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Laparosocipic Risks on Prior Abdominal Surgical Patients

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ABSTRACT

Is it safe to perform laparoscopy on those patients who have had previous abdominal surgery? What's then its risk? It remains a controversy for some time now. Some workers claimed that it is a contra-indication to perform laparoscopy on those patients with prior abdominal surgery while others did not agree

In trying to resolve the problem, we studied and analyzed in detail a total of 100 patients with previous abdominal surgery who underwent laparoscopy for various indications during the period December 1978 to December 1980. Our results disclosed that only those patients with intestinal-wound adhesion (2%) or those patients with severe intra-abdominal adhesion (3%) truely belonged to high risk group for laparoscopy; and that one could prospectively pick out those high risk group in advance from the types of the abdominal scars.

We suggest an open laparoscopy for the high risk group to avoid injuries of the intra-abdominal organs.

Keywords: Laparoscopy, Abdominal surgery, Abdominal scar, Intestinal-wound adhesion, Severe intra-abdominal adhesion, Open laparoscopy.

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The introduction of laparoscopy should be ranked as one of the most important advances in obstetrics and gynecology during the past 15 years[1]. It offers the gynecologists a remarkable diagnostic and operative tool. The laparoscopy makes many obstetric and gynecologic difficult problems and blind spots become clear and easy. So it let the gynecologists avoid many wrong judgement and avoid unnecessary delay of the right diagnosis of the disease process[2]. Furthermore, the indications for diagnostic and operative laparoscopy are widely expanding in gynecology because of the world-wide interest in microsurgery and the progress in technique and experience of the laparoscopy[3]. The laparoscopy has recently been also used in general and pediatric surgery[4]. As a result, there must be an increasing number of patients who have had previous

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abdominal surgery and require laparoscopy later on.

It's no doubt that those patients who received previous abdominal surgery must have many chances to develop intra-abdominal adhesions. Conventional laparoscopy on these patients with previous abdominal scars is associated with increased risks of small intestine, transverse colon and sigmoid colon lacerations, as well as omental injury, hemorrhage or difficult visualization of the pelvic organs[1,5,6,7,8,9,10]. So some gynecologists claimed that it is contra-indicated to perform laparoscopy on these patients with previous abdominal scars. We doubted the view point. It would be unfortunate to deny a laparoscopic procedure to all patients with previous abdominal surgery when the risks can be successfully minimized[11].

MATERIALS AND METHODS

During the period December 1978 to December 1980, a total of 100 prior abdominal surgical patients underwent laparoscopy for various indications. The youngest age was 23 years. The oldest age was 50 years. The average age was 29.6 years. The following tables describe the various indications of our patients, types of previous operations, types of abdominal scars, classifications of peritoneal-wound adhesions, and classifications of laparoscopic risks.

RESULTS

All 100 patients made uneventful recoveries and were discharged a few hours

Table 1. Indications of Laparoscopy

Indication	No. of cases
Infertility	40
Chronic Pelvic Pain	26
Tubal Sterilization	16
R/O Pelvic Mass	5
R/O Ectopic Pregnancy	4
2nd Look for Ovarian Ca.	3
Others	6
Total	100

Table 2. Types of Previous Operations

Type of Operation	No. of cases
Adnexectomy	36
Appendectomy	23
A.T.S.	16
C/S	14
Others	11
Total	100

Table 3. Types of Abdominal Scar

Type I	Broad, Big and/or retracted scar (> 1cm in width)
Type II	Mild and moderate scar (< 1cm in width)

Table 4. Classification of Peritoneal-Wound Adhesions

I	No adhesion
II	Mild to moderate adhesion
III	Severe adhesion
IV	Intestinal-wound adhesion

Table 5. Classification of Laparoscopic Risk (compared to non-previous surgical patient)

A. No Increasing risk	No wound adhesion. Mild and moderate wound adhesions.
B. Slight Increasing Risk	Severe wound adhesions
C. Significant Increasing Risk	Intestinal-wound adhesions

after the operation. They were seen at the outpatient clinic one week after surgery. No serious complications were reported. Postoperative abdominal discomfort and shoulder pain were reported in 12 patients (12%). Fenestration of omentum in two patients (2%). Small wound hematoma in one patient (1%) and wound infection in one patient (1%).

The incidence of wound adhesions of the patients with previous abdominal surgery is 60%. Of them, 55% is mild to moderate peritoneal-wound adhesion. The severe peritoneal-wound adhesion is 3% while the intestinal-wound adhesion only 2%. This means the high-risk group for laparoscopy is only 5%.

We also observed the relationship between the types of abdominal scar and the peritoneal-wound adhesions. The patients who belonged to type II abdominal scar did not have severe and intestinal-wound adhesion. Those patients who belonged to type I abdominal scar have severe (10%) and intestinal-wound adhesion (6%).

