

Is Endometriosis Telemedicine Friendly?

Burcin Karamustafaoglu Balci*

Department of Obstetrics and Gynecology, Istanbul Faculty of Medicine, Istanbul University, Istanbul, Turkey

Abstract

Objectives: Social isolation and lockdowns made telemedicine to gradually penetrate daily practice. Telemedicine has been used successfully in many areas of medicine such as psychiatry but is new in obstetrics and gynecology. This study aimed to investigate whether a telemedicine model would be feasible in choosing patients who needed face-to-face visits during the pandemic.

Materials and Methods: Telephone calls were conducted with patients with endometriosis who were admitted to our endometriosis clinic before the pandemic. The primary outcome was to appropriately triage the patients who could postpone their routine visit without any risk and those who needed an in-clinic appointment.

Results: Seventy-nine patients were included in the study. Among 58 patients who could be reached, 55 accepted to participate in the study. The mean length of the telephone calls was 8.17 min. Nine patients required an in-clinic appointment (16.4%), whereas 46 (83.6%) patients were managed with the phone call. Compliance with hormonal agents for the treatment of endometriosis-associated pain was 11/17 (64.7%). The most commonly asked questions by patients were about cervical screening, fertility cryopreservation, and the medical treatment options of endometriosis.

Conclusion: Telemedicine visits can never replace in-clinic practice but can help with a considerable degree of efficacy in the management of patients with endometriosis.

Keywords: Endometriosis, pain, telemedicine, telehealth, televisit, treatment compliance

INTRODUCTION

Telemedicine has been described as *“the delivery of healthcare services, where distance is a critical factor, by all healthcare professionals using information and communication technologies for the exchange of valid information for the diagnosis, treatment, and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities.”*^[1]

Before the COVID-19 pandemic, whenever distance was a problem for delivering care to a patient, telemedicine was the answer. COVID-19 transformed the daily lives of everyone, including patients and health-care providers,

across the world. We had to build and maintain a distance of at least 1 m between ourselves and others. We started to have e-meetings with the person in the next room. Distancing started to be a worldwide problem (or may be a solution!) especially in large crowded cities. Consequently, medical care providers, who used to work face to face, had to find alternative ways to continue providing care when adhering to the new restrictions. Telemedicine was adopted in earnest and started to gradually penetrate daily practices.

Accumulated experience shows that telemedicine has been used successfully in many areas of medicine such as pediatrics,^[2] orthopedics,^[3] endocrinology,^[4] rheumatology,^[5] and neurosurgery.^[6] Even though some sections of medicine (e.g., tele dermatology, teleradiology, and telepathology) and

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Address for correspondence: Dr. Burcin Karamustafaoglu Balci,
Department of Obstetrics and Gynecology, Istanbul Faculty of Medicine,
Istanbul University, Istanbul, Turkey.
E-mail: burcinkaramustafaoglu@yahoo.com

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some diseases (asthma, diabetes mellitus, obesity, and mental health disorders) are telemedicine friendly, the benefits of telemedicine have encouraged every specialist to integrate telemedicine into practice. In addition, the shift to telemedicine is likely to have a durable effect in the post-COVID-19 pandemic era. In obstetrics and gynecology, how we can appropriately implement telemedicine into daily life is a matter that has to be clarified.

A survey study conducted in our region revealed that 53.63% of patients with a history of endometriosis thought that the management of their condition was affected because of the pandemic.^[7] On the other hand, within our own endometriosis clinic, we observed a more than 50% reduction in attendance during the pandemic. We created a telemedicine model to triage, counsel, and manage patients with endometriosis via phone calls. We hypothesized that such a telemedicine model would be feasible in choosing patients who needed face-to-face visits during the pandemic. This article describes our experience in this care model.

MATERIALS AND METHODS

This prospective study was conducted in Istanbul Faculty of Medicine, Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology and Infertility (REI). As its name indicates, located in the largest city of the country, Istanbul Faculty of Medicine is a tertiary referral center and a teaching hospital. Ethical approval was obtained from Istanbul ethics committee (no.: 2021/71).

Patients

All women who were ever admitted to and were obtaining care from our endometriosis unit, seen by the same physician, BKB, with the diagnosis/prediagnosis of endometriosis, between January 2018 and January 2021, were included in the study. Demographic and clinical information was abstracted from the medical files of the patients. The inclusion criteria were as follows: being a patient of our endometriosis unit, being a patient of the researcher (BKB) (an established patient–doctor relationship was considered as a prerequisite for initiating telemedicine), willingness to participate in the study, and being aged 18 years or over. The exclusion criteria were unwillingness to participate in the study, being aged younger than 18 years, and seeking treatment for endometriosis-associated infertility.

