly remain in the stomach, but approximately 15% of cases could pass through the pylorus stopping in the duodenal flexure, due to its angulation. However, only in 4% of those cases, the objects are able to pass forward, reaching the intestine.<sup>7</sup>

Endoscopy has become the choice as a method to handle most of the ingested foreign bodies with a success rate from 83% to 99%.<sup>8</sup> The timing of endoscopic intervention as well as the choice of retrieval devices are essential for gastroenterologists to avoid complications and reduce morbidity. As recommended by consensus statement, the first step is the patient diagnostic evaluation, by focusing on medical history or comorbidity, ingestion time, kind of foreign body, and clinical symptoms.<sup>2</sup> The next step is the foreign body anatomic localization with imaging studies. Biplanar X-rays of neck/chest/abdomen could provide information about dimension and site of radiopaque object. Barium swallow is not recommended for the risk of aspiration and to avoid worsening endoscopic visualization. If perforation or major complications (abscess, mediastinitis, or fistulas) are suspected, CT scan is indicated. In patients with strong suspicion of nonradiopaque foreign body ingestion and without evidence of complications (eg, no evidence of perforation or respiratory distress), endoscopic evaluation is recommended, like in the case presented. Standard or therapeutic endoscopes are preferable, although small-caliber endoscopes may be successfully used.<sup>9</sup> Several retrieval devices as rat tooth or alligator forceps, polypectomy snares or baskets, have been used. Before endoscopy, grasping an object which is similar to the ingested foreign body may increase the chance of success. An overtube or a latex rubber hood could be used to prevent mucosal injuring during retrieval and an accidental slippage of the object into the trachea.<sup>7</sup> Earlier intervention is associated with a lower risk of complications.<sup>6</sup> It was essential to intervene promptly to prevent the half-broken swab from crossing the pylorus leading to serious complications and, therefore, risk of surgical intervention.

The current report highlights a rare, accidental foreign body ingestion that should be managed conservatively in appropriate setting and expertise.

In COVID-era, we must be very careful when carrying out NPS tests, because it could be a potentially dangerous foreign body to be accidentally ingested.

#### CONFLICT OF INTEREST

The authors declare no conflict of interest.

#### AUTHOR CONTRIBUTIONS

Catarina J. A. Correia, Nuno Almeida, Lagchar Barreto, Pedro N. Figueiredo contributed equally to the writing of this paper.

#### ETHICS STATEMENT

All procedures performed were in accordance with the ethical standards of the institutional and/or national research committee. Ethical approval and informed consent were obtained.

#### ORCID

Catarina J. A. Correia  <https://orcid.org/0000-0001-5609-5262>

Nuno Almeida  <https://orcid.org/0000-0003-0499-5888>

#### REFERENCES

1. Longstreth GF, Longstreth KJ, Yao JF. Esophageal food impaction: Epidemiology and therapy. A retrospective, observational study. *Gastrointest Endosc.* 2001;53:193–198.
2. Birk M, Bauerfeind P, Deprez PH, et al. Removal of foreign bodies in the upper gastrointestinal tract in adults: European Society of Gastrointestinal Endoscopy (ESGE) Clinical Guideline. *Endoscopy.* 2016;48:489–496.
3. ASGE Standards of Practice Committee, Ikenberry SO, Jue TL, et al. Management of ingested foreign bodies and food impactions. *Gastrointest Endosc.* 2011;73:1085–1091.
4. Karligkiotis A, Arosio A, Castelnuovo P. How to obtain a nasopharyngeal swab specimen. *N Engl J Med.* 2020;383:e14.
5. De Luca L, Maltoni S. Is naso-pharyngeal swab always safe for SARS-CoV-2 testing? An unusual, accidental foreign body swallowing. *Clin J Gastroenterol.* 2021;14(1):44–47.
6. Chaves DM, Ishioka S, Félix VN, Sakai P, Gama-Rodrigues JJ. Removal of a foreign body from the upper gastrointestinal tract with a flexible endoscope: A prospective study. *Endoscopy.* 2004;36:887–892.
7. Webb WA. Management of foreign bodies of the upper gastrointestinal tract: Update. *Gastrointest Endosc.* 1995;41:39–51.
8. Katsinelos P, Kountouras J, Paroutoglou G, Zavos C, Mimidis K, Chatzimavroudis G. Endoscopic techniques and management of foreign body ingestion and food bolus impaction in the upper gastrointestinal tract: A retrospective analysis of 139 cases. *J Clin Gastroenterol* 2006;40:784–789.
9. Chu KM, Choi HK, Tuen HH, Law SY, Branicki FJ, Wong J. A prospective randomized trial comparing the use of flexible gastroscopy versus bronchoscopy in the management of foreign body ingestion. *Gastrointest Endosc.* 1998;47:23–27.

**How to cite this article:** Correia CJA, Almeida N, Barreto L, Figueiredo PN. The hidden dangers of SARS-CoV-2 testing .... *Adv Dig Med.* 2022;1–3. <https://doi.org/10.1002/aid2.13307>