CASE REPORT

CHALLENGES ENCOUNTERED IN MANAGING NON COVID-19 ILLNESS DURING A PANDEMIC

*Supraja Chandrasekar
**Sindhu Malvel
*Gurudutt AV

Abstract: *The SARS-CoV-2 pandemic has impacted health care delivery in an unprecedent manner. The uprising COVID-19 trend in India, combined with the information explosion and resource constraints have contributed to uncertainty in managing otherwise straight forward emergencies. Here, we report challenges faced whilst managing a child with a common illness in the COVID-19 period. Modification of current practices and developing universal precautions against COVID-19 is needed to overcome challenges in managing non COVID-19 patients during this pandemic.*

Keywords: *SARS-CoV-2, Foreign body aspiration, Respiratory distress, Bronchoscopy.*

The SARS-CoV-2 pandemic has impacted the world especially clinicians in unprecedented ways.[1] India sees a rising trend, with over 130,000 positive cases as on May 2020.[2] Compelling data on high infectivity especially to health care workers (HCW), asymptomatic carriage and limitations of testing, coupled with constraints of resource such as personal protective equipment (PPE) have led to fear amongst Indian HCWs affecting health care delivery.[1] Here, we report challenges faced whilst managing a child with a common illness in the COVID era.

Case report

A 2 year-old boy from rural Karnataka presented with two-week history of cough, preceded by transient fever. His cough worsened 2 days prior to presentation with breathlessness and recurring fever. He was referred as severe acute respiratory infection (SARI) suspicious of COVID-19. On arrival, child was febrile, severely distressed and hypoxic with poor air entry on left side. He required emergency intubation using full personnal protective equipment (PPE). Chest radiograph (CxR) showed mediastinal shift to left side with reduced volume of left hemithorax with collapse/consolidation of entire left lung (Fig.1). Ventilator settings were PEEP-6, PIP-20, rate-30 with 100% FiO_2. High total counts 28,820 cells/ mm^3 and CRP 5.6 mg/dL were noted. Piperacillin tazobactam and vancomycin were started. Computerized tomography (CT) chest showed collapse of left lung with obstruction due to suspected mucus plugging of left main bronchus (LMB) and patchy consolidation on the right lower zone (Fig.2). Parents denied any history of choking suggestive of foreign body (FB) aspiration. RT PCR for COVID-19 was done and it took 36 hours to get the result which was negative. Positioning, suctioning, mucolytics and ventilatory strategies failed to show improvement and hence rigid bronchoscopy was planned.

Initially the surgeon and anesthetist were reluctant to intervene, as he was COVID-19 suspect and high risk of aerosol generation during the procedure. However, as child was severely hypoxic, emergency flexible bronchoscopy was performed in the pediatric intensive care unit, confirming mucoid obstruction in left main bronchus which could not be extracted. Emergency rigid bronchoscopy was then performed in the operating theatre.

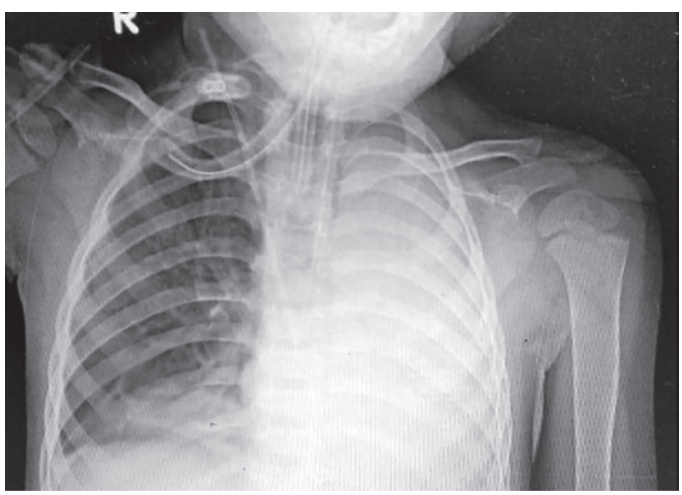

Fig.1. Left lung collapse on chest radiograph

* Consultant Pediatric Intensivist
** Junior Consultant Pediatric Intensivist,
People Tree Hospitals,
Bengaluru.
email:drschandrasekar@yahoo.com

