A possible cause of misinterpretation on radionuclide imaging: Chilaiditi’s syndrome

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Abstract.—The authors of this work present two patients, diagnosed with lymphoma and prostate cancer, referred to nuclear medicine department for a gallium-67 scan and a bone scan, respectively. The abnormal accumulation of the radioactivity gave rise suspicion for possible other pathologies. Successive computed tomographic imaging revealed that the patients had had Chilaiditi’s syndrome. The authors present these cases to draw attention for the possibility of misinterpretation of the scans due to distribution of radioactivity in this syndrome.

KEY WORDS: Chilaiditi’s syndrome, radionuclide imaging, misinterpretation.

INTRODUCTION

In 1911, Chilaiditi’s described hepatodiaphragmatic interposition of the colon. This condition is usually discovered by chance during the study of another event. It is seen with an estimated incidence of 3% and occurs most often in elderly males. The interposed segment of the bowel is usually hepatic flexure of the colon and the degree of the interposition varies from simple wedging to complete occupation of the right subdiaphragmatic space. Clinical presenting symptoms range from being asymptomatic to either intermittent or persistent abdominal symptoms. It is usually diagnosed with plain abdominal x-ray and computed tomography, and few reports have called attention to its sonographic findings. The management is usually conservative while surgical intervention is rarely indicated.

In this report the authors present two cases, one diagnosed with lymphoma and the other with prostate cancer who underwent gallium-67 scintigraphy and bone scintigraphy, respectively. Incidental finding of hepatodiaphragmatic interposition of the colon was observed on both of the cases on their evaluation for their primary diagnosis.

CASE REPORTS

Case 1

A 77-years-old male patient diagnosed with mixed cellular type Hodgkin lymphoma was referred for a gallium-67 (67Ga) scintigraphy for staging of his disease. Whole body planar, neck, thorax and abdomen SPECT images of the patient were obtained 48 hours after an iv injection of 296 MBq (8 mCi) 67Ga using a gamma camera mounted with MEGP collimator (Siemens-USA). Apart from increased radioactivity in the neck region, deposit of radiogallium was observed in a loop like shape mainly in the right side of the thoracic region on the planar image (fig. 1A) which was confirmed on the thoracic SPECT images as well (fig. 1B). A consecutive thoracolumbar tomography confirmed that this was Chilaiditi’s Syn-
drome (fig. 1C). A control 67Ga scintigraphy, after 3 cycles of chemotherapy, showed barely visible radiogallium in the bowel (fig. 1D).

Case 2

A 74-years-old male patient with prostate cancer was referred for a bone scan for his back pain and an increase in his serum PSA level. The patient was imaged after an iv injection of 99mTc MDP with a LEHR collimator on a gamma camera (GE-USA). Diffuse increased radioactivity was seen in his right hemithorax both on the whole body and spot thoracic view (figs. 2A, 2B) which might suggest pleural effusion. A consecutive computed tomography showed that he had Chilaiditi’s syndrome (fig. 2C), which may explain the activity in the thoracic region.

DISCUSSION

Chilaiditi’s syndrome is a relatively rare disease and has been reported only sporadically. It is a variant of rotation of the colon resulting in interposition of the colon between diaphragm and the liver, with an estimated incidence of less than 3% of the general population. It occurs most often in elderly patients and is 4 times more common in males than females. Colonic interposition occurs mostly between the right hepatic lobe and the diaphragm. Clinical presenting symptoms include a wide range of nonspecific abdominal symptoms including nausea, vomiting, abdominal fullness, but patients are usually asymptomatic.

It has been traditionally diagnosed by plain abdominal X-ray, computed tomography and US. The presence of free gas echo in the right hepatic lobe is
frequently seen on US, while hepatodiaphragmatic interposition of the intestine is seen on X-ray6. There is very limited knowledge about the scintigraphic findings of this syndrome with radionuclide imaging7-9. The presented cases are examples of abnormal localization of the radioactivity on both studies. In case 1, an expected finding of colonic activity of 67Ga due to physiologic excretion is seen in an abnormal localization as the thorax, which was not seen on the follow-up. This study showed that an unusual configuration of colonic activity was an incidental finding in the thorax. In case 2, soft tissue uptake of 99mTc MDP in the right hemithorax was unusual, and inflammation and/or pleural effusion due to benign or malignant conditions were in the list of the authors’ differential diagnosis. A control thorax CT revealed this was Chilaiditi’s syndrome. The localization of Tc-99m MDP has been reported by a number of authors10-12 due to several reasons as ingestion of urine (a folk remedy for healing), excess biliary excretion due to improper prepared radiopharmaceutical and excessive aluminum. In this patient no such reason was confirmed, but at least the pathologic finding in the right hemithorax was evaluated.

The authors believe that these two cases are the examples of this rare syndrome and recognizing this would help misinterpretation of this as metastases.

BIBLIOGRAPHY


