

## COVID-19 PANDEMIC: IMPACT ON GYNAECOLOGICAL ENDOSCOPY AT THE UNIVERSITY COLLEGE HOSPITAL IBADAN.

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### ABSTRACT

The impact of the COVID-19 pandemic on endoscopic services in a low resource economy is formidable. With the emergence of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), there has been genuine concerns about the risk of transmission during gynaecological endoscopy via the diffusion of contaminated aerosols generated from CO<sub>2</sub> leakage and smoke created by energy devices. A pragmatic step in mitigating transmission at the University College Hospital, Ibadan, resulted in the closure of the Endoscopic unit for 3 months whilst deploying increased hygienic methods coupled with social distancing. This however had its unintended consequences of delay and increased backlog of cases aside the economic losses. Developing a unit-based policy/protocol in response to any future unforeseen occurrence should take front stage in the planning and administration of the unit. Adopting global best practices and guidelines from researched evidence is not only imperative but desirable especially in the context of limited resources.

### BACKGROUND

In response to the global emergence of the Coronavirus disease (COVID-19) caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), there has been concerns over the possibility of transmission of the virus to the surgical team and other theatre staff via inhalation of aerosols during laparoscopy.<sup>1</sup> The need to ensure safety of all theatre staff became imperative with the global rising incidence, lack of vaccination and possible cure.

The COVID-19 disease which emerged from China in the last quarter of 2019 was designated a pandemic by the World Health Organization on the 11<sup>th</sup> of March 2020 and has a current distribution across 200 countries.<sup>2</sup> The rising incidence has been attributed to a large reservoir of undocumented infections leading to rapid diffusion of the disease.<sup>3</sup> Various studies have demonstrated the ability of aerosols generated during laparoscopy to transmit whole cells<sup>4,5</sup> especially with increasing pneumoperitoneum.<sup>6</sup> The risk of transmission of the SARS-CoV-2 via blood and stool is also an issue of great concern necessitating caution during endoscopy<sup>7</sup>. Furthermore, the plausibility of transmission of SARS-CoV-2 via fomite and aerosol has been documented.<sup>8</sup>

The need to protect both physician and patient became the guiding principle of the COVID-19 era resulting in the development of guidelines by various

professional bodies across the globe. The Association of Gynaecological Endoscopy Surgeons of Nigeria (AGES) opined in their guidelines that all elective gynaecological endoscopic procedures should be postponed till the end of the pandemic, due to the paucity of evidence available to advise on best practices during the pandemic.<sup>9</sup> They further suggested that emergency gynaecological procedures should be performed via open surgeries rather than laparoscopy or hysteroscopy. AGES, however, impressed the need for the deployment of full Personal Protective Equipment (PPE) and observation of all standard precautions when gynaecological endoscopy is considered. The importance of the ethical principle *Primum non nocere* (First do no harm) should be given the greatest consideration during this period of uncertainty and arguments have shifted in favor of open surgery as against minimal access surgery. This study sought to examine the impact of the COVID-19 pandemic on out-patient endoscopic services rendered to infertile women presenting to the Assisted Conception Unit of the Hospital.

### TRENDS IN GYNAECOLOGICAL ENDOSCOPY

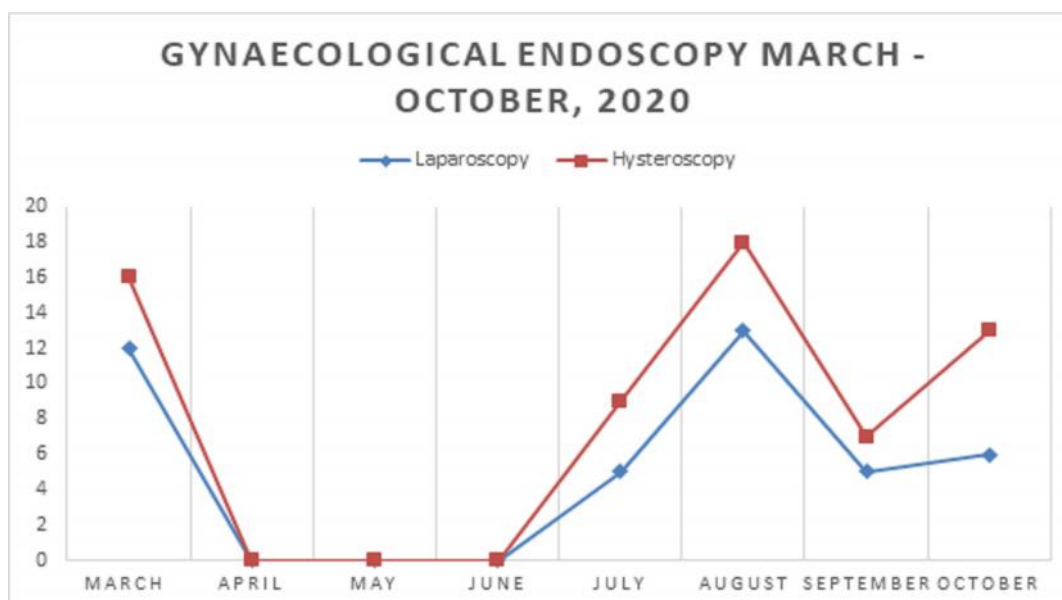
Minimal access surgery at the University College Hospital, Ibadan, began with the introduction of minilaparotomy for tubal sterilization in September, 1975<sup>10</sup>. It provided a quick and safe out-patient procedure conducted under local anesthesia. Over the

years, the unit has been transformed into a gynaecological endoscopic unit with facilities for out-patient laparoscopy and hysteroscopy. Procedures carried out include a wide range of services aimed at optimizing infertility management.

