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 bilious 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 bilious 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.

K. S. Subramanian
M. L. Freeman
I. Reznikov
M. Van Drunen
D. Bushnell
P. Shirazi
E. Kaplan
Veterans Administration Hospital
Hines, Illinois

References

1. Blanton DE, Bream CA, Mandel SR: Gallbladder ectopia—A review of anomalies of position. *Am J Roentgenology* 121:396-400, 1974
2. Tolin RD, Malmud LS, Stelzer F, et al: Enterogastric reflux in normal subjects and patients with Bilroth II gastroenterology—Measurement of enterogastric reflux. *Gastroenterology* 77:1027-1033, 1979
3. MacLean AG: Pyloric function and gallstone dyspepsia. *Br J Sur* 59:449-454, 1972
4. Thomas WEG, Cooper MJ, Mortensen NJ, et al: The clinical assessment of duodenogastric reflux by scintigraphy and its relation to histiologic changes in gastric mucosa. *Scand J Gastroenterol [Suppl]*:195-199, 1984

Depletion Regimens for Radioiodine 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.

George Jackson
Harrisburg Hospital
Harrisburg, Pennsylvania

References

1. Maruca J, Santer S, Miller K, et al: Prolonged iodine clearance with a depletion of regimen for thyroid carcinoma: Concise communication. *J Nucl Med* 25:1089-1093, 1984.
2. Barandes M, Hurley JR, Becker DV: Implications of rapid intrathyroidal iodine turnover for 131-I therapy: The small pool syndrome. *J Nucl Med* 14:379, 1973
3. Powell MR, Blum AS: Ablation of differentiated thyroid cancer metastases with radioiodide after low iodide diet preparation and normal thyroid tissue ablation with radioiodide after low iodide diet preparation. *Endocrinology* 115: (suppl) (abstr from American Thyroid Association Meeting, Sept 19-22, 1984).

REPLY: We completely agree with Dr. Jackson's conclusions that low iodine diet in the management of thyroid cancer should not be discarded until full evaluation of iodine kinetics has been conducted with each of the proposed regimens. We await with interest the full peer reviewed publication from the studies of Drs. Powell and Bloom.

Richard J. Santen
The Milton Hershey Medical Center
Pennsylvania State University
Hershey, Pennsylvania

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

three-phase bone scan increases the sensitivity of bone imaging for this disorder. I have found that this point is not well known. I must admit that I was unaware at the time of its original publication of an even earlier presentation of the use of the three-phase bone scan in the early diagnosis of heterotopic ossification by Freed et al. (*3*). Hopefully, the use of the three-phase bone scan will be further studied in this patient population.

Walter E. Drane
National Naval Center
Uniformed Services
University of the Health Sciences
Bethesda, Maryland

References

1. Orzel JA, Rudd TG: Heterotopic bone formation: Clinical, laboratory, and imaging correlation. *J Nucl Med* 26:125–132, 1985
2. Drane WE: Myositis ossificans and the three-phase bone scan. *American Journal of Roentgenology* 142:179–180, 1984
3. Freed JH, Dreisbach JN, Hahn H, et al: The use of the three-phase bone scan in the early diagnosis of heterotopic ossification (HO) and in the evaluation of Didronel therapy. *Proceedings of the Seventh Annual Scientific Meeting of the American Spinal Injury Association,* March 26–30, 1981, New Orleans 63–64

REPLY: We thank Dr. Drane for his kind comments concerning our article on heterotopic bone formation (HBF). We apologize for not acknowledging his publication. We were not aware that he had published images of one of the patients in our series who we initially evaluated and suggested that hyperemia, in the absence of soft tissue diphosphonate uptake, might be an early sign of actue HBF. This was one of many studies in our series which led us to conlude that radionuclide first-pass and blood-pool images increase the sensitivity of radionculide bone imaging in the evaluation of HBF. Although the patient published by Dr. Drane was the same, our figure is unique and has not been previously published. The valuable contribution of Freed et al., which was published in abstract form, was appropriately cited in our paper (Ref. *12*).

Joseph A. Orzel
Thomas G. Rudd
Hmc Radiology
Seattle, Washington