The clinical presentation of abdominal pain, fatigue, and fever represents a number of potential diagnoses. Differential diagnoses for these common signs and symptoms include appendicitis, cholecystitis, diverticulitis, gastritis, renal colic, and myocardial infarction. Presenting symptoms are more likely to represent a gastrointestinal etiology with the addition of melena, ranging from a simple gastritis to a gastrointestinal malignancy. This column will explore the diagnostic process for evaluating symptoms of abdominal pain, fatigue, fever, and melena in a 58-year-old man from the perspective of an oncology nurse practitioner. An algorithm for narrowing from a broad list of potential diagnoses at the patient’s initial presentation to the most probable diagnoses is described, and the clinical reasoning process for narrowing the list is discussed.

Patient Description

Mr. I is a 58-year-old Japanese man who presents to clinic with complaints of abdominal pain, fatigue, and fever for the past three to four days. He also states that he has had black stools for the past 24 hours. His wife and two adult children accompany him to the clinic.

Diagnostic Process: Presumptive Diagnosis

The clinical presentation of abdominal pain, fatigue, and fever represents many potential diagnoses, some of which are benign and self-limiting, such as viral gastroenteritis caused by rotavirus. Abdominal pain with fever and fatigue in a 58-year-old man may indicate bacterial gastroenteritis caused by organisms such as salmonella and shigella. Other common causes include appendicitis, cholecystitis and/or gallstones, diverticulitis, or peritonitis. Important nongastrointestinal conditions include renal colic, dissecting aortic aneurysm, or even a myocardial infarction. With the addition of melena to the aforementioned constitutional symptoms, clinical suspicion for more specific pathologic conditions causing upper-gastrointestinal bleeding must be ruled out.

Acute Abdominal Symptoms

Appendicitis is the most common cause of acute abdominal pain in the United States (Margenthaler et al., 2003) and should be considered as a possible diagnosis when a patient presents with abdominal symptoms. Acute appendicitis as a cause of intra-abdominal sepsis may have an atypical presentation in older adult patients, which may lead to a delay in diagnosis and increased morbidity and mortality because of perforation or peritonitis (Podnos, Jimenez, & Wilson, 2002). Acute appendicitis also may cause bleeding in the gastrointestinal tract.

In addition to appendicitis, Podnos et al. (2002) described diverticulitis, cholecystitis, and colon cancer perforation as potential differential diagnoses for older adult patients presenting with intra-abdominal illnesses. They noted that cholecystitis may present with Charcot’s triad (fever and chills, right upper-quadrant pain, and jaundice), but 30%–45% of patients may not present with this triad of symptoms. Diverticulitis may present with abdominal pain, low-grade fever, a change in bowel habits, and dysuria (Stollman & Raskin, 1999). Men, especially those older than 50, present with bleeding related to diverticulitis more often than women (McConnell, Tessier, & Wolff, 2003). Erosive hemorrhagic gastritis also will cause melena (Yabuki et al., 2002) and, if associated with infection and significant blood loss, may be accompanied by fever and fatigue.

Gastrointestinal Bleeding

Common causes of gastrointestinal bleeding include duodenal or gastric ulcers, gastritis, duodenitis, esophagitis, and angiodysplasia; uncommon causes include duodenal Crohn disease, gastric polyps, or malignancy (Cappell & Friedel, 2002). However, healthcare professionals must determine whether the melena is related to conditions that mimic melena or cause short-term melena because of ingestion of small amounts of blood from food sources and is independent of the other presenting complaints. Wilcox, Alexander, & Cotsonis (1997) described studies with human volunteers and demonstrated that as little as 50 ml of blood placed in the stomach produces melena, although melena is produced more consistently with 1 unit of blood. Stool color actually depends on transit time of blood through the gastrointestinal tract, with the color of denatured blood in stool appearing darker with longer transit times. Dark stools may be attributed mistakenly to blood in the stool, which

Mady Stovall, RN, MSN, NP, OCN®, is a neuro-oncology nurse practitioner and assistant clinical professor in the neuro-oncology program at the University of California, Los Angeles.
may be because of ingestion of drugs or foods. Ingestion of iron preparations, licorice, spinach, beets, bismuth, lead, or charcoal (Squires, 1999) may cause stools to appear to be bloody or “tarry.” The character and color of the stool must be assessed to help guide the diagnosis of upper- or lower-gastrointestinal bleeding and can be distinguished by a guaiac test.

