

Endoscopy in Veterinary Medicine

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Endoscopy allows a visual examination of internal organs and body parts without invasive exploratory surgery. It was first described in the early 1800's, but it was not until the late 1800's that optical lenses were developed which could be used in viewing devices and endoscopy could start to be used. Endoscopy is performed with either a rigid or flexible fiberoptic instrument. Flexible endoscopes such as those used in the examination of the stomach consist of a long, flexible insertion tube with a bending tip at the end that enters the body, an eyepiece, and a control section. The tip of the endoscope is manipulated using a control knob in the hand piece. In addition to the fiber bundles which provide the light source, two channels are present within the endoscope. One channel permits various endoscopic tools to be passed and fluids to be suctioned or samples taken. The other allows air or water to be passed into the stomach/intestine to insufflate (inject air into the area), or wash away mucus from the viewing port. Special video cameras can be attached to the endoscopes which allow viewing of the exam on a television screen, as well as recording the exam on video. The rigid endoscope cannot be used in some areas, such as the stomach because it does not have the bending tip, so it cannot be flexed to allow examination of all parts of the stomach.

Types of endoscopy include:

Flexible endoscopy:

- **Bronchoscopy:** an exam of the lower airways.
- **Colonoscopy:** an exam of the transverse colon, ascending colon, cecum, large bowel, and rectum.
- **Endoscopy:** an exam of the esophagus, stomach, and upper intestines.

Rigid endoscopy:

- **Arthroscopy:** an exam of soft tissue structures and joint cartilage, which is not visible on [radiographs](#). Decreased damage to the joint and shortened recovery times are two advantages of arthroscopy over arthrotomy (surgical exam of the joint). Disadvantages include its limitation during diagnostic and corrective surgical procedures in small patients.
- **Cystoscopy:** an examination of the vagina, urethral opening, urethra, bladder, and ureteral openings.
- **Laparoscopy:** an exam of the abdominal cavity performed through a small incision in the wall of the abdomen or through the navel. It is done in veterinary medicine to obtain hepatic (liver) and renal (kidney) biopsy samples.
- **Proctoscopy:** an exam of the large bowel and rectum.
- **Rhinoscopy:** an exam of the nasal cavity and nasopharynx (junction between the nasal area and the back of the throat).
- **Thoracoscopy:** an examination of the chest cavity. This is currently not performed frequently in veterinary medicine.

Candidates for endoscopy of the upper gastrointestinal tract include those with a stricture (abnormal narrowing) or foreign body in the esophagus. Symptoms, such as vomiting with or without blood and/or melena (blood in the stool) may indicate a stomach ulcer or cancer are present and are indications for an endoscopic exam. If a duodenal aspirate (sample of fluid in the intestine) for culture or isolation of Giardia, pancreatic response testing, or biopsies are necessary, endoscopy would be indicated.

The advantage of endoscopy over other methods of evaluating the digestive system is that it is nonsurgical. The technique allows for visualization of the lining of the digestive system and for taking samples of the lining of these organs, including biopsies. Many foreign bodies in the esophagus and stomach may be removed via endoscopy.

The major disadvantage with endoscopy is the necessity to anesthetize the patient. Endoscopy should be preceded by adequate laboratory testing and radiology. The blood work is necessary in part to indicate the patient is healthy enough to withstand the anesthesia. Animals are fasted for 12 hours before an elective endoscopy is performed. General anesthesia with tracheal intubation is recommended. A mouth gag is used to prevent damage to the endoscope or the patient's teeth.

In cases where the lower intestinal tract is to be examined, the patient should be fasted for 24-48 hours. Enemas are then used to clean the intestines of remaining fecal matter. Sedation or anesthesia is used to eliminate any pain and to keep the animal from moving. Colonoscopy is useful to diagnose many large bowel diseases or generalized intestinal diseases such as inflammatory bowel disease or diffuse intestinal lymphosarcoma.

Multiple biopsies of the gastrointestinal system should be taken any time endoscopy is performed as a diagnostic test. Tissue may appear grossly normal, but show pathology (signs of disease) when examined histologically.

Complications due to the actual endoscopic exam are rare. Care needs to be taken to prevent perforation (tearing) of the stomach or intestines during the exam. If tearing does occur, surgical repair is done immediately. The most significant limitation of gastrointestinal endoscopy is the inability to examine the entire length of intestine, especially the jejunum and ileum.