



# Minimally Invasive Surgery

Laparoscopic surgery, also called minimally invasive surgery or keyhole surgery, is a modern surgical technique in which operations in the abdomen are performed through small incisions (usually 0.5–1.5 cm) as opposed to the larger incisions needed in laparotomy.



Keyhole surgery makes use of images displayed on TV monitors to magnify the surgical elements. The main element in laparoscopic surgery is the use of a laparoscope.

The laparoscope has a telescopic rod lens system, that is connected to a video camera. Also attached is a fiber optic cable system connected to a 'cold' light source to illuminate the field.

The abdomen is usually insufflated, or essentially blown up like a balloon, with carbon dioxide gas. This elevates the abdominal wall above the internal organs like a dome to create a working and viewing space. CO<sub>2</sub> is used because it is common to the body and can be absorbed by tissue and removed by the respiratory system.



There are a number of advantages to the patient with laparoscopic surgery versus an open procedure. These include:

- Reduced hemorrhaging, which reduces the chance of needing a blood transfusion.
- Smaller incision, which reduces pain and shortens recovery time, as well as resulting in less post-operative scarring.
- Less pain, leading to less pain medication needed.
- Reduced exposure of internal organs to possible external contaminants thereby reduced risk of acquiring infections.

Another minimally invasive procedure offered at Hawthorne is endoscopy. Endoscopy uses the same camera technique as laparoscopic surgery but instead of surgery inside the abdominal cavity, it is done within the digestive tract, including the esophagus, stomach, small intestine, large intestine, and colon. Through endoscopic surgery, doctors can collect biopsies, perform certain surgical procedures, place feeding tubes, and remove foreign bodies.



While not used in most minimally invasive procedures, Hawthorne has also added a LigaSure ForceTriad unit to the companion animal surgical suite. The LigaSure ForceTriad brings together the standard LigaSure tool with monopolar and bipolar cautery units. With the ForceTriad, doctors can isolate tumors, for example, with minimal dissection and bleeding. The unit acts like a jaw, clamping around tissue, while also allowing surgeon to control bleeding, all with one instrument.