

**SARS-CoV-2 identified by universal preoperative COVID-19 testing prior to emergency surgery:**

**Case of an asymptomatic pediatric patient pediatric patient requiring emergency surgery**

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## **Key Clinical Message**

This case highlights the importance of identifying SARS-CoV-2 preoperatively, irrespective of symptoms, as symptoms may be mild, especially in children compared to adults, and asymptomatic carriers can have high viral loads and be infectious.

## **Introduction**

The COVID-19 pandemic has involved delay of non-urgent healthcare encounters to prevent transmission and preserve PPE. Availability of this equipment and testing capacity may vary between patients and healthcare systems. This case highlights the importance of identifying SARS-CoV-2-carrying patients, irrespective of symptoms, prior to procedures. As children have milder symptoms compared to adults and asymptomatic carriers can have high viral loads and be infectious,<sup>1</sup> progressive policies to identify SARS-CoV-2 should be considered.

## **Case Report**

An otherwise healthy 13-month-old male presented to the emergency department after a coughing/choking episode with subsequent emesis and intolerance to food and secretions. There was no preceding fever, cough, shortness of breath, sore throat, or other upper respiratory infection symptoms. Chest radiograph demonstrated a circular radio-opaque foreign body in the cervical esophagus consistent with a coin. SARS-CoV-2 testing was performed after policy instituted testing for all preoperative patients. SARS-CoV-2 of a nasopharyngeal swab specimen was detected using the Xpert®Xpress SARS-CoV-2 assay (Cepheid/Danaher, Sunnyvale, CA).

In the operating room all personnel donned personal protective equipment (PPE) consisting of N95 and/or powered air purifying respirator, eye protection, standard surgical gown, and gloves.

Rapid sequence induction of general anesthesia was performed to limit virus aerosolization. Rigid esophagoscopy with a straight intubating laryngoscope identified a penny in the cervical esophagus. This was removed with optical alligator forceps without complication. No suctioning was performed. The patient was discharged with a plan for 2-week quarantine at home. No healthcare workers present during the case developed symptoms within the following two weeks.

Prior to SARS-CoV-2 testing the patient's family stated the child had no sick contacts. After initial testing the care team discovered that the patient's mother had anosmia and dysgeusia that had resolved two weeks prior. The father had fever 3 weeks prior. Neither had any other symptoms, positive contacts, travel history, nor SARS-CoV-2 testing.

Interestingly, as the rapid test described above detected only one nucleic acid target was (i.e., N2 but not E gene) near the end of the amplification cycles of the assay (at 40.5 with the maximum number of amplifications cycles at 45), a second assay, Abbott RealTime SARS-CoV-2 (Abbott Molecular, Des Plaines, IL), was performed and was negative.

## **Discussion**

COVID-19 is less common in children, with 1.7% of US cases being diagnosed in those under 18 years.<sup>2</sup> This may lead centers to avoid testing in order to be good stewards of testing supplies. Due to potential risk of transmission in aerosol generating procedures (AGP), however, providers should not be lulled into complacency. This is especially true in otolaryngology where AGPs involving sites of high viral load are common. Pre-operative testing allows for appropriate PPE rather than overuse of limited supplies of N95s and PPE.

In our patient, testing would have been deferred if criteria were limited to current or recent COVID-19-compatible symptoms. This case also highlights the importance of anosmia as an

identifying symptom and thorough history taking. Pertinently, viral shedding can occur in SARS-CoV-2-positive individuals for 37 days, although transmission potential of prolonged shedding remains unclear.<sup>3</sup>

While false positive results due to cross-contamination can occur, this is unlikely as this was the only positive test in our laboratory over a two-day period. In this case, testing suggests the presence of a low-level true positive. This likely explains why the second COVID-19 test, which is also a sensitive, 40-cycle assay, was negative. These results are consistent with an asymptomatic patient and parental symptoms occurring 2-3 weeks prior.

Viral transmission potential in this particular case is unknown. Although few patients report gastrointestinal symptoms, the risk of transmission from instrumentation of the gastrointestinal tract is also unknown.<sup>4</sup> The risk of aerosolization, however, is high during intubation and extubation,<sup>5</sup> suggesting an argument for preoperative testing of all procedures under general anesthesia.

The experience in China indicates that 3.8% of healthcare personnel treating COVID-19 positive patients eventually contracted the virus.<sup>3</sup> At this time, it is unknown how many healthcare workers have been infected by patients with low viral loads. Further work into mechanism and route of infection, as well as whether the virus can be transmitted via asymptomatic children, is likely to be elucidated in the future. We advocate for caution and consideration for pre-operative testing of all pediatric patients prior to surgery, particularly those patients with possible COVID-19 exposure identified through rigorous screening of symptoms in close contacts.

## **Conclusion**

The identification of COVID-19 in pediatric patients, regardless of history or symptoms, is paramount in the choice of proper PPE and the protection of healthcare workers in the operating room.

## **Author Contribution**

Samuel D. Racette MD – Manuscript drafting, design, intellectual content

Jennifer M. Lavin MD – Revising, intellectual content

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Xiotian T. Zheng – Revising, intellectual content

K. Susan Haverkamp – Revisions, intellectual content

Laura H. Swibel Rosenthal – Conception, design, drafting, intellectual content

## **Conflict of Interest/Disclosures**

The authors have no conflicts of interest, nothing to disclose.

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