

May 6, 2020

## ***Careful dealing with the orthopedic surgery in COVID-19 pandemic***

**RAJU VAISHYA**

Professor and Senior Consultant Orthopaedic Surgeon  
Indraprastha Apollo Hospitals, New Delhi, INDIA

### **Other Contributors:**

**ABHISHEK VAISH**

Attending Consultant  
Department of Orthopaedic Surgery, Indraprastha Apollo Hospitals, New Delhi, INDIA

Dear Editor,

We read with interest the recently published article by Liang et al. (1) from Singapore, on the surgical consideration for the patients with COVID-19. The authors have given a detailed account of when to operate, when not operate, how to operate, and how to take care of the patients and the staff. We agree with the authors that until now there have several guidelines published on how to deal with the Orthopedic patients during the pandemic of COVID-19. Now the time has come for us to evolve the guidelines on how to deal with the patients of trauma and other musculoskeletal problems after the peak of this pandemic is over.

There are several things which have become clear and are agreed upon during this pandemic, regarding the management of orthopedic patients:

1. The conservative treatment of fractures and other orthopedic conditions must take precedence over any invasive or surgical procedures.
2. Do surgery, only if it is absolutely necessary and unavoidable.
3. If the surgery is unavoidable, then do minimal interventional surgery and that too must be performed by the most experienced surgeon, so as to make it a quick and accurate surgery.
4. The long duration and complex surgery and those involved in the production of significant Aerosol particles are to be avoided as far as possible.
5. It is the duty of the surgical team leader to ensure the safety of the patient and all the surgical team staff including the doctors, nurses, technicians, and paramedical staff, by observing safe distancing, using

adequate Personal Protective Equipment and maintaining a strict discipline throughout the treatment of their patients.

6. The patients must be discharged from the hospital, as early as possible, to avoid getting them infected.

7. Follow-up consultations and rehabilitation should be done by telemedicine, maximally.

Although the authors have given a very descriptive account of the care to be taken before, during and after the surgery, but there may be several modifications required in different types of set up, according to the availability of resources and their own problems and challenges, especially in evolving set healthcare facilities, in underdeveloped and developing countries (2). We agree that as far as possible all the surgical patients and surgical staff should have COVID-19 test, using RT-PCR technique. Only the dire emergency cases can go without it, under strict and due safety precautions. The concept of bed-side surgery of the author is a novel one, but we believe that it is fraught with challenges in resource allocation and compromises in the patient safety and therefore cannot be applied universally.

We also believe and recommend that the operating theatre complex for dealing with the COVID-19 patients must be entirely exclusive, with a separate entry and exit. Preferably, the operating theatres in this complex may be divided into two sets of theatres, and one can use the first set of theatres on day one and the other ones on day two. It would help in giving an adequate chance of disinfection and minimizing the risk of infection. It is known that Coronavirus can stay for a long time on different surfaces (3) and hence this policy would be of help.

The authors have given good practice guidelines for dealing with the COVID-19 in the orthopedic surgical practice, but these are more applicable for a resource-rich country like Singapore and the Western world, as it would add the significant increased cost of the treatment for the patients. In developing or undeveloped economies, the scenario may be quite different to adopt. Apart from the shortage of orthopedic surgeons, there is also a shortage of supply of the instruments, equipment, and consumables to use for the orthopedic surgeons. The desired mode of treatment may sometime be not possible due to these factors and many a time due to lack of finances available to the patients, as most of our patients in India are still not insured and payout of their pockets. These countries have been reeling under the shortage of healthcare workers, including orthopedic surgeons for years. Hence, if not protected adequately they stand a high chance of getting infected, which will make them invalid and force them to drop out of the team and more so infecting their family members and others (4). In India, similar to other parts of the world, several orthopedic surgeons have already developed COVID-19 infection and a few of them have already died of this disease (5), although the exact numbers are not known yet. On top of all these conundrums, we have witnessed several incidences of abuse and violence against the healthcare workers by the public especially in India, which are demoralizing and derogatory (6).

Last, but not the least, the care and safety of the staff of the surgical team are to be taken into consideration. The exhaustion of the staff members must be avoided and they are given adequate rest and shorter duty hours. Moreover, it is also known that senior people (>60 years) are more likely to acquire infection easily and of severity and hence if possible such 'seniors' are better avoided from the surgical team.

Disclaimer: e-Letters represent the opinions of the individual authors and are not copy-edited or verified by JBJS.

## References

1. Liang ZC, Chong MSY, Sim MA et al. Surgical Considerations in Patients with COVID-19: What Orthopaedic Surgeons Should Know. J Bone Joint Surg (Am). 24th April 2020; 10.2106/JBJS.20.00513.
2. Jain V, Vaishya R. COVID-19 and Orthopaedic surgeon: The Indian scenario. Tropical Doctor 2020; DOI: 10.1177/0049475520921616.
3. Nishiura H, Linton NM, Akhmetzhanov AR. Initial cluster of novel coronavirus (2019-nCoV) infections in Wuhan, China is consistent with substantial human-to-human transmission, J. Clin. Med. 2020; 9 (2); 488.
4. Mehta RM. India must act now to protect its health workers. Hindustan Times 1st April 2020.  
<https://www.hindustantimes.com/analysis/india-must-act-now-to-protect-its-health-workers/story-idWQ1uyMrnARHc3PH7W86J.html>.
5. Andhra Pradesh surgeon dies of Covid-19 in Chennai. The Times of India. 14th April 2020.  
<http://timesofindia.indiatimes.com/city/chennai/andhra-pradesh-surgeon-dies-of-covid-19-in-chennai/articleshow/75132043.cms>
6. Vaishya R, Vaish A. The plight of Health Care Workers in India during COVID-19 pandemic. BMJ. Published on 4th April 2020.  
<https://www.bmj.com/content/369/bmj.m1324/rr-4>.