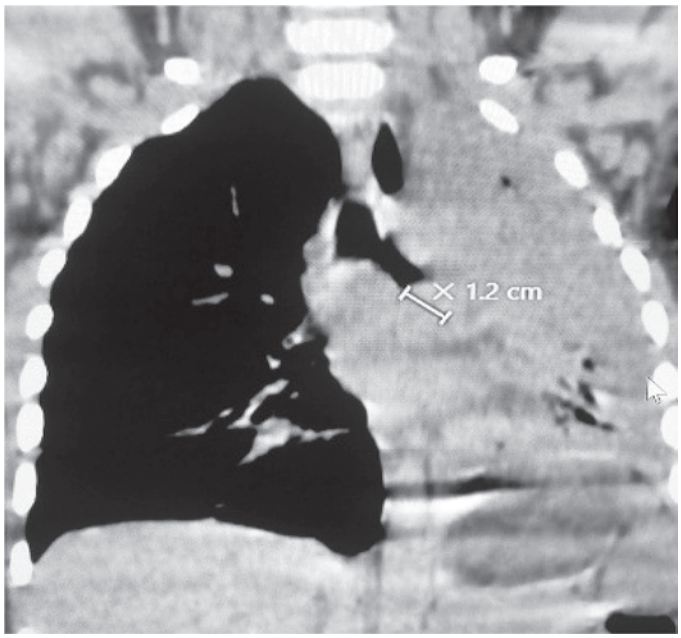

Fig.2. CT showing obstruction at LMB with lung collapse

Fig.3. Extracted foreign body areca nut

Three pieces of areca nut were removed from the left main stem bronchus and saturations dramatically improved (Fig.3). Child was extubated the next day and was discharged in 3 days.

Discussion

Foreign body (FB) aspiration is a life-threatening emergency that peaks in toddlers with male preponderance.[3] Vegetable FBs notably peanut, lodged in right main bronchus is typical.[3,4,5] Cough, respiratory distress, wheezing and hypoxia are common presentations. Unilateral decreased air entry, wheeze, stridor and distress are seen.[3,4,6] Fever is associated with late presentation and leading history is absent in 40% cases both of which were observed in our case.[4] During this pandemic era as shown in the Chinese series, cough and fever were commonest symptoms of COVID-19.[7] Coupled with hypoxia and respiratory distress, they qualify as SARI and a COVID-19 suspect according to Indian guidelines. Hence a clinical presentation which in other times would have straightaway led us to suspect FB, masqueraded as COVID-19. However, unilateral lung collapse with obstruction of LMB pointed to a different diagnosis. Typically in FB aspiration, CXR may show obstructive emphysema or unilateral collapse, mediastinal-shift, an opaque FB or even normal study.[34,5,6] CT has better sensitivity and specificity than the CXR in the evaluation of collapse and may even delineate the exact location of FB.[5] Flexible bronchoscopy is diagnostic and sometimes therapeutic for distal FBs.[3] Rigid bronchoscopy remains the gold standard which shouldn't be delayed when FB is suspected.[3,5] However, in clinical COVID-19 suspects, knowing limitations of RT PCR testing, bronchoscopies may be avoided due to high aerosolization and viral transmission, especially in OT with risk of exposure to multiple personnel.[8] Recent pediatric guidelines on modified/ newer approaches to these procedures with simulation training allow for safer practices.[1,9,10]

Conclusion

Children with non COVID health issues suffer more than the COVID-19 positive patients during this pandemic. Even the number of children who suffer from non COVID problems are more than that with COVID-19. Diagnosis and management of even common conditions like FB aspiration may get delayed or totally missed because of fear or mislabeling as COVID-19. This is an avoidable impact of current pandemic. One should have an open mind to consider non COVID causes during the evaluation of COVID-19 suspects. Following universal precautions, modified approach and simulation preparedness can overcome the risks faced by HCW during anesthesia and high aerosol generating procedures. Lesson learnt is that one should consider non COVID treatable illnesses, amongst COVID-19 suspects and evaluate and treat them skillfully.

