

Narrative Review of Challenges and Considerations in Resuming Elective Gynaecology Surgery in Climate of Continuing Community Transmission of Covid-19 in a Low Resource Setting

Abdulmalik Bako^{1*}, Arabo Ibrahim Bayo² and Moayyad Ahmed Younis³

Department of Obstetrics and Gynaecology, Women's Wellness and Research Center (WWRC) Hamad Medical Corporation, PO Box 3050, Doha, Qatar

1. Abstract

Aim

The World Health Organisation declared COVID-19 a pandemic in March 2020 and since then COVID-19 infection has been reported in all parts of the world. Several Healthcare systems reduced or cancelled none emergency or urgent surgeries in order to effectively manage the pandemic. Recently, the reported incidence of new cases of COVID-19 has been reducing in some regions and some Healthcare systems are resuming elective gynaecology surgery. This narrative review explores the challenges of planning and resuming elective gynecology surgery in a climate of continuing community transmission.

Methods

A search of the literature using PubMed and EMBASE was conducted on the challenges of performing and resuming elective gynecology surgery during recovery from Covid-19 pandemic.

Results

This narrative review explored the challenges of uncertainty, testing, PPE, staff wellbeing, case scheduling and medical education during planning and resumption of gynecology surgery.

Strategies of mitigating the challenges are discussed.

Conclusions

Resuming elective gynecological procedures in a climate of continuing community transmission of COVID-19 is associated with challenges.

Continuous community education and practice of preventives measures of social distancing, regular hand hygiene and facial covering are required in order to reduce the impact of continuing community transmission on resources.

Strategies to mitigate the impact of continuous community transmission on gynaecology care, training and well-being of healthcare professionals including flexibility in the delivery of care, the adoption of surgical principles and protocols that optimize the experience of patients with the preservation of PPE and health resources should be adopted.

2. Keywords: Challenges; COVID-19; Gynecology surgery; Healthcare professionals; Moral injury; Personal protective equipment (PPE)

3. List of Abbreviations: PPE, HCP, ICU

*Corresponding author: Abdulmalik Bako, Department of Obstetrics and Gynecology, Women's Wellness and Research Center (WWRC) Hamad Medical Corporation, PO Box 3050, Doha, Qatar, Tel: +974 33266945; Fax: +974 40261423; E-mail: ABako@hamad.qa

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4. Introduction

On the 11th March, 2020 The World Health Organization (WHO) declared Coronavirus disease 2019 (COVID-19) a pandemic with cases and associated deaths reported in almost every part of the world [1]. Due to the infectivity and associated morbidity and mortality of COVID-19, several Health Systems reduced or cancelled none emergency or urgent surgeries including gynecological surgical procedures in order to reduce horizontal transmission to patients and healthcare providers, minimize surgical morbidity and mortality and preserve health resources to deal with the pandemic. However, due to stabilization of the incidence of new cases of COVID-19 infection some Health systems in Low- and Middle-Income Countries are preparing or have resumed some elective gynecological surgeries.

Continuous community transmission from asymptomatic and presymptomatic individuals will result in on-going consumption of resources and have an impact on the provision and delivery of elective gynaecological surgery [2,3]. Paraiso et al suggested that resumption of elective surgery should be considered if prevalence rate of COVID-19 is less than 40 cases per 100,000 population [4]. The American College of Surgeons and others have recommended that elective procedures could resume when the rate of new COVID-19 cases in the community has shown sustained decline for at least 14 days [5]. A team of Senior Gynaecological Surgeons, Hospital administrators, Public Health Specialist, Community laypersons and other stakeholders such as Professional Associations should decide on the timing of resumption of elective gynaecology procedures. Resuming elective gynaecological procedures in a climate of continuing community transmission of COVID-19 is associated with challenges. The challenges will differ depending on several factors including the type of health care delivery model that was in place before the pandemic, available personnel and health care resources, resource supply chain,

expectations and fears of the community and subsequent surge in infection.

This article seeks to review the challenges of resuming elective gynecological surgery in a climate of continuous community transmission of COVID-19 and suggests strategies to mitigate the risks associated with resuming elective gynecology surgery.

