



Complete Summary

GUIDELINE TITLE

Laparoscopic entry: a review of techniques, technologies, and complications.

BIBLIOGRAPHIC SOURCE(S)

Vilos GA, Ternamian A, Dempster J, Laberge PY, The Society of Obstetricians and Gynaecologists of Canada. Laparoscopic entry: a review of techniques, technologies, and complications. J Obstet Gynaecol Can 2007 May;29(5):433-47. [131 references] [PubMed](#)

GUIDELINE STATUS

This is the current release of the guideline.

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SCOPE

DISEASE/CONDITION(S)

- Benign gynecologic conditions requiring laparoscopy
- Complications of laparoscopic entry

GUIDELINE CATEGORY

Management
Risk Assessment
Technology Assessment

CLINICAL SPECIALTY

Internal Medicine
Obstetrics and Gynecology
Surgery

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To provide clinical direction, based on the best evidence available, on laparoscopic entry techniques and technologies and their associated complications

TARGET POPULATION

Patients requiring laparoscopy

INTERVENTIONS AND PRACTICES CONSIDERED

Laparoscopic entry techniques and instruments

- Closed entry (classic)
- Pneumoperitoneum (Veress needle)
 - CO₂ insufflation
- Open laparoscopic entry (Hasson technique)
- Direct trocar entry
- Disposable shielded trocars
- Radially expanding access system
- Visual entry systems

MAJOR OUTCOMES CONSIDERED

- Comparative safety and effectiveness of different access methods
- Minor and major complication rates
- Morbidity and mortality

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

English-language articles from Medline, PubMed, and the Cochrane Database published before the end of September 2005 were searched, using the key words laparoscopic entry, laparoscopy access, pneumoperitoneum, Veress needle, open (Hasson), direct trocar, visual entry, shielded trocars, radially expanded trocars, and laparoscopic complications.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Quality of Evidence Assessment*

I: Evidence obtained from at least one properly randomized controlled trial

II-1: Evidence from well-designed controlled trials without randomization

II-2: Evidence from well-designed cohort (prospective or retrospective) or case-control studies, preferably from more than one centre or research group

II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

*Adapted from the Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Classification of Recommendations*

- A. There is good evidence to recommend the clinical preventive action.
- B. There is fair evidence to recommend the clinical preventive action.
- C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making.
- D. There is fair evidence to recommend against the clinical preventive action.
- E. There is good evidence to recommend against the clinical preventive action.
- I. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making.

*Adapted from the Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

This guideline has been reviewed and approved by the Executive and Council of the Society of Obstetricians and Gynecologists of Canada.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions of the levels of evidence (I, II-1, II-2, II-3, and III) and grades of recommendations (A-E and I) are provided at the end of the "Major Recommendations" field.

Establishment of Pneoperitoneum: The Veress Needle

1. Left upper quadrant (LUQ, Palmer's) laparoscopic entry should be considered in patients with suspected or known periumbilical adhesions or history or presence of umbilical hernia, or after three failed insufflation attempts at the umbilicus. **(II-2 A)** Other sites of insertion, such as transuterine Veress CO₂ insufflation, may be considered if the umbilical and LUQ insertions have failed or have been considered and are not an option. **(I-A)**

2. The various Veress needle safety tests or checks provide very little useful information on the placement of the Veress needle. It is therefore not necessary to perform various safety checks on inserting the Veress needle; however, wagging of the Veress needle from side to side must be avoided, as this can enlarge a 1.6 mm puncture injury to an injury of up to 1 cm in viscera or blood vessels. **(II-1 A)**
3. The Veress intraperitoneal (VIP-pressure ≤ 10 mm Hg) is a reliable indicator of correct intraperitoneal placement of the Veress needle; therefore, it is appropriate to attach the CO₂ source to the Veress needle on entry. **(II-1 A)**
4. Elevation of the anterior abdominal wall at the time of Veress or primary trocar insertion is not routinely recommended, as it does not avoid visceral or vessel injury. **(II-2 B)**
5. The angle of the Veress needle insertion should vary according to the body mass index (BMI) of the patient from 45 degrees in non-obese women to 90 degrees in obese women. **(II-2 B)**
6. The volume of CO₂ inserted with the Veress needle should depend on the intra-abdominal pressure. Adequate pneumoperitoneum should be determined by a pressure of 20 to 30 mm Hg and not by predetermined CO₂ volume. **(II-1 A)**
7. In the Veress needle method of entry, the abdominal pressure may be increased immediately prior to insertion of the first trocar. The high intraperitoneal (HIP-pressure) laparoscopic entry technique does not adversely affect cardiopulmonary function in healthy women. **(II-1 A)**