If other, more likely causes for gastrointestinal bleeding have not been found, consideration of a possible gastrointestinal tract cancer needs to be explored. Bleeding stomach cancers will present with melena because bleeding proximal to the ileocecal valve allows bacteria time to denature hemoglobin during colonic transit (Squires, 1999). Gastrointestinal cancer, specifically gastric (stomach) cancer, has a large variability in incidence rates by geographic location in the world, with Japan having the highest incidence. Japan has rates 3–10 times higher than other countries (Verdecchia, Mariotto, Gatta, Bustamante-Teixeira & Ajiki, 2003). Given that Mr. I was born in Japan and lived there until the age of 30, in addition to his reported social history and signs and symptoms of illness at the time, a gastrointestinal tract cancer, specifically gastric cancer, should be included in a list of differential diagnoses (Engel et al., 2003). See Figure 1 for a listing of the potential differential diagnoses.

Review of Symptoms

Mr. I does not routinely seek healthcare and presents today after experiencing a melanic stool yesterday. He states that he had some loose melanic stools one month ago; however, he was not alarmed until the condition appeared to return yesterday, along with symptoms of abdominal pain, fatigue, and general malaise. He states that his medical history is unremarkable for major illnesses, injuries, or surgeries. He denies any history of transfusions, hepatitis, or food dyscrasias. Family history is non-contributory.

Social history is significant. Mr. I smoked one pack of cigarettes per day for 30 years and drinks wine or beer socially on weekends. He has drunk four to six cups of coffee per day since he was a teenager. Mr. I and his wife have traveled extensively; their last trip was to Vietnam seven months ago. Mr. I denies using nonsteroidal anti-inflammatory drugs on a regular basis and has not used them in the past three to four days. He has not ingested iron, licorice, or bismuth-containing medications in the past month.

During the review of systems interview, Mr. I reports that he has had a significant unintentional weight loss, stating that he has lost 20–30 lbs during the past six months, but he attributed this to some oral surgery in which 10 teeth were extracted. His appetite has been diminished since that time, with a significant appetite loss being noted in the past month. He does admit to some generalized abdominal discomfort, although he is not able to describe the character. Mr. I rubs his flat right hand though he is not able to describe the pain is located. The patient denies any bright red blood from his rectum, hemorrhoids, or any nausea, vomiting, diarrhea, or constipation. Mr. I reports having nocturia (twice per night) with frequency, urgency, and a decreased force of urination. He denies any past surgeries with the exception of the oral surgery six months ago.

Analysis of Subjective Data

Mr. I’s disclosure of his significant weight loss over the past six months further increases the oncology nurse practitioner’s suspicion that he may have an underlying gastrointestinal malignancy. Involuntary weight loss is a nonspecific symptom that is common in chronic and subacute disease. Mr. I losing 20–30 lbs constitutes a greater than 5% loss of his body weight in six months, which is alarming. Most causes of involuntary weight loss belong to one of three categories: malignant neoplastic diseases, chronic inflammatory or infectious diseases, or psychiatric disorders (Hernandez, Matorras, Riancho, & Gonzalez-Macias, 2003); the most common causes (60%) are nonmalignant disease (Lankisch, Gerzmann, Gerzmann, & Lehnick, 2001).

Considering the major symptoms of abdominal pain, fever, melena, fatigue, and unintentional weight loss of more than 5% of body weight, diseases of the gastrointestinal tract rank highest on the list of differential diagnoses for Mr. I. Although most people experiencing unintentional weight loss are suffering from a nonmalignant process, a serious condition is highly probable in Mr. I’s case after the list of clinical signs and symptoms.