5. Methodology

A search of the literature using PubMed and EMBASE was conducted to identify articles published on the challenges of performing and resuming elective gynecology surgery during recovery from Covid-19 pandemic. Search terms were Covid-19, coronavirus, SARS-CoV-2 and gynecology surgery. Additional articles were identified from the citations of the referenced articles.

6. Results and Discussion

3.1. Challenges and mitigation strategies

3.1.1 Uncertainty of some features of Covid-19

There are still some evolving changes in the clinical knowledge of COVID-19 and in the diagnostic testing that has very high sensitivity and specificity [6]. There is also uncertainty regarding effective treatment and the status of immunity after recovery from the illness. It is not very clear if there could be reinfection or reactivation of COVID-19 after recovery. Indeed, the natural course of the disease is not well known. The gap in knowledge about the various aspects of COVID-19 has resulted in uncertainty that in turn is a challenge in the planning of resumption of elective surgery. The demand for Personal Protective Equipment (PPE) is high worldwide and there is uncertainty in the short term of a regular and constant supply of PPE especially in Low- and Middle-Income Countries. Disruption of supply of PPE would pose a significant challenge if there were a surge of cases of COVID-19. Uncertainty about several aspects of Covid-19 has impact on patients, health care professionals (HCP) and health administrators. Uncertainty was reported as a transdiagnostic mechanism in the development of a variety of

psychological disorders such as anxiety, mood, psychotic disorders, aggression and maladaptive coping styles, avoidance behaviours and suicidal tendency [7]. Providing community education and social support is likely to minimize the psychological impact of uncertainty. White and Frasure-Smith reported that patients with high social support were found to have less uncertainty and psychological stress than patients with low support [8].

3.1.2. Community Education

With continuing community transmission of COVID-19, there is a need to continuously educate the Community to continue practising disease prevention measures. Maintaining preventive measures over a prolonged period can however, lead to fatigue and non-compliance. The WHO and CDC (USA) recommended physical distancing, regular hand hygiene and face covering in public places [9-10]. The cooperation of patients is essential when they attend the health facility. The community should be educated that health-screening questions would be asked when they attend the hospital and reconfiguration of the facility such as with screens (acting as aerosolisation barriers) would be noticed. Reorganization of physical structure to facilitate social distancing can be a challenge but essential to protect patients and HCP. Prospective surgical patients derive benefits from family and relatives' psychosocial support. Preoperative community education should include explaining the need to avoid hospital visits by at risk visitors and relatives or limit contact time. Only essential in-person hospital visits and interaction should be allowed and visitors would be required to continue with infection prevention and control practices to reduce the spread of COVID-19. Preventing or limiting accompanying family or visitors may be seen by some people as denying patients support during a stressful period. In a review of surgical patients, Johnston (1980) reported that a significant level of anxiety was experienced at all phases of the surgical journey [11]. In a prospective

and comparative study of 279 patients who had coronary artery bypass surgery (CABS), patients with lower family support preoperatively suffered more anxiety and depression and hopelessness than those who had more support [12].

3.1.3. Health Resources and PPE supply

It is essential that sufficient PPE, testing kits with reserve capacity to manage continuing community transmission and infection, surgical resources and health care professionals are available and there is an effective and reliable supply chain of resources before resuming none emergency gynaecological procedures. Regular audits of PPE and other consumables should be undertaken as per the local facility's policy to identify when stocks are running low. The timing of resumption of elective gynaecological surgery will depend on a variety of factors such as community transmission rate of COVID-19, testing capacity, stock level and supply chain of PPE.

3.1.4. Testing of Patients for COVID-19 and False-negative results

It is recommended that surgical patients' COVID-19 status is known before surgery [2]; this will facilitate the appropriate allocation and use of PPE, scheduling of patients, protection of other patients and HCP. The timing of preoperative testing can be a challenge; this will depend on the type of testing available and on the turnaround time of test results. Testing should be done close to the time of surgery in addition to the use of a screening questionnaire and temperature monitoring on admission. The options of the timing of testing include: a) testing and admitting patients up until surgery in order to avoid patients returning to the community where there is still active community transmission, b) testing within 14 days of surgery and requesting patients to comply with self-isolation plus monitoring of their contacts using web-based Applications with QR code scanning throughout the isolation period [13], c) testing within 48 to 72 hours of surgery with quarantine up until surgery [2].