Procedure

The obstetrics and gynecology specialist who was not specialists who were in charge of the endometriosis patients admitted to the REI department conducted phone calls to the patients. Informed consent for participating in the study was obtained from the participants during the phone calls. These calls were for academic research purposes and free of charge.

A standard form has been used during each conversation. This form was composed of three parts. The first part was about the demographic data, which had been extracted from the medical files of the patients. The second part contained guide questions as follows:

- Have you ever been COVID-19 positive?
- Did you or any close relative of you become severely ill because of COVID-19?
- Do you have/how is your endometriosis related pain?
- Do you use your medications?
- Are you feeling more tired, desperate, or exhausted lately?
- Are you afraid of your disease worsening because of the situation caused by the pandemic?
- Do you have any questions?

The last part of the form was about the conversation and filled up after the phone call was ended. This third part included these questions:

- Call length
- Patient satisfaction
- Any need for referral to another unit
- Important points to be added to the medical file of the patient.

Study intervention

The primary clinical outcome for the intervention was to find out the percentage of patients who were appropriately managed with the telemedicine surveillance model and the percentage of patients who were advised to schedule an in-clinic visit, and the reasons.

The secondary clinical outcomes were as follows:

- Number of calls conducted
- Mean call length
- Rate of patient engagement defined as the rate of willingness to participate in the study
- Treatment adherence
- Patient anxiety, as surveyed by two questions: (1) Are you feeling more tired, desperate, or exhausted lately? (2) Are you afraid of your disease worsening because of the situation caused by the pandemic?
- Patient counseling and education: The questions of the patients were answered and education was given on a personal basis
- Patient satisfaction defined as self-expression of gratefulness at the end of the conversation (no question was asked).

Statistics

The statistical analysis was performed using the SPSS Version 27.0., Armonk, NY, USA: IBM. Descriptive characteristics of the cohort were reported as mean, standard deviation, minimum and maximum for continuous variables, and as frequency/proportion for categorical variables.

RESULTS

The medical files of all patients admitted to our unit between January 2018 and January 2021 were examined.

Seventy-nine patients fulfilled the inclusion criteria and were included in this study. Seven patients were not called because their files showed that they had attended our unit within the last 3 months and they required no follow-up. In total, 100 phone calls were made to 72 patients. We could not reach 14 patients; either their phone numbers were incorrect or the patients did not answer any of three attempted calls on different days. We could reach 58 patients. Three patients refused to participate in the study. The study was completed with 55 patients. The mean age of the patients was 33.27 years (minimum: 26, maximum: 47, standard deviation: 6.86). The rate of patient engagement in the study was 55/58 (94.83%).

The mean length of the telephone calls was 8.17 min (minimum: 1 min, maximum: 35 min, standard deviation: 6.07, median: 5 min). The patient with whom a conversation lasted 35 min was a clinical psychologist who had long worked and continued to work during the pandemic. She was prone to informal friendly communication; very good at understanding and expressing her pain, feelings, and thoughts about her disease, and therefore the call lasted 35 min. The calls were very short (around 1 min) with the three patients who refused to participate in the study. Their unwillingness was not toward the study *per se* but rather about being contacted by phone and wanted to end the call as soon as possible.

Among these 55 patients, four patients were postmenopausal and had no symptoms. Among the 51 premenopausal women, 17 patients had severe endometriosis-associated pain, and 14 patients used to have mild dysmenorrhea or noncyclic pelvic pain. Twenty premenopausal women had no pain or infertility issues but had an endometrioma found incidentally on an ultrasound scan.

After enrollment in this telemedicine model study, 46 of the 55 (83.6%) patients were managed in the phone call. Nine (16.4%) patients required an in-clinic appointment, six of whom had pain due to severe dysmenorrhea and chronic pelvic pain. One patient had prior ovarian surgery with the diagnosis of borderline ovarian epithelial tumor and had an ultrasound scan of the ovaries around one and half years ago; a follow-up ultrasound was advised. Two patients had some symptoms and questions but could not talk freely because they had their family members around and requested an in-clinic appointment.

Among the 55 patients who accepted to participate in the study, 51 were premenopausal and 14 had mild dysmenorrhea, dyspareunia, or noncyclic pelvic pain and were taking nonsteroidal anti-inflammatory drugs whenever needed. Seventeen patients had severe endometriosis-associated pain and were prescribed either combined contraceptive pills or continuous progestogen, eleven patients were continuing

with their hormonal treatments, but six patients were not. The rate of adherence to hormonal agents for the treatment of endometriosis-associated pain was 11/17 (64.7%).