Conflict of Interest: None Declared

---

## Article Author Response

29 May 2020

### *Article Author(s) to Letter Writer(s)*

Zhen Chang **Liang**<sup>1</sup>, James Hoi Po **Hui**<sup>1</sup>

<sup>1</sup>Department of Orthopaedic Surgery, National University of Singapore, Singapore

Corresponding email: [zhen\\_chang\\_liang@nuhs.edu.sg](mailto:zhen_chang_liang@nuhs.edu.sg)

We thank you for your very thoughtful comments and insightful perspectives in response to our previously published article (1). We have attempted to provide in our previous article, a comprehensive strategy incorporating pre-, intra- and post-operative considerations in the surgical management of the COVID-positive Orthopaedic patient. Whilst every effort has been made to be as all-inclusive as possible, we agree that the recommendations put forth cannot be “one-size-fits-all”, and should certainly be tailored to the local COVID-situation, taking into consideration the healthcare resources available in each community/country. It has been rightly pointed out that resources may differ across countries. In countries with scarcer healthcare resources, protective gears such as powered air-purifying respirators (PAPRs) or even negative-pressured ORs may not be as freely available. Under such circumstances, even greater caution will need to be taken to minimize aerosol-generating procedures to avoid inadvertent nosocomial infection.

In our article, we have emphasized the importance of the right-siting of patients and the rationalization of procedures. Where possible and within reasonable limits, we should attempt to perform procedures by the bedside to minimize unnecessary transfers. This should ideally be performed within negative-pressured isolation rooms to prevent inadvertent nosocomial COVID-19 spread. Again, this recommendation needs to be tailored to each country’s resources and COVID situation. Where isolation facilities are not available, the performing of bedside procedures may not be as feasible, and may even pose a safety threat to healthcare workers and patients in close vicinity.

The authors have put forth the suggestion of alternating operating rooms (ORs) for use on a daily basis to allow for adequate disinfection. Whilst plausible, we believe this not to be necessary, especially if negative-pressured ORs are available. ORs are a precious resource amid these trying times and should be

put to optimal use. If not utilized for surgeries, they can be converted into critical care units for housing COVID-positive patients (2). Studies have shown that SARS-CoV-2 (coronavirus responsible for COVID-19) is inactivated effectively by ethanol and hydrogen peroxide (3). Thorough cleaning of the OR using sodium hypochlorite with hydrogen peroxide vaporization as an added precaution has been demonstrated to effectively eliminate coronaviruses (4). Adopting these available evidence in accordance with published guidelines(5,6), a 1-2 hour turnover between cases is sufficient for adequate OR decontamination.

Lastly, we agree wholeheartedly with the authors that the protection of the surgical team and healthcare workers against COVID exposure/infection is imperative amid this pandemic. This is achieved through strict adherence to infection control protocols. Training and compliance in the proper donning and doffing of personal protection equipment (PPE) must be strictly enforced. The mental well-being and welfare of healthcare workers should also be closely looked into given the high propensity for burnout (7). As rightfully pointed out, if infected, seniors are at heightened risk of more severe disease. Where possible, any frontline contact with potentially COVID-positive patients should be minimized. The rich clinical experiences of senior staff members can instead, be tapped on to deliver unparalleled teaching for medical students and residents. Online, in the safety of their own homes, of course.

## References

1. Chang Liang Z, Ye Chong MS, Sim MA, et al. Surgical Considerations in Patients with COVID-19: What Orthopaedic Surgeons Should Know [published online ahead of print, 2020 Apr 24]. *J Bone Joint Surg Am.* 2020;10.2106/JBJS.20.00513. doi:10.2106/JBJS.20.00513
2. Mari GM, Crippa J, Casciaro F, Maggioni D. A 10-step guide to convert a surgical unit into a COVID-19 unit during the COVID-19 pandemic [published online ahead of print, 2020 Apr 27]. *Int J Surg.* 2020;78:113?114. doi:10.1016/j.ijsu.2020.04.052
3. Kratzel A, Todt D, V'kovski P, Steiner S, Gultrom M, Thao TTN, et al. Inactivation of severe acute respiratory syndrome coronavirus 2 by WHO-recommended hand rub formulations and alcohols. *Emerg Infect Dis.* 2020 Jul. <https://doi.org/10.3201/eid2607.200915>
4. Pottage T, Richardson C, Parks S, Walker JT, Bennett AM. Evaluation of hydrogen peroxide gaseous disinfection systems to decontaminate viruses. *J Hosp Infect.* 2010 Jan;74(1):55-61. Epub 2009 Nov 20
5. Ti LK, Ang LS, Foong TW, Ng BSW. What we do when a COVID-19 patient needs an operation: operating room preparation and guidance. *Can J Anaesth.* 2020 Mar 6
6. Wong J, Goh QY, Tan Z, Lie SA, Tay YC, Ng SY, Soh CR. Preparing for a COVID-19 pandemic: a review of operating room outbreak response measures in a large tertiary hospital in Singapore. *Can J Anaesth.* 2020 Mar 11
7. Santarone K, McKenney M, Elkbulli A. Preserving mental health and resilience in frontline healthcare workers during COVID-19 [published online ahead of print, 2020 Apr 15]. *Am J Emerg Med.* 2020;S0735-6757(20)30258-8. doi:10.1016/j.ajem.2020.04.030