Probable diagnoses for Mr. I in order of decreasing likelihood are: perforated peptic ulcer, malignancy (gastric or colon), appendicitis, diverticulitis, gastritis or gastroenteritis, and inflammatory bowel disease. A bleeding ulcer is the most likely culprit; however, this does not explain the weight loss. Malignancy ranks high given the growing cancer risk factors evident after his historical disclosures during the interview. Acute appendicitis ranks lower on the list but must still be considered because appendicitis often presents differently, with fewer traditional symptoms, in older adults. Finally, the inflammatory diseases are still considered in the list of differential diagnoses.

Physical Examination

Mr. I is a man of small size and stature, standing 5'6” and weighing 112 lbs. Generally he appears pale, sickly, and in a fair amount of physical discomfort. Oral temperature is 99.4°F. Blood pressure is 120/80 supine and 116/74 standing. Heart rate is tachycardic at 110 beats per minute. Respirations are even and
nonlabored, clear to auscultation but diminished bilaterally. Tongue appears furry with papilla hypertrophied and whitish in color. Upper and lower ill-fitted dentures are noted. Abdomen is guarded. There is apparent epigastric fullness on gross visual examination, hyperactive bowel tones auscultated, and tenderness to light palpation of the epigastric, upper right, and left regions. No rebound tenderness is observed, but the right upper quadrant is firm. Hepatomegaly is noted with liver edge hard, nontender, measuring 10 cm and edge palpable below the xiphoid process. Rectal examination reveals a moderately enlarged prostate, and melanotic stool on glove is grossly guaiac positive. A finger stick in the clinic uncovers a hemoglobin of 8.6 mg/dl.

The physical examination findings further raise suspicion for a serious gastrointestinal disease. Suspicion increases for a bleeding ulcer or gastric or colonic cancer, especially with the objective findings from the abdominal physical examination.

**Provisional Diagnosis**

The physical examination, in combination with the history obtained from Mr. I, raises suspicion for a gastrointestinal malignancy. A bleeding ulcer is still a possibility given the prevalence; however, bleeding ulcers may present with overlapping symptoms congruent with gastrointestinal malignancies as in the case with the symptoms Mr. I is describing (Cappell & Schein, 2000). The prudent practitioner, however, recognizes that Mr. I’s signs and symptoms of weight loss, abdominal symptoms, and blood in the gastrointestinal tract may be caused by a gastric malignancy. Thus, the two diagnoses rank highest on the list of differentials at this time. The report of melena with the examination findings of profound anemia are two significant indicators of upper-gastrointestinal bleeding. His unintentional weight loss is disquieting; further exploration with laboratory, imaging, and exploratory studies will help elucidate this gray area. Appendicitis and inflammatory diseases are not likely, given the lack of physical examination findings consistent with appendicitis and the growing list of concurrent signs and symptoms of a longer-standing serious abdominal or gastrointestinal illness.

**Diagnostic Evaluation**

To further evaluate and initiate care, Mr. I will have an extensive diagnostic evaluation, including invasive and non-invasive examinations. Initial laboratory tests will include a complete blood count; comprehensive metabolic panel, including electrolytes and liver function tests; protime and prothrombin time; blood urea nitrogen and creatinine (bearing in mind that blood urea nitrogen may be elevated secondary to increased ingestion of nitrogen from digested blood (Chalasani, Clark, & Wilcox, 1997)); and thyroid function tests (to further evaluate the weight loss) (Lin, Li, Lee, Lee, & Leung, 1999). Other initial tests will include an electrocardiogram to rule in or out any cardiac crisis. A computed tomography (CT) scan with contrast of the abdomen and pelvis will be performed to explore the possibility of an intra-abdominal process contributing to his unintentional weight loss and hepatomegaly (Rosen et al., 2003).

Considering the probable upper-gastrointestinal bleed, an esophagogastroduodenoscopy (EGD) will be ordered to evaluate any possible stomach or duodenal lesions (Zuckerman, Prakash, Askin, & Lewis, 2000). A colonoscopy will be evaluated as well. The American Gastroenterological Association (2000) algorithm for evaluating occult bleeding recommended proceeding with colonoscopy and/or upper endoscopy at this point if no contraindications to such examinations exist. Mr. I has a high likelihood of having a bleeding peptic ulcer and will be treated as such. Also considering his travels and immigrant status, he should be evaluated for *Helicobacter pylori* infection, which can account for more than 90% of peptic ulcers (Cappell & Schein, 2000).