References

1. Matava GT, Kovatsis PG, Summers JL, Castro P, Denning S, Yu J, et al. Pediatric Airway Management in COVID-19 Patients: Consensus Guidelines From the Society for Pediatric Anesthesia's Pediatric Difficult Intubation Collaborative and the Canadian Pediatric Anesthesia Society. Anesthesia and Analgesia. 2020 Jul;131(1):61-73. doi: 10.1213/ane.0000000000004872.
2. Ministry of Health and Family Welfare. Available from: https://www.mohfw.gov.in. Accessed on 25th May, 2020.
3. Salih AM, Alfaki M, Alam-Elhuda DM. Airway foreign bodies: A critical review for a common pediatric emergency. World J Emerg Med 2016;7(1):5-12. doi:10.5847/wjem.j.1920-8642.2016.01.001.
4. Parameswaran N, Das S, Biswal N. Respiratory Morbidity Following Foreign Body Aspiration Among South Indian Children: A Descriptive Study. Cureus. 2018;10(11):e3629. Published 2018 Nov 23. doi:10.7759/cureus.3629.
5. Dorterler ME, Kocaman OH, Gunendi T, Boleken ME. A single-center experience of pediatric foreign-body aspiration: A retrospective 4-year case series. Lung India. 2019;36(3):202-206. doi:10.4103/lungindia.lungindia_69_18.
6. Aslan N, Yýldýzdaþ D, Özden Ö, Yöntem A, Horoz ÖÖ, Kýlýç S. Evaluation of foreign body aspiration cases in our pediatric intensive care unit: Single-centre experience. Turk Pediatri Ars 2019; 54(1): 44–48.
7. Lu X, Zhang L, Du H, Zhang J, Li YY, Qu J, et al. SARS-CoV-2 infection in children. N Engl J Med. 2020 23;382(17):1663-1665. doi: 10.1056/NEJM2005073. Epub 2020 Mar 18.
8. Liguoro I, Pilotto C, Bonanni M, Ferrari ME, Pusiol A, Nocerino A, et al. SARS-COV-2 infection in children and newborns: a systematic review [published online ahead of print, 2020 May 18]. Eur J Pediatr. 2020;1-18. doi:10.1007/s00431-020-03684-7
9. Pollaers K, Herbert H, Vijayasekaran S. Pediatric Microlaryngoscopy and Bronchoscopy in the COVID-19 Era. JAMA Otolaryngol Head Neck Surg. Published online April 28, 2020. doi:10.1001/jamaoto.2020.1191.
10. Wang TT, Moon HS, Le A, Panchal N. Proceedings of the OMS COVID-19 Response Conference [published online ahead of print, 2020 May 11]. J Oral Maxillofac Surg 2020; S0278-2391(20)30456-0. doi:10.1016/j.joms. 2020.05.003.

CLIPPINGS

Convalescent plasma for patients suffering from COVID-19 Study done in Wuhan, China.

A multicenter, open-labelled randomized controlled trial on patients with severe or life-threatening COVID-19 was performed in Wuhan, China, enrolling 103 adult participants (Study aimed to enroll 200 but terminated early for lack of patients). The objective was to evaluate the efficacy and adverse effects of convalescent plasma therapy in severe (respiratory distress and/or hypoxemia) or life-threatening (shock, organ failure, or requiring mechanical ventilation) disease.

Convalescent plasma was obtained from persons who had recovered from COVID-19 and were more than 2 weeks out from hospital discharge. Only plasma with an IgG titer against the S protein-receptor binding domain of at least 1:640 was used, at a dose of 4 to 13 mL/kg (median infusion, 200 mL). The primary endpoint was time to clinical improvement within 28 days, defined as discharge or a reduction of 2 points on a 6-point disease severity scale. 52 patients (23 with severe and 29 with life-threatening disease) were enrolled. Clinical improvement occurred in 27 convalescent-plasma recipients (51.9%) and 22 control patients (43.1%), a nonsignificant difference. Among those with severe disease, the primary outcome occurred in 91.3% versus 68.2%, suggesting a possible benefit, but the test for interaction by disease severity was not significant. The early termination could have underpowered the study, the authors note.

This well-conducted randomized clinical trial of convalescent plasma in patients with COVID-19 suggests that this treatment is not of benefit in all patients but may have a role in some patients with severe disease. Further studies are needed to study the utility of convalescent sera .

Li L et al. Effect of convalescent plasma therapy on time to clinical improvement in patients with severe and life-threatening COVID-19: A randomized clinical trial. JAMA 2020 Jun 3; [e-pub]. (https://doi.org/10.1001/jama.2020.10044).