Table I. Incidence of Wound Adhesions

	Adhesion	Incidence
I	No Peritoneal-wound Adhesion	40(40%)
II	Mild to Moderate Peritoneal-wound Adhesion	55(55%)
III	Severe Peritoneal-wound Adhesion	3(3%)
IV	Intestinal-wound Adhesion	2(2%)

Table II. Peritoneal-wound Adhesion Related to the Types of Abdominal Scar

Scar Type	Peritoneal-wound Adhesion	Patient No.	%
I	No	5	17
	Mild to Moderate	20	67
	Severe	3	10
	Intestinal-wound Adhesion	2	6
II	No	36	51
	Mild to Moderate	34	49
	Severe	0	0
	Intestinal-wound Adhesion	0	0

$X^2 = 18.99$ $df = 3$ $p < 0.01$

Table III. Laparoscopic Risks

(compared to non-previous surgical patient)	
No Increasing Risk	95%
Slight Increasing Risk	3%
Significant Increasing Risk	2%

DISCUSSION

Since 1910, Dr. Jacobaeus first applied the laparoscopy on the human body, its uses has become wider and wider after the continuous efforts on the improvement of technique and the accumulations of the various experiences[4,12,13,14]. It should be ranked as one of the most important creator of the modern obstetrics and gynecology[15,16]. After the wide use of laparoscopy, as many other surgical procedures, it is unavoidable to have complications and forms the idea of "contra-indications"[17,18,19]. It has been a subject of controversy over the past 15 years to perform conventional laparoscopy on patients with previous abdominal surgery[16,19,20,21].

Many workers, like Buckle AE, Grimwade JC, Christakos AC, Farooqui MO, Serour GI, Watson TR, Blair R, Wortmen J, Piotrow PT, etc. have reported that possible adhesions from previous abdominal surgery make laparoscopy dangerous and contra-indicate the procedure at 1970's[1,13,15,17,18,20,21].

On the contrary, Madrigal et al.[12], Saidi and Locke[19] reported that the operation is safe in such patients. Thompson and Wheeless[5], Tingey[6], Keeping and Smith[9], Smith et al.[7], and Aranda et al.[10], also did not think that previous abdominal surgery is a contra-indication to laparoscopy. However, these authors reported some injuries of the intra-abdominal organs and omentum in some of their patients.

So it remains a controversy for several years. We try to find a guide for resolving the problem. After a period of observation and experience, we find that we can estimate the degree of the intra-abdominal adhesions from the types of the previous operation scars. If intra-abdominal adhesions happened, a broad, big and/or retracted scar (>1cm in width) always accompanies more serious intra-abdominal adhesion.

Generally speaking, the incidence of wound adhesions of prior surgical patient is only 60% according to our series. It is those patients with severe wound adhesion and intestinal-wound adhesion who truely belong to high risk group for laparoscopy. The incidence of the patients with severe and intestinal-wound adhesion is only 3% and 2% respectively.

Then, how to minimize laparoscopic risks? We propose two methods: (A) tip of the trocar away from the abdominal scar. (B) Broad, big and/or retracted scar - use open laparoscopy.

We followed our above two principles in our 100 cases. The complications we encountered are: (A) No major complication in our series (B) Minor complications as followed: (1) Fenestration of omentum, 2 cases (2) Small wound hematoma, 1 case (3) Wound infection, 1 case. The incidence and severity of the above complications in our series are not higher than the overall cases.

The rate of postoperative shoulder pain and discomfort is particularly high in this series. It could be due to more gas being entrapped between the adhesions[16]. Bed rest and analgesics can relieve the symptoms.

The surgeon must bear in mind that omental and bowel adhesions to the anterior abdominal wall are not uncommon for those patients with previous abdominal surgery. Injuries of such structures can be avoided by carefully direct the trocar away from the scar and use open laparoscopy if necessary. The laparoscopic risks can be successfully minimized following the above principles.

Based on the above analyses, we think that laparoscopy is not contra-indicated on previous abdominal surgical patients.

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施行腹腔鏡術於曾經腹部手術的病人之危險性的評估

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摘　要

對於以前曾經被動過腹部手術的病人，是否適於再做腹腔鏡術？其危險性如何？一直是箇引起爭論的問題，有的人主張對於以前曾動過腹部手術的人，腹腔鏡術是一項禁忌，有的人則主張，曾經動過腹部手術的人，並非是腹腔鏡術的禁忌。

爲了解決這個問題，吾人從民國67年12月至69年12月止，總共統計了一百個以前做過腹部手術，却又爲了各種原因，而施行腹腔鏡術的病人，詳細加以分析研究，我們的結果顯示，眞正具高危險性者，乃是腸子與傷口有沾連的病人，以及腹腔內有很厲害的沾連之病人，前者只佔2％，而後者只佔3％而已。

對於這些具高危險性的病人，我們發現可以事先從傷口疤痕的大小及外觀，來加以判斷，給我們一箇警告，而這些病人則可改用開放式腹腔鏡術，來避免傷害到腹內器官。

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民國七十三年七月十八日受理