ORIGINAL PAPER

THE ROLE OF LAPAROSCOPY IN GYNECOLOGIC EMERGENCIES

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ABSTRACT

We performed an analytical, cohort, retrospective study, starting from our own experience, to explore the role of laparoscopy in acute gynecological abdominal emergencies. The present work was obtained at the "Prof. Dr. Agrippa Ionescu" Hospital, Bucharest and includes a consecutive series of 37 patients, admitted in emergency settings, during the past 5 years. In order to complete the diagnosis, all of the patients included in the study were investigated using an abdominal ultrasound. The following aspects were investigated: the correlation between the preoperative diagnosis and the lesions identified by laparoscopy, the rate of postoperative complications, reintervention rate, length of hospital stay, conversion rate. Our results show that the laparoscopic approach has a decreased length of hospital stay, and can offer both a diagnosis opportunity and a therapeutic opportunity with results comparable with that of an open approach. Also, laparoscopy allows simultaneous treatment of other abdominal pathologies using the same access path. Our experience shows that the need for a correct and rapid diagnosis when an acute surgical abdomen is suspected is of paramount importance and laparoscopy can offer this opportunity.

KEYWORDS: *laparoscopy, gynecology, surgical emergencies*

INTRODUCTION

At present, laparoscopy is considered the ideal diagnostic technique for chronic pelvic pain in women at reproductive age. This technique has also proven to be useful in the management of gynecological emergencies.

The first laparoscopic intervention was performed by Semm in 1974 and consisted in the treatment of gynecological pathologies. Since then, both the indications and the instruments have undergone a continuous evolution as such in the present, laparoscopy has only but a few limits [1, 2]. All of the pathologies treated by an open approach can also be treated by a minimally invasive approach in highly specialized centers.

Patients usually present to the doctor for pelvic pain which has no response to symptomatic therapy, pain that had an acute onset. Some symptoms may offer a diagnosis such as point of pain or paraclinical accompanying phenomena. One needs to observe if there is a possible association between the menstrual cycle and the episodes of pain or eating habits. Before any therapeutic or diagnostic maneuvers (radiology) are

undertaken, one must exclude the possibility of an extrauterine pregnancy through a pregnancy test or a transvaginal ultrasonography. It should also be mentioned that the presence of a pregnancy may associate other gynecological complications such as ovarian torsion which may cause similar symptoms.

Laparoscopy is a solution to diagnose these pathologies but can be also considered a therapeutic resource. Laparoscopy allows the surgeon to avoid a laparotomy so the patient can benefit from all the advantages of the minimally invasive approach such as lower intensity of pain, faster recovery, and large post-incisional hernias [3, 4].

Laparoscopy can also be used with success in the 1st and 2nd trimester of pregnancy in safe conditions for the mother and child to treat or diagnose abdominal emergencies.

The study aimed to evaluate the role of laparoscopy in diagnosing and treating gynecological pathology in women with an uncertain diagnosis using the experience gained in our clinic.

MATERIALS AND METHOD

The study was structured as an analytical retrospective cohort study. The data sets derived from the "Prof. Dr. Agrippa Ionescu" Clinical Hospital, Bucharest. The evaluation period stretched over 5 years (01.01.2014 - 01.11.2019). Inclusion criteria were: patients hospitalized in emergency conditions, acute abdominal pain located in the pelvic region, operation in emergency settings with the help of laparoscopy. The information was obtained from the clinical observation sheets and the operative protocols.

The statistical analysis was performed with the IBM SPSS V.20 program.

RESULTS

A number of 37 patients were admitted in emergency settings who were suffering from pain located in the lower abdomen, for which emergency surgery was performed through a minimal invasive approach. Also, the identified lesions which lead to the surgical intervention were related to the gynecological structures.

The main symptom which prompted the patients to arrive at the hospital in all cases was abdominal pain (100%) while 70% of the patients had other accompanying phenomena such as fever 65%, nausea 57%, vomiting 35%, and 3% mentioned dysmenorrhea.

Median group age was 30.69 years and a standard deviation of 10 years.

We noticed the fact that adnexal pathology such as ovarian torsion was more common in women with an advanced age (37 years) whereas hemoperitoneum secondary to the rupture of a follicular cyst or yellow ovarian body was frequently encountered in younger patients with a median age of 26 years. Extrauterine pregnancy was more common in patients with a mean age of 31 years. Inflammatory disease was more frequent in women with a mean age of 33 years, whereas pelvic endometriosis was more common in patients with a mean age of 27 years.

