

D. Gastrointestinal Tract

The gastrointestinal tract includes the esophagus, stomach, duodenum, small intestine, and colon.

1. Rectal swabs

- a) Submitted primarily for the detection of *Neisseria gonorrhoeae*, *Shigella* species, Herpes simplex virus (HSV), and anal carriage of *Streptococcus pyogenes*.
- b) Pass the tip of a sterile swab approximately 1 inch beyond the anal sphincter. Carefully rotate the swab to sample the anal crypts, and withdraw the swab. Send the swab in a gel swab transport (Table 2).

2. Gastric aspirates

- a) The patient should fast prior to each of the following procedures.

(1) Gastric lavage

- (a) Submitted primarily for the detection of *Mycobacterium tuberculosis* in patients (most frequently children) unable to produce quality sputum. Should be performed after the patient wakes in the morning so that sputum swallowed during sleep is still in the stomach.
- (b) Pass a well-lubricated tube orally or nasally through to the stomach of the patient, and perform the lavage. Before removing the tube, release the suction and clamp to prevent mucosal trauma and/or aspiration.

(2) Duodenal aspiration

- (a) Submitted primarily for the detection of *Giardia* species and larvae of *Strongyloides stercoralis* and *Ascaris lumbricoides*.
 - (i) Pass a tube orally through to the duodenum of the patient.
 - (ii) To aspirate a sample for giardiasis, the tube should be at least in the third portion of the duodenum.

3. Gastric biopsies and washings

- a) The patient should fast prior to each of the following procedures.
- b) Esophageal, stomach, or duodenum specimens
 - (1) Esophageal specimens are primarily used to detect *Candida* species, cytomegalovirus (CMV), and HSV infections. Stomach and duodenal specimens are primarily used for the detection of *Helicobacter pylori*. Duodenal specimens can also be used for the detection of *Giardia* species and the larvae of *S. stercoralis* and *A. lumbricoides*.
 - (a) Pass an endoscope orally.
 - (b) Obtain specimens through a channel in the endoscope by using one of the following procedures.
 - (i) Using biopsy forceps, obtain samples from the esophagus, stomach, or duodenum.
 - (ii) Using a sheathed brush, brush suspicious areas several times to obtain adequate cellular material.
- c) Gastric Lavage
 - (1) Perform a wash by injecting approximately 25 to 30 ml of sterile nonbacteriostatic isotonic 0.85% NaCl through the biopsy channel onto the lesion.
 - (2) Collect the specimen by aspirating the fluid through the scope into a sterile trap, which is connected to the suction tubing. Note: If a gastric ulcer is seen, obtain

biopsy samples from the base, the surrounding gastric mucosa, and each of the four quadrants of the margin.

- d) Rectal biopsy
 - (1) Submitted primarily for the detection of *Entamoeba histolytica*, *Balantidium coli*, and HSV.
 - (2) If lesions are not evident, biopsy the posterior rectal mucosa below the peritoneal reflection (within 7 to 10 cm of the anal verge).
- e) Small bowel biopsy
 - (1) Submitted primarily for the detection of *Giardia*, *Cryptosporidium*, and *Microsporidium* species.
 - (2) Biopsies of the small intestine provide the highest diagnostic yield for *Microsporidia* species. Biopsies from other gastrointestinal sites (stomach, colon, rectum) have a much lower yield in comparison. Obtain biopsy sample of lesion at surgery.
- f) Sigmoidoscopy
 - (1) Useful in the detection of *E. histolytica* and *Mycobacterium* species and the diagnosis of pseudomembranous colitis associated with *C. difficile* and possibly *Staphylococcus aureus*.
 - (a) Perform flexible or rigid sigmoidoscopy.
 - (b) Obtain endoscopic pinch biopsy samples of any lesions seen. Additionally, aspirate liquid from the inflamed bowel with a pipette passed through the sigmoidoscope. Transport specimens in a sterile screw-cap container. If biopsy samples are small, add a small amount of sterile nonbacteriostatic 0.85% NaCl to prevent the specimen from drying.
- g) Gastrointestinal specimen collection considerations are summarized in Table 5.

Table 5: Collection Considerations for Gastrointestinal Specimens

Culture	Comments
Bacteria	Stools: One stool specimens recommended. Gram stain for fecal leuckocytes only. Gastric biopsy: Rule of <i>Helicobacter pylori</i> . Rectal swab: Rule out enteric pathogens (especially <i>Shigella</i> spp.) and <i>Neisseria gonorrhoeae</i> .
Fungi	Gastric aspirate, gastric biopsy, esophageal brush, esophageal biopsy.
Pinworm	For pinworm collection kit, contact microbiology laboratory. Swab perianal area when patient gets up in the morning before patient bathes or defecates.
Mycobacteria	Gastric aspirate or gastric biopsy; feces.
Parasites	If transport to laboratory is delayed, refrigerate stool specimen up to 72 hours. Duodenal aspirates are useful for detecting <i>Giardia</i> spp. and larvae of <i>S. stercoralis</i> and <i>A. lumbricoides</i> . Use rectal biopsy specimens for <i>E. histolytica</i> and <i>B. coli</i> . Use small-bowel biopsy specimens for <i>Giardia</i> , <i>Cryptosporidium</i> , and <i>Microsporidium</i> spp.
Virus	Use esophageal specimens for CMV and HSV and rectal biopsy specimens for HSV. Send to laboratory in Viral Transport Media (M4). Do not freeze.