Only one patient said that she was feeling more tired, desperate, or exhausted lately and she was afraid of her disease worsening because of the situation caused by the pandemic. She expressed that her feelings were “mild.” The majority (54/55, 98.2%) of the patients were not anxious.

During the phone calls, the questions of the patients were answered and appropriate counseling was given. The conversations covered a range of topics listed in Table 1. The most common questions were about cervical screening and abnormal screen results, medical treatment modalities of endometriosis, and fertility cryopreservation.

Patient satisfaction, whether a patient is content with the health care they receive, is the subject of many previous studies, but ours is different in this regard. The study plan did not include the measurement of patient satisfaction after receiving a telemedicine call. However, before ending the call, 9 (9/55, 16.4%) patients stated that they were thankful and very satisfied with receiving such a call and having a televisit without their request. Attention should be paid to two facts when interpreting these data; first, the patients were not asked to express their feelings and thoughts, and second, these visits were free of charge.

One of our patients' stories was medically educative; a 38-year-old female, mother of two children, with no story of pelvic pain and infertility, was first admitted to our clinic with pelvic pain that started 2 days ago. Upon admission, her ultrasound scan revealed a cystic mass of 41 mm × 48 mm, with heterogeneous internal echoes, with a solid component without blood flow, on her left ovary. The differential diagnosis included endometrioma, corpus luteal cyst, and hemorrhagic cyst. The sudden onset of symptoms, having no history of pain and infertility, and the absence of a typical

Table 1: The topics that were talked about during the phone calls

Issue	Patients, <i>n</i> (%)
Cervical screening	17 (30.9)
Medical treatment options	15 (27.3)
Fertility cryopreservation	11 (20)
Fertility/infertility	10 (18.2)
Surgery for endometriosis	8 (14.5)
COVID-19	6 (10.1)
Contraception	5 (9.1)
Abnormal uterine bleeding	5 (9.1)
Ovarian cancer	3 (5.5)
Anti-Müllerian hormone	2 (3.6)
COVID-19 and HPV vaccines	1 (1.8)

HPV: Human papillomavirus

appearance of “chocolate cyst” on ultrasound raised the need for some tests; tumor markers and magnetic resonance imaging were requested. The patient had not returned and was contacted by virtue of this study. She stated that one night she had severe pelvic pain and was admitted to the nearest hospital to her home where she underwent surgery within hours; she underwent a unilateral salpingo-oophorectomy and the diagnosis was mucinous cystadenoma of the ovary.

DISCUSSION

The aim of this article was to present possible “best practices” for obstetrics and gynecology specialists to design and implement “telegynecology” in endometriosis clinics during and following this international COVID-19 crisis. After conducting phone calls to 55 patients with endometriosis, we are able to draw some conclusions and can share the challenges we experienced, our recommendations, and the lessons we learned.

What is telemedicine?

Telemedicine has many definitions.^[1] The use of telecommunication technologies in medicine is a definition that covers all aspects of telemedicine. Telemedicine can be used for teleconsultation, telepractice, tele-education, and teleresearch.

Teleconsultation is the communication between providers, for example, between primary and secondary health providers, between senior and junior doctors, or to seek an expert second opinion. This type of telemedicine is not new; it was widely used before the pandemic.

Telepractice is a visit in which the patient and provider are not in the same room. The patient is usually at home or another nonmedical facility, but may also be a hospitalized patient or a patient in the intensive care unit. The provider is generally at work. Several activities may be classified under the term telepractice:

- A provider may “see” a patient; the provider and the patient are connected at the same time over a video call or telephone call. The provider can obtain the anamnesis of the patient. Unfortunately, an examination of the patient cannot be performed, which is why telepractice is the best for patients who do not need a physical examination or whose examination has been performed previously. Nevertheless, it has also been widely used during the pandemic in cases where an in-clinic visit “would be better”
- Patients may be informed about their investigation results. The treatment may be planned and discussed
- Telepractice is very useful in diseases where monitoring is needed, for example, blood sugar monitoring in diabetes mellitus, monitoring dietary behavior, and weight in obesity. During the pandemic, when *in vitro*

fertilization (IVF) cycles started, a patient undergoing IVF who developed severe ovarian hyperstimulation syndrome was referred to our clinic. Embryo transfer did not take place. She had clinical ascites, hemoconcentration, but normal serum biochemical parameters. She stayed at home, was monitored daily with weight, abdominal circumference, urine volume, whether dyspnea developed, and general well-being. She recovered and did not need a second admission to our clinic

- Providing education of patients and counseling (e.g., antenatal, labor or breastfeeding classes, contraceptive use classes).