Therapeutics at this time include IV hydration and initiation of a proton pump inhibitor such as pantoprazole sodium. Because his finger stick in the office revealed profound anemia, Mr. I will be typed and crossed for two units of packed red blood cells. Pain control with oxycodone by mouth will be provided. An important part of the plan of care also includes a frank patient and family discussion of the possible and probable etiologies of the underlying illness.

**Results**

A complete blood count validates Mr. I’s anemia with hemoglobin 8.4 and hematocrit 26.2. Liver function tests demonstrate a slightly elevated lactate dehydrogenase and alkaline phosphatase. Most importantly, the imaging and exploratory examinations reveal the underlying cause of Mr. I’s troubles. EGD shows a large ulcerative malignant-appearing mass in the mid-body of the stomach. A rapid frozen section reveals adenocarcinoma. Final pathology indicates this is a moderately differentiated gastric adenocarcinoma. No ulcers are present, and the duodenum is normal. See Figure 2 for an example of stomach cancer in the upper-gastroduodenal tract.

CT scan of the abdomen and pelvis reveals a large soft tissue mass along the greater curvature of the gastric body with infiltration of the adjacent mesocolon compatible with gastric carcinoma and innumerable hepatic metastases. Minimal ascites was noted. A small 1 cm simple right renal cyst also is present. Colonoscopy reveals three polyps, which all were removed and shown to

---

**Figure 2. Barium X-Ray of the Upper-Gastroduodenal Tract Showing Stomach Cancer**

*Note. Copyright ISM/Phototake. All rights reserved. Used with permission.*
be noncancerous. The gastroenterologist had difficulty advancing the scope completely and, knowing the previously mentioned EGD findings, withdrew the scope without proceeding beyond the colon hepatic flexure.

**Diagnostic Examinations Cost and Benefit Analysis**

Although more expensive than radiographic contrast procedures, EGD is preferred for the diagnosis of ulcers induced by nonsteroidal anti-inflammatory drugs because of greater sensitivity and specificity (Cappell & Schein, 2000). Indications include acute gastrointestinal bleeding, fecal occult blood, anemia, abdominal pain of undetermined cause, and significant unremitting dyspepsia, all of which Mr. I had experienced to some degree.

In the year 2001, a CT scan was estimated to cost approximately $774. Rosen et al. (2003) justified the cost of CT scan in evaluating patients with abdominal pain by demonstrating that they had fewer hospital admissions and unnecessary surgeries. In fact, CT reduced the hospital admission rate in 28% of patients and changed the surgical management in 40% of patients.

In the case of Mr. I, the EGD proved to be the most revealing test, allowing immediate diagnosis with visualization and tissue sampling. His CT scan expanded upon knowledge of the extent of disease. Both tests substantiated medical concerns about Mr. I’s condition. Blood work with the other routine testing, such as the electrocardiogram, is justifiable through minimal standards of care given his presenting complaints, age, and gender.

**Final Diagnosis and Plan**

With the diagnosis of gastric cancer, Mr. I was referred to an oncologist to explore treatment options, including chemotherapy, possible surgical resection and/or radiation, and ongoing pain control. Family counseling at this time focused on information gathering and referrals with the nurse practitioner, being mindful of the readiness of Mr. I and his family to learn. Open-ended questions during interviews help direct referrals as needed to social work, home health, financial counseling, spiritual counseling, dietary consultation, and medical and surgical units. Abdominal pain may be a presenting problem for patients with or without a diagnosis of cancer and should be evaluated in a comprehensive manner. Mr. I’s presentation also is a reminder that nurses are an integral part of care from initial presentation to final diagnosis and throughout the balance of life for patients and family members who are affected by a cancer diagnosis.

**Author Contact:** Mady Stovall, RN, MSN, NP, OCN®, can be reached at mstovall@ucla.edu, with copy to editor at CJONEditor@ons.org.

**References**


