1. Preoperative Evaluation of the Healthy Laparoscopic Patient

Stephanie B. Jones, M.D.
Daniel B. Jones, M.D., F.A.C.S.

A. General Considerations

1. **The goal** of preoperative evaluation is to identify and modify risk factors that might adversely effect anesthetic care and surgical outcome.
2. **Up to 50% of patients presenting for elective surgery are regarded as "healthy."** These patients typically fall into American Society of Anesthesiologists (ASA) Physical Status I (healthy) and II (mild systemic disease). The ASA Physical Status classification (Table 1.1) is not intended to predict outcomes, nor does it incorporate risks specific to the type of surgery performed.
3. **A patient presenting without established medical diagnoses is not necessarily healthy.** He or she simply may have never previously visited a physician. Consequently, any physician visit, including preoperative evaluation, should be used as an opportunity to address routine preventive care (Table 1.2).
4. Preoperative evaluation should seek to determine absolute contraindications to laparoscopy.
   a. Inability to tolerate pneumoperitoneum
   b. Poor risk for general anesthesia
   c. Uncorrectable coagulopathy
5. The emphasis over the past decade has been a return to the use of the history and physical examination as the primary screening tools. Preoperative testing is used selectively. This approach is especially true in healthy patients.

B. History

1. **History of pulmonary disease.** Does the patient have decreased pulmonary compliance, due to obesity, scoliosis, or other restrictive lung disease? This factor may result in prohibitively high peak airway pressures after abdominal insufflation or difficulty with oxygenation. Obstructive diseases, such as asthma or chronic obstructive pulmonary

Table 1.1. American Society of Anesthesiologists Physical Status Scale.

Category	Description
I	Healthy patient
II	Mild systemic disease without functional limitation
III	Moderate to severe systemic disease with functional limitation
IV	Severe systemic disease that is a constant threat to life
V	Moribund patient unlikely to survive 24 hours with or without operation

disease, may cause inadequate gas exchange and accumulation of insufflated carbon dioxide.

2. **History of cardiac disease.** Even mild chronic hypertension can result in relative hypovolemia and possibly hypotension with pneumoperitoneum, especially at insufflation pressures greater than 15 mmHg. Carbon dioxide is a sympathetic stimulant, and may cause tachycardia or tachydysrhythmias, particularly when combined with surgical stimulation. Tachycardia may uncover otherwise asymptomatic coronary artery disease. The most significant risk to the patient is undetected aortic stenosis in the setting of potential hypotension. Any history of a murmur should be evaluated.
3. **Risk of pregnancy.** Although pregnancy may not preclude surgical treatment, port site position may need to be changed. If possible, surgery should be performed after the first trimester.
4. **History of previous abdominal operations.** An alternate port site, away from surgical scars, allows the surgeon to examine the abdominal cavity and assess the extent of adhesions.
5. **History of abnormal bleeding.** Patients should be queried regarding nosebleeds, heavy menstrual bleeding, easy bruising, or family history of bleeding disorders.

Table 1.2. Guidelines for routine preventive care.

Preventive measure	Recommended frequency
Blood pressure	Every other year in all adults
Serum cholesterol	Every 5 years for men from age 35, and women from age 45
Pap smear	At least every 3 years following onset of sexual activity
Stool for occult blood	Every year after age 40
Sigmoidoscopy	Every 3 years after age 50
Mammography ± breast exam	Every 1–2 years after age 50
Tetanus-diphtheria booster	Every 10 years
Influenza immunization	Every year after agea 65
Pneumococcal immunization	Once at age 65

6. **Difficulty with prior anesthetics.** Patients undergoing laparoscopy, especially gynecologic procedures, are at increased risk of postoperative nausea and vomiting. Aggressive antiemetic prophylaxis may be warranted, particularly for outpatients. A history of difficulty with intubation should be communicated to the anesthesiologist as well.

