Abdominal Complications Of Infectious Mononucleosis

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Abstract: Infectious mononucleosis, a systemic illness caused by the Epstein-Barr virus, is seen frequently by primary care physicians. Mononucleosis affects several organ systems, and, within the abdomen, there can be splenic involvement, hepatitis, mesenteric lymphadenopathy, hyperplasia of gut-associated lymphoid tissue, pancreatitis, and transient malabsorption. Life-threatening abdominal complications require prompt recognition and intervention. Other abdominal complications, though worrisome, are usually short-lived and resolve without sequelae. (J Am Bd Fam Pract 1988; 1:207-10.)

The physician caring for patients with infectious mononucleosis should be familiar with abdominal complications that might be encountered during the course of the disease (Table 1). Although abdominal pain is an uncommon feature of uncomplicated mononucleosis, there are certain rare complications resulting in abdominal manifestations that may be life threatening.

Splenic Involvement

Splenomegaly has been reported in as many as 75 percent of patients with infectious mononucleosis.[1] Histologic examination shows infiltration of the red and white pulp by large numbers of atypical lymphocytes. The capsule, blood vessel walls, and trabeculae also have infiltrates composed of both normal and atypical lymphocytes. This infiltration, resulting in splenic enlargement, is painless unless rupture occurs.[2]

Splenic rupture occurs in less than 0.5 percent of patients with mononucleosis and is usually secondary to trauma.[3] Rupture may be manifested by hypotension, tachycardia, and pain in the abdomen, left or right shoulder, or scapular region. Left shoulder pain, Kehr's sign,[4,5] is secondary to diaphragmatic irritation from free intraperitoneal blood.

If Kehr's sign is not present, one may be able to elicit left shoulder pain by placing the patient in the Trendelenburg position for 10 to 20 minutes combined with gentle abdominal pressure (O'Connell's sign).[6] The clinical diagnosis of splenic rupture is usually easy when the patient with infectious mononucleosis has left upper quadrant pain and has evidence of massive hemorrhage, but the diagnosis may be difficult if the hematoma is confined by the splenic capsule. Such subcapsular hematomas are dangerous because they may rupture days or weeks after their formation. Patel, et al. reported that subcapsular hematomas probably always precede rupture in patients with infectious mononucleosis.[7] Conventional roentgenographs may help with the diagnosis of splenic rupture by showing: (1) distention of the stomach with displacement to the right, (2) downward displacement of the gastric cardia, (3) a serrated margin of the greater curvature of the stomach, (4) downward displacement of the splenic flexure of the colon, (5) elevation and decreased excursion of the left dome of the diaphragm, and (6) evidence of free fluid in the peritoneal cavity.[8] Because of the limitations of conventional imaging, one may choose other noninvasive imaging modalities such as sonography,[9,10] splenic scintigraphy,[11] or computed tomography[7,12] to delineate splenic pathology.

In the past, splenectomy was performed in patients with normal or enlarged spleens who sustained splenic injury. It was not until 1952, when King and Shumacher[13] reported fatal pneumococcal sepsis in children following splenectomy, that surgical management of splenic trauma was reconsidered. Because of this increased risk of mortality and morbidity after splenectomy, there have been increasing efforts to preserve the traumatized spleen by operative repair or nonoperative methods.[11,14-19] It has been suggested that splenectomy be avoided whenever possible, especially in younger patients, because of the lifetime risk of postsplenectomy sepsis. Carefully selected

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Table 1. *Abdominal Complications of Infectious Mononucleosis.*

Splenic involvement
Hepatitis
Mesenteric lymphadenopathy
Hyperplasia of gut-associated lymphoid tissue
Pancreatitis
Transient malabsorption

patients to be treated by nonoperative methods should be observed and monitored closely and immediately explored if their condition deteriorates.

Rupture may occur at any time during the course of the disease, but the risk is greatest 14 to 28 days after the onset of symptoms.[20] There is no clear consensus when a person can resume normal activities or athletics after mononucleosis. Rutkow[21] recommended that athletes not participate in intramural or intercollegiate sports for at least 6 months after full recovery, while nonathletes may resume normal activities in 2 to 3 months. Grose[22] advocated deferring physical training for 1 month, vigorous athletic activities for 2 to 3 months, and strenuous contact sports for up to 6 months. Hoagland and Henson[2] recommended that activities can be resumed 4 weeks after the onset of symptoms if the patient is fully recovered. The recommendations of Grose seem most reasonable and if followed should result in a safe convalescence.

Hepatitis

Approximately 90 percent of patients with infectious mononucleosis have elevated liver enzymes, indicating hepatic inflammation, while jaundice is present in 5–10 percent of cases. Slight hepatomegaly is found in 15–20 percent of patients, and there may be tenderness of the liver.[23] Patients may complain of right upper quadrant pain and, in the face of elevated liver enzymes, may be mistakenly thought to have acute cholecystitis, extrahepatic biliary obstruction, or viral hepatitis. Patients aged 40 years and more with mononucleosis have been reported to pose special diagnostic difficulties.[24-26] These patients often have atypical features that include "prolonged intermittent fever, marked hepatocellular dysfunction, and the absence of usual features such as lymphadenopathy, splenomegaly, rash, and pharyngitis."[24(p 472)] Because the presentation of infectious mononucleosis in older patients is often atypical, they may be subjected to needless invasive procedures and are often hospitalized for suspected biliary disease.