Preoperative patients who test positive should be transferred to a COVID centre as per National and Local policy and those who test negative but with a temperature of more than 37.3oC on admission should be classed as suspected case and have their procedure postponed for at least 14 days. Balancing the risks of delaying major surgery until recovery from Covid-19 against anxiety and worsening of the gynaecological disorder can be a challenge [14]. Relisting patients after recovery should follow the institution policy on cancellation of surgery. The definition of recovery should be based on the criteria agreed by the National infection control body. Patients awaiting admission for surgery should be advised to report any symptom suggestive of COVID-19 and commence self-isolation.

The risk of nosocomial infection is a potential challenge. Reverse transcription polymerase chain (RT-PCR) antigen test for COVID-19 has a sensitivity of up to 98% and false negative rates ranging between 30% to 50%. Some patients may become positive or symptomatic in the immediate postoperative period. These patients could have had a false negative preoperative result or they could have been in the presymptomatic phase during testing [15]. Patients who become positive or symptomatic postoperatively should, however, be treated according to the National and local guidelines. The United State CDC recommends 14 days of self-isolation for any confirmed COVID-19 infection that does not require hospitalization [16].

3.1.5. Testing of Health Care Professional

HCPs are at risk of contracting COVID-19 in the community or in the hospital setting. Healthcare staff can contract COVID-19 from patients with preoperative false-negative COVID-19 test results. The frequency of testing of HCP is a challenge because of testing capacity, variable incubation period of the infection (5-14 days) and window of infectivity of the virus. Testing of healthcare staff every two weeks have been suggested by some professional

associations [2]. HCP with false negative results could lead to horizontal transmission in the hospital. Without screening, infected but asymptomatic HCP could shed the virus and expose patients and other HCPs to the risk of contracting COVID-19. Daily screening strategies such as temperature monitoring, social and physical distancing, regular hand hygiene and the wearing of facemask needs to continue.

Healthcare organizations should have a policy on staff exposure to suspected or confirmed COVID positive patients. The Washington State Department of Health mandates that anyone who had close contact with a patient with confirmed COVID-19 while not wearing proper PPE self-isolate at home for 14 days [17]. Staff isolation has the potential of putting considerable strain on the personnel available to provide care.

3.2. Gynecological Procedural Challenges

3.2.1. Scheduling of Cases

Some patients would have been on the waiting list for some time; case prioritization and scheduling is a challenge of when resuming elective surgery. Where appropriate, none surgical option of treatment should be employed before scheduling for surgery. Ethical based criteria that were in place before the pandemic should be utilized in case prioritization [18-20]. A prioritization scoring system can be utilized during the initial phase of resumption of surgical activities [21] and day-case and office procedures considered first over complex cases to reduce in patient stay and the risk of exposure to patients, preserve health resources and reduce the risk of admission to ICU [2].

3.2.2. Preoperative Phase

Adopting Web-based preoperative assessment (POA) and virtual health education will avoid hospital visits [22]. Preoperative investigations should be consolidated and organized on the same day to minimize the number of in-person visits to the hospital and where possible Point of Care testing should be performed on the day of admission. There is a need to inform patients of individualized surgical risks of COVID-19 and documentation of patient's

consent should comply with National and Local guidelines. Electronic signature and remote verbal consent with written confirmation on the day of admission are options to consider. Recording and storing of remote visual and audio consultation should comply with the law and National professional regulatory guidance [23]. The anesthetic preoperative physical examination can be performed on admission. Whilst in the health facility, patients should continue to observe infection control measures.

3.2.3. Intraoperative Phase

Perioperative WHO checklist should be modified and carried out whilst maintaining physical distancing. Operating Room (OR) staff should put on full PPE for protection and prevention of transmission of infection [24]. However, communication with full PPE may be a challenge; staff may encounter difficulty hearing each other while donning full PPE. Clear communication and checking of understanding are important in order to minimize patient risk. Various professional associations have published guidelines on strategies for minimizing aerosolization during surgery [2,25,26]. Sedation and regional analgesia should be considered to minimize aerosolization during intubation. Time for disinfection between cases and the recommendation of waiting for about 15 minutes after intubation before commencing surgery and permitting limited staff presence in the OR during intubation and extubation to allow air filtration of potentially dispersed aerosol will have an impact on the number of cases that can be listed and performed in a theatre session; these would impact the length of time it would take to treat the patients on the waiting list.