C. Physical Examination

1. A thorough physical examination includes assessment of the head and neck, lungs, heart, abdomen (including surgical scars), neurologic system, and vascular system. An anesthesiologist will also perform an airway evaluation.
2. Vital signs should be recorded.

D. Diagnostic Studies

1. **Diagnostic studies should be performed on a selective basis.** There are no definitive rules delineating which tests should be ordered for specific indications. The individual physician best determines this for the individual patient.
2. Test results obtained within 6 months of surgery are generally acceptable if the patient's medical history has not changed substantially. More recent tests may be required to assess a change in medical condition or therapy or to comply with the preoperative guidelines of a particular hospital or anesthesia department.
3. The impulse to routinely test every patient regardless of medical condition should be resisted. Not only is nonspecific preoperative testing expensive, it can result in morbidity when invasive testing is used to pursue false-positive results. The more tests that are ordered, the more likely a falsely abnormal result will appear.
4. Legal liability is actually greater if a test is performed but the result ignored than if it had never been done at all.
5. **Selective testing is supported by a variety of studies.**
   a. A 1985 JAMA study was one of the first to examine the question. The authors determined that 60% of the 2800 preoperative tests examined had no recognizable medical indication, and only 4 (0.2%) of the results may have been potentially significant for anesthetic or surgical management.
   b. Turnbull and Buck examined 5003 tests in 1010 otherwise healthy patients undergoing cholecystectomy. In their opinion, only 4 patients had a conceivable benefit from a preoperative screening test.
   c. Narr et al. retrospectively reviewed mostly ASA I and II patients who underwent surgery without prior laboratory studies. No

intraoperative or postoperative test was found to significantly change the surgical or medical management.

6. **Testing guidelines.** As stated previously, these are suggestions that need to be individualized for each patient.
   a. **Hemoglobin** (Hgb): Indicated if significant blood loss may be expected from the operation. Anemia may be sought in women with heavy menstrual bleeding. The lowest acceptable Hgb will vary. Otherwise healthy patients will be able to physiologically compensate for a low Hgb. This is not the case for those with limited compensatory reserve, such as patients with heart or lung disease, or the elderly.
   b. **Serum electrolytes**: Routinely check electrolytes, blood urea nitrogen (BUN), and creatinine for patients with diarrhea, renal disease, liver disease, or diabetes as well as for those receiving diuretics.
   c. **Liver function tests** are indicated for patients with known liver disease, or those undergoing planned cholecystectomy to exclude an obstructive enzyme pattern.
   d. **Coagulation profile**: While routine screening is not useful, a prothrombin time (PT) and partial thromboplastin time (PTT) should be checked in patients with a personal or family history of abnormal bleeding. These tests may also be indicated in patients with liver or renal dysfunction.
   e. **Chest X-ray** (CXR): Routine CXR is rarely helpful for abdominal laparoscopy, but should be done in patients undergoing video-assisted thoracic surgery (VATS) for baseline comparison. CXR may also be indicated in elderly patients undergoing more extensive upper abdominal surgery (e.g., laparoscopic Nissen fundoplication), or patients with recent upper respiratory infection, unstable chronic obstructive pulmonary disease (COPD), or unstable cardiac disease.
   f. **Electrocardiogram** (EKG): Coronary disease becomes more prevalent with increasing age. EKG is typically reserved for men older than 40 and women older than 50, particularly those with other risk factors such as hypertension, tobacco use, obesity, or diabetes.
   g. **Urinalysis** should be performed for urinary tract symptoms, or if a urologic procedure is planned.
   h. **Pregnancy test**: Indicated in female patients of childbearing age who have not undergone sterilization.
   i. **Human immunodeficiency virus (HIV) and hepatitis** testing is not indicated. Universal precautions should be followed in all patients.
7. The preoperative evaluation should also include **patient education.** The patient needs to know what to expect with regard to the surgery, anesthetic, and postoperative pain management. For example, patient satisfaction with same-day discharge following laparoscopic cholecystectomy has been shown to be directly related to preoperative expectations.

E. Selected References

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