Open Laparoscopic Entry or Hasson Technique

8. The open entry technique may be utilized as an alternative to the Veress needle technique, although the majority of gynaecologists prefer the Veress entry. There is no evidence that the open entry technique is superior to or inferior to the other entry techniques currently available. **(II-2 C)**

Direct Trocar Entry

9. Direct insertion of the trocar without prior pneumoperitoneum may be considered as a safe alternative to Veress needle technique. **(II-2)**

Summary Statement

10. Direct insertion of the trocar is associated with less insufflation-related complications such as gas embolism, and it is a faster technique than the Veress needle technique. **(I)**

Disposable Shielded Trocars

11. Shielded trocars may be used in an effort to decrease entry injuries. There is no evidence that they result in fewer visceral and vascular injuries during laparoscopic access. **(II-B)**

Radially Expanding Access System

12. Radially expanding trocars are not recommended as being superior to the traditional trocars. They do have blunt tips that may provide some protection from injuries, but the force required for entry is significantly greater than with disposable trocars. (**I-A**)

Visual Entry System

13. The visual entry cannula system may represent an advantage over traditional trocars, as it allows a clear optical entry, but this advantage has not been fully explored. The visual entry cannula trocars have the advantage of minimizing the size of the entry wound and reducing the force necessary for insertion. Visual entry trocars are non-superior to other trocars since they do not avoid visceral and vascular injury. (**2 B**)

Definitions:

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Classification of Recommendations**

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E. There is good evidence to recommend against the clinical preventive action.

I. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making.

*The quality of evidence reported in these guidelines has been adapted from the Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

**Recommendations included in these guidelines have been adapted from the Classification of Recommendations criteria described in the Canadian Task Force on Preventive Health Care.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Implementation of this guideline should optimize the decision-making process in choosing a particular technique to enter the abdomen during laparoscopy.

POTENTIAL HARMS

Minor Complications

- Minor hemodynamic alterations
- Postoperative infection

Major Complications

- Insufflation-related complications (i.e., carbon dioxide embolism)
- Visceral and vascular injuries: Injuries to the gastrointestinal tract (bowel or omental perforation; liver or urinary bladder injury) and major blood vessels (aortic, abdominal wall mesenteric, or retroperitoneal vessel laceration)
- Some surgeons waggle the Veress needle from side to side, believing that this shakes an attached organ from the tip of the needle and confirms correct intra-abdominal placement. However, this maneuver can enlarge a 1.6 mm puncture injury to an injury of up to 1 cm in viscera or blood vessels.
- Failed laparoscopy
- Mortality

QUALIFYING STATEMENTS

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This guideline reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as

dictating an exclusive course of treatment or procedure to be followed. Local institutions can dictate amendments to these opinions. They should be well documented if modified at the local level.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2007 May

GUIDELINE DEVELOPER(S)

Society of Obstetricians and Gynaecologists of Canada - Medical Specialty Society

SOURCE(S) OF FUNDING

Society of Obstetricians and Gynaecologists of Canada

GUIDELINE COMMITTEE

Clinical Practice Gynaecology Committee

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [Society of Obstetricians and Gynaecologists of Canada Web site](#).

Print copies: Available from the Society of Obstetricians and Gynaecologists of Canada, La société des obstétriciens et gynécologues du Canada (SOGC) 780 promenade Echo Drive Ottawa, ON K1S 5R7 (Canada); Phone: 1-800-561-2416

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI Institute on February 9, 2009. The information was verified by the guideline developer on March 4, 2009.

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