Telepractice carries many advantages:

- Fewer school absences for young patients
- Less time away from employment
- Less crowding in hospitals
- Less travel-related costs
- Less traveling time
- Higher appointment adherence
- Reduced cost of health care
- Increased patient satisfaction
- Appropriate referral of cases to secondary care, to reduce the number of unnecessary referrals
- Reduced number of in-clinic appointments required.

Tele-education is a form of education in which students receive instruction over the Internet, from a video, e-meeting, e-lecture, e-conference instead of going to school, class, university, or course. Tele-education may be live/online and interactive or students may listen to/watch recorded materials. Students have become familiar with this entity because education has been predominantly online during the pandemic in many countries.

Teleresearch means either conducting new studies, such as this current study, or disseminating previously published data, innovations, and manuscripts. The advantages are the ability to broaden a study and improve collaboration between researchers. E-congresses are also a part of tele-education and teleresearch.

What we have learned?

Women with endometriosis are confronted with pain and/or infertility. Endometriosis-associated pain includes dysmenorrhea, dyspareunia, dysuria, dyschezia, and nonmenstrual pelvic pain. The medical treatment of endometriosis-associated pain includes empirical analgesics and hormonal medication, mainly combined hormonal contraceptives, progestins, and gonadotropin-releasing hormone agonists. However, treatment adherence is always an issue in medical management. Treatment adherence is reported as 5% to 96%.^[8] Our study revealed that the adherence of the patients to the hormonal treatment of endometriosis-associated pain was 64.7%; one-third of our patients were not taking the prescribed medications.

Patient compliance in telehealth depends on many factors such as the extent of patient health education, the training of the caregiver, the patient's and caregiver's motivation, economic aspects for both sides, organizational support.^[9] Patient compliance was 95% in this study. The televisits of the study, conducted by a physician (BKB), preceded traditional in-clinic face-to-face visits with the same physician that took place before the pandemic. We believe that, to achieve high telehealth compliance from the patients' side, an initial face-to-face visit should be undertaken, and a patient–doctor relationship and confidence should be established before the transition to telemedicine. Naturally, there may be some exceptions.

Nonurgent appointments and elective surgeries were postponed during the pandemic. Mandatory self-isolation, social restrictions, and fear of the COVID-19 disease may have negative psychological effects on patients with endometriosis who are already prone to developing certain psychiatric disorders, including depression and anxiety. Yalcin Bahat *et al.*^[7] investigated the level of anxiety and stress caused by the COVID-19 pandemic among patients with endometriosis and found that 84% of the patients were afraid of experiencing endometriosis-related problems during the pandemic and 54% thought that their treatment was affected because of the pandemic. Our study results are not concordant with this study; the majority of our patients were not anxious about the pandemic. The current study was conducted after the establishment of treatment of COVID-19 and the start of vaccinations, which perhaps made the patients feel safe and explained the difference.

Endometriosis and Malignancy

In planning the next appointment with a patient with endometriosis, the first question to answer is whether the appointment should be a face-to-face in-clinic appointment or if another televisit is appropriate. Then, the fact that endometriosis is associated with an increase in the incidence of ovarian cancer^[10] comes into prominence. Should we schedule follow-up ultrasonography (USG), and if yes, when is the best time?

The lifetime risk of developing ovarian cancer is 1/75 in the general female population^[11] and 1/56 in women with endometriosis.^[12] Although reported in the literature, the risk of malignant transformation of superficial lesions of endometriosis and the plaques of deep infiltrating endometriosis is extremely rare.^[12] The risk belongs to ovarian endometriomas. The ovarian microenvironment seems to have a specific role in the development of malignancy. Physicians have to focus on the identification of endometriomas that may contain malignancy or become malignant. But how?

