Minimizing Risks of Laparoscopy

This Committee Opinion has been reviewed and approved by the Medico-Legal Committee and the Executive Committee and Council of the Society of Obstetricians and Gynaecologists of Canada.

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Abstract
Objective: the primary objective of this document is to identify in which patients and under what clinical circumstances complications of laparoscopy are more likely to occur, and to make recommendations based on these factors.

Options: clinical situations where the options include laparoscopy, laparotomy or no surgical intervention.

Evidence: Medline search from 1995 to 1999 for articles related to complications of laparoscopy in numerically significant prospective and retrospective studies, as well as medico-legal data on laparoscopic complications in Canada from 1990 to 1997.

Values: the evidence collected was reviewed by the Medico-Legal Committee of the SOGC under the leadership of the primary author. The recommendations made were achieved by a committee consensus. These recommendations are practical and easy to implement.

Benefit, Harms and Costs: it is possible to minimize but not completely eliminate complications of laparoscopic surgery. Complications are reduced with increased operator expertise. A shortened hospital stay, rapid recovery from surgery, and a low overall complication rate are explicit with laparoscopy compared with laparotomy and were not measured.

Recommendations: there is fair (Class B) evidence to support the recommendations that appropriate patient selection, early recognition of complications, and full disclosure to patients minimize the physical, emotional, and economic consequences of laparoscopic complications.

Validation: this committee opinion has been reviewed and approved by the Medico-Legal Committee, and the Executive Committee and Council of the Society of Obstetricians and Gynaecologists of Canada.


CLINICAL RISKS OF LAPAROSCOPY

GENERAL RISKS
Review of the recent literature highlighted several common and uncommon complications of laparoscopy. A sample reference list1-10 describes the mechanisms, prevention, and management of these complications. It is important for the laparoscopist to understand possible complications and to have a fully informed discussion with the patient prior to surgery and after an adverse outcome, should one occur.

The minimal access and surgical skills of laparoscopy impose limitations of patient selection, surgical procedure, and surgeons. Obesity, previous bowel surgery, inflammatory bowel disease, peritonitis following previous surgery, and two prior midline incisions

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may contribute to failure to achieve pneumoperitoneum and thus may contribute to bowel injury.\(^6\) Both patient and surgeon should be prepared for the procedure to proceed to intraoperative laparotomy if there is a valid indication for the surgery. Open laparoscopy is not fail-safe in achieving successful pneumoperitoneum or in preventing laparoscopic complications.\(^1\)

There may be intrinsic complications from a surgical-related disease process, regardless of whether the procedure was performed by laparoscopy or laparotomy. Tubal interruptions fail, ectopic pregnancies rupture, and the occasional unexpected malignancy is encountered. Obtaining an informed consent should include a discussion of the biological consequences of potential disease processes as well of the potential problems associated with the technique of laparoscopy. Anaesthetic risks particular to laparoscopy result from operative pneumoperitoneum in the Trendelenburg position, which may pose ventilation-perfusion challenges. The surgeon's instruments and equipment are more complex during laparoscopy as compared to laparotomy, and therefore more prone to failure.

It is important that the public perception of minimal access surgery as 'simple surgery' be balanced with a full discussion of the attendant risks.

**SPECIFIC INTRAOPERATIVE RISKS**

In surgical practice, complications may arise intraoperatively, immediately post-operatively or much later. These complications may be related to anaesthesia, bleeding, infection or damage to structures adjacent to the surgical site. Laparoscopy is no exception. Some complications, however, are specific to laparoscopic surgery,\(^1\)\(^,\)\(^4\)\(^,\)\(^6\)\(^-\)\(^8\) including:

- malfunction of equipment
- trocar injuries
- endoscopic surgical instrument injuries
- thermal injuries
- subcutaneous emphysema

Immediate management of laparoscopic complications will help minimize sequelae.

Malfuctioning equipment requires immediate replacement, or abandonment of laparoscopy in favour of laparotomy or cancellation of surgery, depending on clinical circumstances. In a series of 2,324 laparoscopies, 20 complications were reported, 15 of which occurred with Verre's needle and trocar insertion.\(^1\) A larger multicentre French study of 29,966 laparoscopies also showed a high frequency of trocar injuries among the complications (total complication rate 4.64 per 1,000 laparoscopies). Since trocar injuries cause the most serious vascular and bowel complications,\(^3\) verification of correct placement of the Verre's needle cannot be overemphasized.

**MEDICO-LEGAL RISKS**

Data from 1990 to 1997 provided by the Canadian Medical Protective Association (CMPA) confirms that for gynaecologic laparoscopists, tubal occlusion is associated with the highest litigation rate when compared with all other surgical procedures performed.

Patients initiate legal action when there is a poor outcome, real or perceived, as a result of treatment. Clearly, a poor outcome does not always result from negligence or substandard care. It is equally certain that there are more poor outcomes...
from laparoscopic surgery than the number resulting in lawsuits. Clinical risk management will reduce clinical risks and achieve better patient care.

RECOMMENDATIONS

The following recommendations to minimize operative laparoscopy risks result from current literature review and examination of the CMPA experience. The quality of evidence reported in these guidelines has been described using the evaluation of evidence criteria outlined in the Report of the Canadian Task Force on the Periodic Health Exam (Table I).

1. Select appropriate patients for laparoscopy: weight greater than 100 kg, previous bowel obstruction or peritonitis, inflammatory bowel disease or more than two previous subumbilical vertical incisions may pose greater risks than usual for laparoscopy. (II-3 B)

2. With all patients, discuss in simple language and document the risks, benefits, and alternatives to laparoscopy. (II-3 B)

3. For tubal occlusion discuss and document reversibility/irreversibility and failure. (II-3 B)

4. Consider conversion to laparotomy if difficulties are encountered, or abandon the procedure if no harm has been done and surgery is elective. (II-3 B)

5. Report technical difficulty in the operative record and discuss complications post-operatively with the patient. (II-3 B)

6. Consult an appropriate colleague if a complication occurs. This could be another gynaecologist, a general surgeon, a vascular surgeon or a urologist. (II-3 B)

REFERENCES


