51%, despite the 18% larger volume of the model proposed. It is worth underscoring that despite using less material, the model proposed still complies with the safety coefficient of four times the strongest force reported (51.4 N) during laryngoscopy.[4]

A wide range of tests were performed on dummies to develop the most efficient proportions of the blade parts, handle angle and camera positioning. Although of limited applicability, studies on dummies have shown excellent quality of visualization of the glottic cleft and successful intubation in 100% of cases, including difficult airway simulation scenarios as with limited mouth opening, prominent incisive teeth, and impossibility of performing cervical extension.

The low production cost is the major highlight of the video laryngoscope model. Manufacturing the blade by using a non-industrial 3D printer with PLA bought at specialized dealers has an estimated cost of R$ 20. The USB connection videoscope available in the market has its value linked to the diameter of the camera, and the price of 7 mm devices is roughly R$ 45. Totaling a cost of R$ 65, this is a negligible amount, when compared to classic video laryngoscope models available in the market.

A low-cost video laryngoscope can save lives, especially in developing countries or locations where the cost of the device is unaffordable. In the scenario of the COVID-19 pandemic, the benefit can be much expanded. However, there is a concern as to the technical aspects for inhouse development and production of these devices, especially regarding safety such as ruptures, generation of foreign bodies in airways and injury to mucosa. In this way, before using it in medical practice, studies to prove safety and effectiveness of use in humans are warranted, in addition to registration at regulating agencies of medical products, according to Anvisa RDC nº 185/2001. However, there are no norms on self-manufactured medical equipment and as to the legal and ethical implication of use. Given we aim to improve the model presented, we still have not filed for registration at Anvisa. It is worth pointing out that the estimated cost for patent and registration at this government agency is usually high and can prevent a non-profit project. Another potential hindering factor is the requirement for Best Manufacturing Practices Certificate to register medical devices at Anvisa, which is unfavorable to inhouse manufacturing on non-industrial 3D printers.[5]

The Instagram profile @medical3d.com.br and the website www.medical3d.com.br were developed to make the file with the 3D model of the video laryngoscope and step by step manufacturing available. As it is an open and collaborative platform, we believe in the implementation of improvements through the collaboration of the medical community and information acquired as of testing on humans.

Conflicts of interest

The authors declare no have conflicts of interest.

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Reorganization of obstetric anesthesia services during the nationwide COVID-19 lockdown – experience from an Indian tertiary hospital

Dear Editor,

The world is currently facing an unprecedented crisis caused by the severe acute respiratory syndrome coronavirus-2. The World Health Organization declared the novel coronavirus infection (COVID-19) a pandemic on March 11, 2020. The Government of India declared a national-wide lockdown on the 22nd March, 2020 that lasted for 2 months till 22nd May 2020. As a tertiary care hospital, we faced significant challenges during this 2-month lockdown period which we wish to share with regard to the reorganization of obstetric anesthesia services in our hospital.

The clinical characteristics of COVID-19 infection in parturients is consistent with those reported in non-pregnant adults.[1] However, many of the symptoms like fatigue, myal-

gia, tachycardia, and fever may be seen in laboring women as well, making screening difficult in parturients. Due to these considerations and the fact that COVID-19 infections can be asymptomatic,[2] we decided to mandatorily test all pregnant patients admitted in the delivery suite with real-time reverse transcriptase – polymerase chain reaction test. The test has a turnaround time of 6-8 hours, as a result of which there were a significant number of patients requiring urgent/emergency cesarean section who did not have a preoperative negative test report.

To circumvent this problem, the logistics of operating two operating theaters (OT) was discussed, following which it was decided that parturients with a negative COVID-19 report would be operated in the existing obstetric operating theater (OOT). Patients who did not have a test report available (treated as suspects) would be operated in a COVID-19 suspect OT in a different part of the hospital. COVID-19 positive parturients were transferred to a separate COVID-19 block for their management. Specific areas for donning and doffing were identified for the COVID-19 suspect OT and all healthcare personnel (HCP) were familiarized with the operating theater floor plan and standard operating procedures.

Arranging adequate manpower to run both operating theaters was another problem we faced, particularly when more and more HCP were being deployed in high dependency units and intensive care units treating COVID-19 patients in our hospital. From the existing pool of anesthesia residents and consultants, 2 separate teams were formed – one for the OOT and one for the COVID-19 suspect OT – each comprising of an anesthesia senior resident and a junior resident. The OOT had 2 teams working 12-h shifts which was the usual roster schedule in the department. The COVID-19 suspect OT had a single team which was 24-h on-call for a work week of 7 days. Following a consultant-led anesthesia care approach, separate anesthesia consultants were designated to lead the teams working in the OOT and the COVID-19 suspect OT.

The COVID-19 crisis has resulted in an unprecedented increase in the demand for personal protective equipment. Studies have shown that a significant number of HCP have been infected, with a disproportionately large number of them classified as severe or critical,[3] Strategies to minimize potential COVID-19 exposure of anesthesiologists have been recommended to limit the consumption of personal protective equipment, including use of video consultations for preanesthesia evaluation and the use of electronic devices like iPads for remote monitoring and consenting.[4] These measures, while suitable in developed countries, are expensive and impractical in low-middle income countries, where even maintaining effective social distancing in the wards is a challenge. As a uniform policy, all HCP working in the OOT were instructed to wear N-95 mask with goggles while those working in the COVID-19 suspect OT used full personal protective equipment (bodysuit with hood, shoe-covers, goggles, faceshield, and double-layered gloves in addition to the surgical gown). In order to conserve the number of personal protective equipment used, we limited the number of HCP in the COVID-19 suspect OT to the minimum required to safely run the theater.