Median length of hospital admission was 3.2 days. The longest period of hospitalization was on average 5 days in patients diagnosed with pelvic inflammatory disease, 3.2 days for adnexal torsion and 3 days for extrauterine pregnancy. The shortest period of hospitalization was on average 2.9 days in patients with complicated ovarian cysts (rupture, torsion).

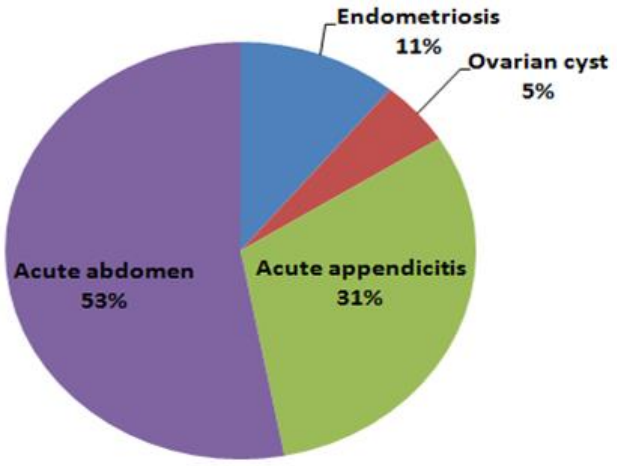

Figure 1 – Diagnosis at admission

The best correlation between the preoperative and intraoperative diagnosis was found in the case of a ruptured ovarian cysts (there was a positive correlation in 56% of cases). The smallest correlation was found in the case of adnexal torsion despite the typical clinical symptomatology. A general positive correlation between preoperative and intraoperative

diagnosis was found in only 33% of the cases (Figure 2).

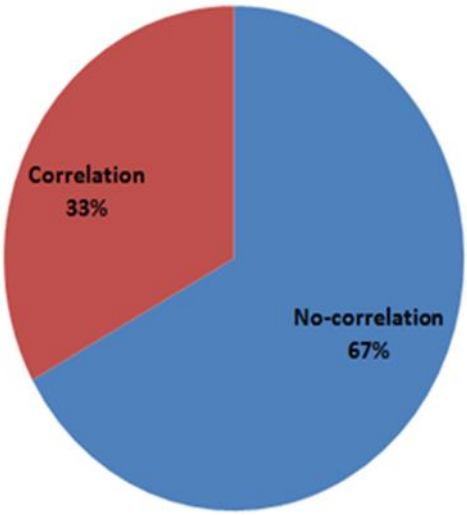

Figure 2 – Correlation percentage between intraoperative and preoperative diagnosis

The most common gynecological emergency which required surgical intervention was related to ovarian complications (ruptured ovarian cyst) - 43% followed by adnexal torsion 27%, extrauterine pregnancy 14%, inflammatory pelvic disease 11% and pelvic endometriosis in 5% of cases.

The conversion rate was 69% for therapeutic laparoscopy, while the conversion rate for diagnostic laparoscopy was 31%. Conversion to open surgery was most commonly performed for ovarian torsion (55%). The conversion rate for extrauterine pregnancies and endometriosis was zero while a quarter of the subjects with an ovarian cyst or inflammatory disease of the pelvis required conversion to open surgery.

Plastic peritonitis accounted for almost half (52%) of all the conversion cases. The reason for conversion was due intense adherences which did not allow a safe dissection. There was no postoperative mortality, also there were no reinterventions. All of the operated cases had a peritoneal drainage which was suppressed on average after 2 days.

DISCUSSION

Laparoscopy allows a complete diagnosis with a rate that has similar results with open surgery.

When discussing a patient with an acute surgical abdomen the correct and rapid diagnosis is an absolute necessity. Laparoscopy by a minimally invasive approach allows a full exploration of the abdomen and may offer better quality images than MRI or CT [5].

Also, laparoscopy can decrease the number of unnecessary laparotomies, thus reducing over time the number of complications caused by laparotomies (adhesion syndrome) [6].

Laparoscopy also offers the possibility to adopt therapeutic maneuvers in real-time (e.g. bleeding control for ruptured ovarian cysts). The median age of the group observed was 32 years, a fact confirmed by other studies that investigated the impact of laparoscopy in gynecological emergencies [7, 8].

The young age of the patients is explained by the pathology that generates these symptoms, so as we observed in our study group the vast majority of cases were ovarian lesions, extrauterine pregnancies or pelvic inflammatory diseases all with a maximum incidence in the sexually active woman at reproductive age.