3.2.4. Unexpected ICU Admission

The need for postoperative ICU admission and the use of ventilators should be considered when planning resumption of gynaecological surgery. Some patients may require unplanned admission to the ICU as a result of unanticipated operative complication. Unplanned admission to the ICU would add to ICU

and health resources utilization. Performing less complex cases and by experienced high volume surgeons and day-case procedures will reduce the incidence of unplanned ICU admission.

3.2.5. Postoperative and Recovery Phase

Enhanced recovery principles and practices should be adopted to optimize the experience of patients across all the phases of surgery [27]. Same-day discharge or short postoperative inpatient stay should be encouraged. Advice on discharge with written information on when and where to seek advice should be given to minimize hospital visits. Avoiding circumstances after discharge that increase contracting COVID-19 postoperatively can be a challenge in a climate of continuing community transmission. Contracting Covid-19 infection in the perioperative period is associated with a high chance of ICU admission when compared with paired patients who did not have surgery [28]. Patients should adopt post-operative self-isolation and social distancing and everyone including individuals and staff providing home help and support adopt disease transmission preventive measures to avoid familial transmission [29]. Virtual monitoring and consultation can be utilized for postoperative review to minimize in-person contact. An in-person postoperative visit should be for complications that require a physical examination. Postoperative febrile illness may be a challenge because it might signify postoperative complication or symptom of COVID-19 and its management can be a challenge. Knowing where to direct the patient for review because the patient's COVID status might be unknown can be a challenge. Administering epidemiological questionnaire and contact tracing using a web-based application can be used as a screening tool.

Apart from the surgical experience of the patient, the impact of the community's experience of COVID-19 on the mental health of the surgical patients needs to be considered in planning the pre and postoperative care because adverse social and traumatic experiences

due to the pandemic and surgical experience can result in negative individual life experiences and mental disorder [30]. It is important to consider this and provide wellness support postoperatively.

3.3. Medical education

The surgical training environment in gynecology has changed due to social and physical distancing, redeployment of trainees, isolation of trainees exposed to or recovering from COVID-19, reduction in the number of patients seen in the hospital and the new model of the delivery of care. These have resulted in a gap in the delivery of gynecological education. The pandemic and continuing preventive social distancing and reduced in-person clinical contact have also impacted undergraduate medical education [31]. Limiting the numbers of personnel in theatre to essential staff will have an impact on the learning experience of surgical trainees. The impact of the Pandemic on the educational experience of trainees is described by Potts Jr 3rd [32]. Experiential learning and maintaining case log could be a challenge. AAGL and other associations in a joint statement recommend that the allocation of minimally invasive outpatient procedure cases to trainees should be limited [24]. Procedures performed by experienced surgeons are associated with fewer complications, readmission rate and ultimately less utilization of PPE and resources [33,34]. Advanced trainees can however assist or perform selected procedures under the direct supervision of experienced surgeons.

Several teaching and learning strategies have been proposed to mitigate the challenges of COVID-19. These include: telemedicine clinics, virtual small group discussion, Webinar in place of in-person lectures, flipped classroom model, online practice questions, procedural simulation, virtual facilitated use of surgical videos, tele-supervision and virtual e-portfolio assessment and feedback [32,35-37]. Restructuring trainees in different stages of training into care teams in order to deliver patient care can facilitate peer learning and support [38].

3.4. Ethics

The resumption of elective gynecology surgery, case prioritization, allocation and use of resources should follow basic ethical values or principles with stakeholders' involvement [39]. Lack of ethical consideration when planning resumption of elective activities could result in confused understanding of roles and responsibility, reduced morale of HCP, reputational damage with loss of public trust, misinformation, blame and stigmatization of parts of the community [40-42].