The distribution of cases performed during the 2-month lockdown period in our hospital is described in Table 1. The total number of cesarean sections performed is lower than the case load that we usually handle. The reason for this could be a combination of redistribution of elective cesarean sections and a reduction in referrals from neighboring states due to the strict COVID-19 mandated national lockdown in India, that affected interstate transport. Of the 218 cesarean deliveries performed, 190 and 28 were performed in the OOT and COVID-19 suspect OT respectively. One hundred seventy three cesarean deliveries were performed under neuraxial block, while 45 were emergency cesarean deliveries performed under general anesthesia with endotracheal intubation. Following surgery, the patients operated in the OOT were transferred to the standard postanesthesia care unit and subsequently to the post-delivery ward, while those operated in the COVID-19 suspect OT completed their postanesthesia recovery in the theatre whilst awaiting the confirmatory COVID-19 test results. None of our parturients in the 2-month period operated in the COVID-19 suspect OT turned out positive in the immediate postoperative period. They were all transferred to the post-delivery ward and had an uneventful postoperative course. The newborns were nursed in a separate nursery and tested at 24 hours after birth. If the test was negative, the babies were reunited with the mothers in the postnatal wards. None of our HCP working in the COVID-19 suspect OT during the 2-month period developed features of COVID-19 infection that required further evaluation and testing.

Table 1 Distribution of obstetric surgeries performed in COVID suspect and obstetric operating theatre during the 2-month lockdown period.

COVID-19 suspect operating theatre	Neuraxial block	General anesthesia
Cesarean delivery		
Elective	–	–
Emergency	22	6
Laparotomy	–	2
Obstetric operating theatre		
Cesarean delivery		
Elective	19	2
Emergency	132	37
Laparotomy	–	11
Suction and evacuation	–	2
Cervical encirclage	1	–
Examination under anesthesia	1	3

We now have the rapid point-of-care Xpert Xpress SARS-CoV-2 test that can be processed on the GeneXpert platform in our hospital. With a processing time of 45 minutes, we have now increased our testing capacity to provide results faster. This has significantly reduced the number of parturients without a conclusive negative test report requiring urgent/emergency caesarean section, thereby reducing the utilization of personal protective equipment. With the test being expensive, geneXpert is currently being used only in situations where patients require immediate or time-bound surgical interventions, which most of our obstetric patients qualify for.

The undisrupted provision of obstetric anesthesia services during the COVID-19 pandemic is challenging, even for developed countries.[5] Working in a high-volume center in a

low-middle income country further poses significantly challenges. The importance of clear communication between healthcare policy officials, administrators and clinicians is crucial and cannot be over-emphasized.

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Conflicts of interest

The authors declare no conflicts of interest.

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Perspectives on Pecs I block in breast surgeries

Dear Editor,

I read the article about the clinical investigation of Pecs I block in breast augmentation surgeries, published recently, with profound interest.[1] I greatly appreciate the authors for the wonderful clinical investigation of Pecs I block in breast augmentation procedures. I wish to present my perspectives on that article which I believe would make more clarity on this topic.

The authors of this study have observed that Pecs I block was not superior to placebo in postoperative pain relief when the patients themselves participated as their own control, too. They have also concluded that the role of Pecs I block should be ''reconsidered'' in breast augmentation surgery as well as in breast cancer procedures.[1] However, I strongly believe that Pecs I (pectoral component of Pecs II) block has definitely some role to play in postoperative pain relief in breast surgeries, particularly in breast augmentation procedures. This is because of the fact that the pectoral nerves do play a role at least in the ''Myofascial'' aspect of the pain, although they do not innervate the skin and subcutaneous tissues of the breast.[2] Furthermore, Pecs I block alone would not be sufficient in breast cancer surgeries involving the lateral aspect of the breast with or without axillary dissection as it would cover mainly the medial aspect of the breast only. Hence, it is misleading to state that Pecs I block needs ''reconsideration'' in breast cancer surgeries too as the surgeries would vary between patients in both extent of the incision as well as in depth (multidimensional). We have to provide a Pecs II block (Pecs I plus pectoralis minor-serratus anterior injection), or Pecs I block plus a serratus anterior plane block (SAPB) for extensive breast surgeries involving the lateral aspect of the breast, axillary dissection. Here again, I believe that the pectoral component of Pecs II (i.e. Pecs I) would at least contribute 30% of the pain relief.

The authors have stated that this study was the first one to analyze the role of Pecs I block in breast augmentation procedures.[1] However, another study by Ekinci M et al. indeed got published in February 2019 itself which also evaluated the efficacy of Pecs I block in the same procedure.[3] Ekinci M et al. have compared 20 mL versus 30 mL of bupivacaine 0.25% with placebo and observed that both 20 mL and 30 mL groups have significantly reduced the fentanyl consumption when compared to the placebo group in contrast to the current study. Also, there was no statistically significant difference between 20 mL and 30 mL groups with regard to fentanyl consumption.[3] Nevertheless, the main difference is that Ekinci M et al.[3] have not used the same subjects as control too as used in this study which I agree as ''unique'' feature of this study.

To conclude, we have the option to choose the various interfascial plane blocks available in the last decade such as Pecs blocks, erector spinae plane block (ESPB), SAPB, etc. It should be based on the two important factors, namely the type and extent of the surgical incision, sensory coverage of the blocks. Hence, we should consider breast surgeries as ''multidimensional entity'' and choose the available interfascial plane blocks accordingly, rather than having an impulse to approach it in only two ways, i.e., to block or not to block?[4]