Hepatocellular enzymes are usually only mildly elevated and do not reach levels seen with viral hepatitis except in rare cases resulting in hepatic failure. There are no liver enzyme changes that are specific for infectious mononucleosis, and most patients have resolution of enzyme elevation in 4 to 6 weeks.[27] Horwitz and colleagues[26] reported that older adults have more hepatic dysfunction, as reflected in a greater elevation of hepatic enzymes.

Because hemolytic anemia can occur in patients with infectious mononucleosis, elevations of SGOT and lactic dehydrogenase (LDH) (both present in erythrocytes) as well as bilirubin may occur from hemolysis rather than hepatitis.[28] One should rule out a cold agglutinin hemolytic anemia before attributing these changes to hepatocellular injury.

A liver biopsy is not indicated in the usual case of infectious mononucleosis. In severe cases, the typical changes would consist predominantly of a mild to moderate lymphocytic infiltrate involving the portal tract and sinusoids. There may be small areas of focal necrosis with the remaining parenchyma being normal.[28] In rare cases of fatal mononucleosis, more extensive necrosis of the hepatic parenchyma has been reported.[29,30] Bernuau, et al. recently stated that there are no convincingly documented cases of fulminant or subfulminant hepatitis due to Epstein-Barr viral infection.[31] Chronic hepatitis and cirrhosis are not believed to be sequelae of mononucleosis-induced hepatitis.

Mesenteric Lymphadenopathy

Practically all patients with mononucleosis develop lymph node enlargement.[1] Finch described varying degrees of mesenteric lymphadenopathy in patients with mononucleosis,[23] and this finding was supported by O'Brien and O'Brien who described a patient with marked mesenteric lymphadenopathy found during exploratory laparotomy.[32] There is no reason that the intraabdominal lymph nodes should be spared from the diffuse lymphadenopathy produced by mononucleosis. In some cases, abdominal pain is probably secondary to mesenteric lymph node hypertrophy.[33]

Hyperplasia of Gut-Associated Lymphoid Tissue

Involvement of the lymphoid tissue within the wall of the gut in acute infectious mononucleosis has been reported.[34-36] Lukes and Cox[35] described infiltration of the gastrointestinal tract by mononuclear cells and ulceration of the overlying mucosa; hemorrhage was observed in 4 patients. Thalayasingam[36] described a case of abdominal pain in a young girl with mononucleosis who at laparotomy was found to have a gangrenous appendix. Histological examination of the appendix showed "a number of reactive lymphoid follicles."[36(p 140)] Although these changes could not be attributed solely to infectious mononucleosis, it is interesting to speculate that lymphoid hyperplasia of the appendix could have produced luminal obstruction and appendicitis.

Cases such as these may indicate that gut-associated lymphoid tissue in the gastrointestinal tract is affected by the Epstein-Barr virus. Hyperplasia of such tissue may be the source of complications in some patients with mononucleosis.

Pancreatitis

Pancreatitis has been reported as a complication of various infections. Among the viral infections implicated in pancreatitis are Cossackie B5,[37] mumps,[38,39] and the Epstein-Barr virus.[40-43]

In 1949, Myhre and Nesbitt[44] found elevated pancreatic enzymes in 2 of 20 patients with infectious mononucleosis, even though they had no symptoms consistent with acute pancreatitis. The first case of symptomatic mononucleosis-associated pancreatitis was described by Wislocki[43] in 1966. In later reports of pancreatitis associated with Epstein-Barr viral infections, patients complained of abdominal pain with accompanying nausea and vomiting. Elevations of serum and/or urinary amylase were found, and the patients responded to conservative regimens (i.e., intravenous hydration, nothing by mouth, nasogastric suction, and narcotics) with a gradual decline of pancreatic enzymes.[40-43]

Brahdy and Scheffer[38] refer to reports in the French literature of 2 young men who died of complications of mumps with autopsy evidence of pancreatitis. In both cases, the pancreas was edematous with swollen acini, vacuolated parenchymal cells, and parenchymal necrosis. No autopsy reports of mononucleosis-associated pancreatitis were found in a review of the literature. One can speculate that a similar process takes place during pancreatitis secondary to mononucleosis.

Transient Malabsorption

Diarrhea is reported to occur in 5–10 percent of patients with infectious mononucleosis.[23] Sheehy's work[34] suggested that the small bowel is involved in this infection. He biopsied the jejunal mucosa of 6 patients during the acute phase of mononucleosis. Histological examination revealed "some edema at the tips of the villi . . . and the presence of numerous atypical and vacuolated lymphocytes within the lamina propria of four biopsy specimens."[34(p 1024)] No patients had laboratory evidence of malabsorption.

Corbus,[45] Butler, et al.,[46] and Loludice and Lang[47] have each described a case of transient malabsorption in patients with infectious mononucleosis. These patients had abdominal pain, and 2 had laboratory and roentgenographic evidence of malabsorption. Jejunal biopsy showed blunting of villi and inflammatory cells in the lamina propria. Conservative treatment resulted in resolution of the malabsorption, and results of small bowel biopsies were normal on follow-up.

Conclusion

Abdominal pain in patients with infectious mononucleosis should make the primary care physician suspicious of impending life-threatening complications requiring prompt consultations and interventions. Familiarity with less common abdominal complications of mononucleosis can lead to more immediate recognition of these problems and improved patient care.

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