3.5. Psychosocial Challenges

Physicians and indeed other HCP have been described as being front line workers in the war against COVID-19. Andrew Jameton described the concept of moral distress in returning war veterans in 1980 [43]. The experience of ongoing stress and other psychological problems referred to as moral injury has been described in health care professionals and other professionals [44-51]. In a systematic review of moral distress amongst healthcare professionals, Lamiani et al suggested that moral distress is related to the work environment [52]. Limitation of knowledge of Covid-19 and assertiveness, perceived powerlessness and self-doubt has been shown to contribute to moral distress [53]. Moral distress in HCP is a challenge when resuming elective surgery. Several authors have reported on the negative impact of moral distress including poor job satisfaction, poor delivery of care and burnout [54-56]. A strategy to reduce moral injury includes the development of team collaboration and engagement of staff in planning care, a positive ethical climate and wellbeing support. These measures would improve job satisfaction and retention of staff after the Pandemic [57].

3.6. Medico-legal Challenge

There is a potential legal challenge if HCP contract COVID infection whilst working with inadequate PPE. HCPs are sometimes required to make difficult decisions about the care of patients in a climate of rapid change and evolving evidence that may expose

them to litigation. Health Authorities should provide HCP with liability protection and accept liability for good faith medical treatment and judgments [58]. Risk averse HCPs who lack immunity from prosecution could develop fear and anxiety that may hinder their response to treating patients and compromise public welfare [59]. The fear of the stigma of anxiety and psychological disorders arising from the pressure and stress of working during the pandemic and of contracting the illness may prevent some individuals from seeking help thereby putting themselves and their colleagues, family and the community at risk. Healthcare practitioners who feel that their clinical performance could be negatively affected by their feelings should consult their occupational health or medical staff physicians as required by their Human Resource policy for objective advice.

3.7. Second wave infection

Just as the experience of the Spanish flu pandemic (1918), many countries or regions are experiencing surge in community transmission of Covid-19. This can result in logistic pressure on PPE, health resources and testing in low to medium resources countries. Health systems should use models to guide when to reduce or stop elective surgery when there is second wave of infection. The prediction of the second wave of infection can however be difficult because of the limitation of strategies of predicting transmission. Using modelling approaches to predict the future is a challenge because the predictability of the models “is influenced by the quality of the data and the number of compartments used in the model” [60]. The decision to stop elective gynecology surgery should be taken and reviewed by the National COVID Incident committee in collaboration with local Clinical governance committees and the involvement of representative lay members of the community.

3.8. Restriction of air travel

Testing before boarding the plane, health screening questionnaires, testing at the point of entry and

quarantine of visitors will place burden on existing testing capability and other health resources. A false negative result before boarding and at the point [61] of entry might result in gynecological surgery (e.g. emergency surgery) being performed on patients who are asymptomatic at the time of surgery but who however develop Symptoms post operatively resulting in higher risk of admission to ICU or mortality [62].

3.9. Clinical Governance

Since treatment guidance and policies are likely to change periodically, it is essential that current clinical information and access to key resources are provided to health care professionals in order to facilitate the provision of high quality care. Lack of access to current evidence might result in patients with Covid-19 receiving suboptimal care. There should be a clear pathway for emergency and elective gynaecological procedures. Health systems should have an Incident Command structure that will continuously monitor and manage the different phases of the pandemic including monitoring of community transmission to predict the second wave of infection. Monitoring of community transmission will facilitate planning and determination of when to pause elective surgery. However, predicting community transmission rate may become difficult if individuals become fatigue of the preventive measures resulting in change in their behaviour. Health facility’s local governance committee should collaborate with the National Incident command committee in monitoring the various phases of surgery including operative and postoperative complications, ICU admissions, readmission rate and staff exposure to COVID-19, utilization of PPE and health resources. This would facilitate modification of the delivery of gynecological surgery as necessary.

4. Conclusion

Resuming elective gynecological procedures in a climate of continuing community transmission of COVID-19 is associated with challenges. It requires

continuous community education and continuous practice of preventives measures of physical distancing, regular hand hygiene and facial covering. There is a need for flexibility in the application of other strategies of reducing community transmission including testing, isolation, contact tracing and treatment of positive individuals. Strategies to mitigate the impact of continuous community transmission on gynecology care and training and well-being of healthcare professionals should be adopted. There should be continuous monitoring of community transmission, with flexibility in the delivery of care and the adoption of surgical principles and protocols that optimize the experience of patients with the preservation of PPE and health resources.

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