The conversion rate in the case of laparoscopic interventions with therapeutic attitude was quite high of about 42% which is in accordance with the results published in literature, although some studies report rates as low as 2% [8, 9].

The main reason for the conversion were dense adherences that did not allow an effective viscerolysis simultaneously increasing the risk of iatrogenic injuries of the abdominal organs. Conversion should always be preferred when the visibility of the structures/organs is not clear. With respect to these observations, it is our point of view that conversion should not be considered a failure of the interventions but an example of surgical maturity. Patient safety and favorable postoperative outcome should not be overlooked and should be placed above the impact of the cosmesis. These data were also confirmed by Agresta et al. [10].

The mortality and morbidity of the surgical interventions were zero. The data are consistent with those published in the literature [9, 10].

These favorable results were mainly due to the following factors: in the vast majority of cases, the surgical intervention implied minimal gestures and consisted of hemostasis control,

cystotomy, viscerolysis, adnexectomy or excision of an endometriotic peritoneal formation. The majority of these patients were young females, as we observed from the results and lacked other comorbidities that could have created complications in the postoperative period [11].

It is important to note that laparoscopy through the good aesthetic impact and rapid recovery gives the surgeon a certain safety versus laparotomy. The old attitude of watch and see in patients with suspected acute abdominal illness is less used. Whenever there is no improvement in the clinical symptomatology a laparoscopic intervention with a dual role is preferred both diagnostic and therapeutic over watch and wait.

However, it should not be ignored that we are still discussing a procedure that requires intubation and associates a number of inherent risks, so patients require some risk selection, and an exhaustion of other methods of investigation. Care should also be taken with regard to the risk of injury to bowel or large blood vessels. These complications can be easily overlooked. An unobserved intestinal lesion leads to life-threatening complications such as peritonitis. In some studies, the rate of these complications is quite low between 0.4 and 4%, but should not be overlooked during the manipulation of the instruments that must always be in the field of vision of the operator [12].

Regarding the correlation between the diagnosis at admission and the intraoperative diagnosis, it was observed that there was a correlation in only 33% of the cases while 67% of these were modified (Figure 1, Figure 2). The literature reports values of 45% [13].

This weak correlation indicates the clear utility of diagnostic laparoscopy while preoperative investigations prove their limits. Also, the role of laparoscopy in the ability to differentiate a gynecological pathology from a digestive one - an extremely difficult distinction to make clinically - should not be ignored. There were no cases of conversion in the studied group, but the pathology was not severe, it required minimal surgical treatment and the vast majority of patients presented quickly to the hospital due to the acute onset of abdominal pain. In the literature, some observed motives of conversion are BMI over 30 and a large amount of peritoneal fluid identified at preoperative ultrasound [14, 15].

The average duration of hospitalization of 3.2 days per group studied is comparative to that published in the literature - this short duration again emphasizes the beneficial role of laparoscopy compared to laparotomy, which allows early ambulation and social reintegration. These factors have a favorably impact on the evolution of these patients who are young with an average age of 30 years.

The average duration of surgery was 48 minutes, the duration is comparable with that of laparotomies and in line with that reported by other studies in the literature [8, 13].

There were also interventions with extended duration for example in the case of a ruptured extra-uterine pregnancy which required preservation of the ovaries and the fallopian tubes - involved meticulous dissections with longer duration of up to 90 minutes.

It is worth mentioning the limitations of this study, which are primarily related to its retrospective nature, which did not allow long-term monitoring and observation of the impact of surgery. Also, the relatively small group of patients does not allow to obtain statistically relevant data but we consider this study as a starting point for further observations which involve patients with gynecological pathologies the role of laparoscopy in the diagnosis and treatment.

CONCLUSION

In conclusion, patients with gynecological pathology are generally young, and the aesthetic benefit of laparoscopy is significantly higher than laparotomy.

The minimally invasive approach offers advantages both from the point of view of the diagnosis of an acute non-responsive abdomen to medical therapy but also allows for therapeutic measures with visible impact in real-time. The correlation between the diagnosis obtained after clinical evaluation and the paraclinical or intraoperative diagnosis is small, on the studied group, it was only 33%. Also, from a clinical point of view it is difficult to differentiate a gynecological pathology from a digestive pathology. The current literature supports the use of laparoscopy as a diagnostic method in the case

of acute abdomen in women of childbearing age which we also support. Other benefits besides the ones already recognized include improved fertility rate compared to the open approach.

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