With the onset of the COVID-19 pandemic, the gynaecological endoscopic unit was shut down for 3 months beginning on the 1<sup>st</sup> of April 2020 till the 30<sup>th</sup> of June 2020. Skeletal services resumed in July 2020 and have remained so till this publication. Prior to the pandemic, an average of 24 endoscopic procedures were performed monthly with a preponderance of diagnostic laparoscopy for tubal patency evaluation.

**3. Consumables:** A shift from the use of recyclable materials to disposable ones became the norm and this extra financial burden was transferred to the patients or their insurance. This paradigm shift was imperative to safeguard the health of both patients and staff especially from the possible consequence of contamination from body fluids.

**4. Risk Assessment:** Each patient presenting for evaluation had to go through a series of epidemiological questions with risk assessment for the most common symptoms of SARS-CoV-2. This was then followed by measuring body temperature with an infra-red thermometer.



**Figure 1:** Trends in Gynaecological endoscopy, March-October 2020

## IMPACT ON GYNAECOLOGICAL ENDOSCOPY

**1. Patient Care:** The closure of the unit during the pandemic resulted in the cancellation of all scheduled endoscopic procedures. This event contributed to the current backlog of cases awaiting evaluation. In a developing country where resources may be scarce, delays resulting from prompt evaluation may contribute negatively to disease outcome and patient satisfaction.

**2. Staffing:** The COVID-19 pandemic made it imperative to train and retrain theatre staff on the use of personal protective equipment and the deployment of safety checks. The concept of physical distancing, use of face masks and staggered appointments were imbibed. Also, improved hand hygiene via frequent washing and sanitizing was made mandatory.

**5. Revenue loss:** Like in any other service providing unit, the closure of the unit and consequent gradual scale-up of services resulted in a significant loss of revenue thereby impacting negatively on planning and budgeting. The increased deployment of PPEs and other safety requirements increased the expenditure for both the patient and the unit.

## DISCUSSION

The global impact of the COVID -19 pandemic resulted in many hospitals across the world reducing both elective and non-urgent cases in favor of caring for symptomatic COVID-19 patients by redeploying staff and resources<sup>11</sup>. The situation at the out-patient gynaecological endoscopy unit of the University College Hospital, Ibadan was not different.

The unit was closed for three months while the hospital made central arrangements for emergency surgeries and procedures. The need to maintain safety for both patient and staff resulted in an increased deployment of personal protective equipment along with the enforcement of strict hygiene rules.

Minimally invasive procedures have gradually gained popularity in developing countries because of the perceived advantages of rapid recovery, less bleeding and short hospitalization. In advanced countries, it is the route of choice for most pelvic and abdominal surgeries<sup>12</sup>. However, following the COVID-19 pandemic with the attendant concerns about transmission via aerosols at surgery, there has been a temporary shift in favor of open surgery.<sup>13</sup> These SARS-CoV-2 contaminated aerosols are often generated from CO<sub>2</sub> leakage and the creation of smoke when using energy devices. Laparoscopy in particular entails the creation of CO<sub>2</sub> pneumoperitoneum resulting in an increased risk of aerosol contamination of the theatre. Various studies have demonstrated the presence of viral DNA such Hepatitis B and Human Papilloma Virus (HPV) in surgical smoke<sup>14</sup>, hence the plausibility of transmission of SARS-CoV-2. It has been suggested that at deflation after laparoscopic procedures, all ports used to allow CO<sub>2</sub> escape should be fitted with a smoke extraction device. As shown in figure 1, there has been a gradual decline in laparoscopic surgeries in favor of hysteroscopy.

Various safety recommendations have been suggested before minimal access surgery and can be summarized to include Risk assessment for SARS-CoV-2, Testing for SARS-CoV-2, Non-surgical management where applicable, Deployment of Personal Protective Equipment, Postponement of all Elective Procedures, Minimizing the generation and leakage of aerosols (low power setting and reduced activation time of electro-surgical devices) and use of Disposable instruments.<sup>15</sup> Many of these measures are cost-intensive and not readily adaptable in a low resource environment. Therefore, it was imperative to close the gynaecological endoscopy unit till such a time that it was safe to recommence a gradual scale-up of activities. This pragmatic approach ensured an equitable distribution of scarce resources, audit of patient care and improvement in safety measures aimed at preventing/ reducing the transmission of SARS-CoV-2.

## CONCLUSION

The challenges posed by the COVID-19 pandemic on health care delivery especially in a low resource setting are numerous.

The final common pathway is the ensuing delay or outright cancellation of elective surgeries especially endoscopic procedures. Taking steps to prevent transmission of SARS-CoV-2 necessitated the closure of the out-patient gynaecological endoscopy unit of the University College Hospital, Ibadan with its attendant economic consequences and a shift in favor of open surgeries where necessary. The COVID-19 pandemic, however, provided a window of opportunity to audit patient care, improve on hygienic practices and health education of both patients and theatre staff. Espousing global best practices at endoscopy is paramount and steps must be taken to decrease aerosol diffusion whilst ensuring the deployment of personal protective equipment.

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