Given that women with endometriosis have an increased risk for ovarian cancer, they should be carefully observed. Advanced age (>45 years), an increase in cyst size, especially under hormonal suppression or in postmenopausal years, and the appearance of mural nodules warrant attention. However, there is no established screening program aiming to reduce mortality from ovarian cancer in patients with endometriosis. A screening program may even be detrimental because the number of unnecessary surgical interventions will consequently increase as demonstrated by the “Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial.”^[13] Therefore, there is no plan to screen patients with endometriosis to prevent death from ovarian cancer.^[14,15]

Hypothetically, endometriomas predispose to ovarian cancer and can be a misdiagnosis of already existing ovarian neoplasms. The three cysts that may be frequently misdiagnosed as each other are endometriomas, hemorrhagic cysts, and dermoid cysts,^[16] but unfortunately, neoplasms can also be misdiagnosed as endometriomas, as we experienced in a patient. The patient who was detailed above was told that she had endometrioma, was admitted to our endometriosis unit, radiologic and laboratory examinations were requested, but she had to undergo emergency surgery before the diagnosis was established. This patient taught us that a full physical and laboratory examination should be completed as soon as possible to prevent undertreatment.

To our knowledge, there is no guideline proposing regular USG scans of patients with endometriomas for follow-up, but malignancy should be ruled out during the first visit and the diagnosis of endometrioma should be certain. Regular routine follow-up in clinic visits may be postponed briefly during the pandemic, but to prevent late diagnosis or a misdiagnosis, the required examinations should be completed first.

Don'ts

Physicians have the responsibility to treat their patients and also to “first, do no harm.” It is not possible to transfer all gynecologic care activity to telemedicine. Televisits can never replace in-person visits. In endometriosis clinics, with the exclusion of some extraordinary circumstances, it is advised not to evaluate a new patient via a televisit. To make the diagnosis of endometriosis, a physical and gynecologic examination needs to be performed. A telemedicine visit for a patient with endometriosis can only follow an initial in-person visit.

Could telemedicine introduce a new form of malpractice? Even though malpractice can occur in both face-to-face and virtual interactions, the risk seems to be greater in telemedicine. Fogel and Kvedar studied the malpractice risk of telemedicine and found no reported cases of medical malpractice.^[17] As stated by Nittari *et al.*, “in the balance

between risks and benefits, the benefits of teleconsultation seem much greater than the risk of being sued.^{9[18]} Don't be afraid.

Information obtained in telemedicine visits should be documented just like an in-clinic visit, more time than usual should be devoted to documentation to prevent any misunderstanding, medical or legal problems. The consent specific to telemedicine should be obtained from the patient. The history of the patient, how she was, whether she was using the prescribed medicines, whether she experienced any complications, and how or if their symptoms changed over the time since the last in-clinic or televisit should be discussed and all relevant conversations that occurred between the physician and the patient should be noted. The time spent on the call should also be documented. When discussing a patient's past symptoms, they may have difficulty in tracking their symptoms. Patients with endometriosis can be asked to record their pain and complete a pain diary.

Delaying diagnosis or treatment should be avoided. If the patient is unwilling to use telemedicine, or a televisit is not enough to manage a patient, the physician should not hesitate to propose an in-clinic visit.

Limitations of the study

When a study about telemedicine is conducted, the most obvious limitation is the fact that the patient must have access to a phone, the phone number that was given by the patient has to be correct, and that their phone should be accessible and available when the phone calls are conducted. Fourteen patients were included in this study, but the numbers given by these patients were either incorrect or were not reachable.

The second limitation is the small sample size. Although telemedicine existed before the COVID-19 pandemic, it was not widely used in the field of gynecology. The pandemic prompted the implementation of telemedicine in our daily practice. This study, creating a telemedicine model for patients with endometriosis, is a new experience for us and we learned many lessons, which we wanted to share with the readers.

Another limitation is that the study group does not include any patients with endometriosis with infertility. The reason for not including patients with endometriosis-related infertility in the study is that infertility caused by endometriosis can only be treated with surgery in some cases and/or with IVF in the majority of cases. Such patients need in-clinic treatments. Conservative treatment modalities such as increasing social support, adopting a positive attitude, counseling, education, and increasing medical treatment adherence would have beneficial effects in combating endometriosis pain, but a mediocre effect for the treatment of infertility.

To conclude, telemedicine is undeniably part of the future of health care. Telepractice can never replace in-person visits, but as technology continues to improve and because the COVID-19 pandemic forced us to engage in the field of telehealth, telemedicine will be widely accepted in the coming years. In endometriosis, we have to take advantage of telemedicine. First, appropriate patient triage is crucial. Telemedicine is advised when a face-to-face visit is not mandatory. We can discuss the symptoms, treatment plan, medication adherence, and tolerance; repeat prescriptions; and give advice and education about pain management, fertility/infertility, fertility cryopreservation, contraception, and general female health. Telemedicine can help with a considerable degree of efficacy in the management of patients with endometriosis.

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Conflicts of interest

There are no conflicts of interest.

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