Enterogastric Reflux Mimicking Gallbladder Visualization in Acute Cholecystitis

TO THE EDITOR: In acute cholecystitis where visualization of the gallbladder may be impaired, the scintigraphic image of enterogastric reflux of bile can mimic ectopic gallbladder. Objective differentiation of the two entities is vital for delineating the mode of therapy. We present a case to illustrate this point.

A 60-yr-old white male was admitted for management of a left basal ganglial infarction, with right hemiplegia and global aphasia. Three weeks postadmission, the patient became septic with marked right upper quadrant tenderness. No previous history of gastrointestinal problems could be ascertained. Laboratory evaluation revealed an amylase of 7,500 IU (normal 40–200), total bilirubin: 7.7 mg/dl (normal 0.2–1.0), direct bilirubin: 3.0 mg/dl (normal 0.0–0.2), and alkaline phosphatase: 340 IU (normal 30–85). Because of the clinical setting and laboratory results, biliary sepsis with acute pancreatitis was suspected clinically. Nasogastric suction was initiated and all oral feedings were discontinued. Scintigraphic evaluation was accomplished by administering an intravenous injection of 5 mCi of technetium-99m diisopropyl iminodiacetic acid ([99mTc] DISIDA). Serial sequential images revealed prompt uptake of the radiotracer by the hepatocytes outlining a normal size liver in its usual position. At 20 min, an area was noted in the region of the pyloric antrum of the stomach which continued to concentrate activity and by 40 min resembled an ectopically located gallbladder (Fig. 1). No gallbladder was visualized in the usual position. An ectopic gallbladder in the region of pyloric antrum of the stomach or entero-gastric reflux of the bile complicated by acute cholecystitis was provisionally diagnosed. A delayed image, in an attempt to enhance cholecystic activity was obtained at 6 hr, which revealed that most of the radiotracer had transited into the bowel. Because of the patient’s obtunded state, 400 mCi of free technetium was introduced into the stomach through the preplaced nasogastric tube instead of by the oral route. The area seen in the region of the pyloric antrum of the stomach at 40 min (Fig. 1) was duplicated confirming the diagnosis of enterogastric reflux of bile (Fig. 2). Subsequently, the diagnosis of acute cholecystitis was confirmed surgically.

Gallbladder ectopia was a consideration in this patient because with anomalous migration of the gallbladder precursor during embryogenesis, the definitive gallbladder may come to lie in any number of abnormal locations including the region of the stomach (1).

With the improved techniques for recognition and measuring enterogastric reflux of bile, it is now clear that bile reflux occurs more frequently than previously thought (2). Causes range from direct pathology in the ultrastructure of the pylorus muscle and/or its controlling mechanisms, to gross pyloric abnormalities either congenital or postsurgical. Bile reflux occurs in many patients with gallbladder disease, and usually reverts to normal after cholecystectomy (3). Al-
though the cause of biliary reflux in gallbladder disease is unknown, altered fluid dynamics of bile flow through the biliary tree may sufficiently increase the pressure of the bilius contents at the duodenal end of the pylorus to overcome the sphincter pressure, and thus account for the reflux. A potential role for enterogastric reflux of bilius duodenal material in the pathogenesis and symptomology of gastric ulcer, reflux esophagitis, functional dyspepsia, and postgastrectomy complications has been entertained (4).

As illustrated by this case, the recognition of the abnormal bile flow dynamics that may occur in disease, such as enterogastric reflux, is crucial in the interpretation of cholescintigraphy.

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References

Depletion Regimens for Radiiodine Therapy of Thyroid Carcinoma

TO THE EDITOR: The article by Maruca (1) has reported some interesting kinetic data in the iodine depleted individual. It is appropriate to recall that in 1973 Barandes (2) described similar findings in the iodine depleted thyrotoxic patient. They reported results following iodine loading. More recently, Powell (3) has reported highly successful application of the low iodide diet in the management of patients with thyroid cancer. The difference between their experience and that of the Hershey group is probably the resumption of replacement therapy with loading doses 24 hr after treatment. They also discontinue the low iodine diet at the same time. In light of Barandes’ observations, it is anticipated that this will result in the retention of radioactive iodine in the thyroid gland, thus improving the radiation dose delivered and also resulting in the reduction in whole body radiation dose. This step almost certainly will retain radioactive iodine in the thyroid so that therapy will be more effective and the whole-body radiation dose diminished.

Our experience with a very low iodine intake in thyroid cancer patients suggests that the low iodine diet in the management of thyroid cancer should not be discarded until Dr. Powell’s, Barandes’, and Becker’s recommendations have been tested in this group of patients.

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Imaging in Patients with Heterotopic Bone Formation

TO THE EDITOR: I read with interest the report by Orzel and Rudd (1) concerning the correlation of clinical, laboratory, and imaging results in patients with heterotopic bone formation (HBF). In particular, the finding of a transient drop in serum calcium is a fascinating discovery. The authors are to be congratulated for their work. I hope that this study will be a stimulus for further research involving a prospective look at the changes in serum calcium in this disease, and I also look forward to a prospective examination of the role of the three-phase bone scan for both the detection and staging of disease activity with HBF. This disorder is relatively uncommon in routine hospital practice, and I hope that the staff of a trauma center like Harborview Medical Center, with its high number of spinal injury rehabilitation patients, will further evaluate this interesting disease.

I would like to point out that their Fig. 1 has been previously published in the radiologic literature in the form of a case report concerning myositis ossificans and the three-phase bone scan (2), and its prior publication should be acknowledged. The fact that this striking case has appeared twice in the medical literature may re-enforce the finding that the