Multiple liver abscess formation and primary gastrointestinal stromal tumor

Amy E. Chang, Gary N. Mann, Benjamin Hoch, Elizabeth T. Loggers, Seth M. Pollack, Orpheus Kolokythas, Robin L. Jones

University of Washington Medical Center, Fred Hutchinson Cancer Research Center, Seattle, WA, USA

Abstract

Gastrointestinal stromal tumors are the most common mesenchymal tumors of the gastrointestinal tract. The introduction of a number of small molecule tyrosine kinase inhibitors has revolutionized the management of metastatic disease. Surgery is the mainstay of management for localized disease. Patients with high risk tumors are treated with adjuvant imatinib. We report the rare presentation of a localized primary small bowel gastrointestinal stromal tumor in association with multiple liver abscesses. Cystic liver lesions should be fully evaluated in gastrointestinal tumor patients to exclude an infective cause. Treatment with intravenous antibiotics resulted in clinical and radiological improvement of the liver abscesses. The small bowel tumor was treated with surgical resection.

Introduction

Gastrointestinal stromal tumors (GIST) are the most common mesenchymal neoplasm of the gastrointestinal tract, characterized on immunohistochemistry by expression of CD117 (KIT) which distinguishes it from other spindle cell tumors. Hirota and colleagues discovered that the majority of these tumors harbor an activating mutation of the KIT oncogene, and this has led to significant improvements in understanding the biology of this rare disease and consequently substantial improvements in therapy. GISTs have an incidence of 10-14 cases per million people each year. They can arise in any part of the gastrointestinal tract, but the most common primary sites are the stomach (60%) and small intestine (30%). They usually metastasize to the liver, omentum and peritoneal surfaces.

Surgical resection is the definitive management for localized disease followed by adjuvant imatinib for patients with high risk features. The introduction of small molecule tyrosine kinase inhibitors has revolutionized the management of metastatic GIST. We report the case of a patient with multiple liver abscesses associated with a primary small bowel GIST. The radiological appearances of the liver abscesses could easily have been misinterpreted as metastatic disease.

Case Report

A 31-year-old Caucasian man with a history of iron deficiency anemia and intermittent gastrointestinal bleeding over the course of 4 years, presented with cyclic fever, a mild cough, loss of appetite, and occasional diarrhea. The patient had no causes of immunosuppression such as HIV and he was on no medication. Previously, four esophagogastroduodenoscopies, a capsule study and colonoscopy (performed at another institution) found no source for blood loss. It was noted that his hematocrit had fallen from 43 to 33. He was admitted to hospital and commenced on empiric antibiotic therapy with azithromycin.

A CT scan of the thorax, abdomen and pelvis showed a 3x3.5 cm mass in the small bowel and numerous hypodense lesions throughout the liver, measuring up to 2 cm. A PET/CT demonstrated mild FDG uptake in the small bowel mass and intense uptake in the liver lesions (Figure 1). To differentiate liver infection versus malignancy, a CT-guided liver biopsy was performed. It showed necrotic cells, a few polymorphonuclear leukocytes, and purulence, but there were no malignant cells (Figure 2). The gram stain showed no organisms, and the culture was negative. Aspiration of one of the liver lesions showed many cells, but no polymorphonuclear leukocytes and no organisms. The culture from the aspirate was negative for bacteria, fungi, and acid fast bacilli.

The patient continued experiencing febrile episodes on azithromycin, and consequently antibiotic coverage was broadened to metronidazole and ceftriaxone. Due to persistent febrile episodes, his antibiotic treatment was revised to moxifloxacin and daptomycin on the 6th and 8th day post admission, as per institutional guidelines. Repeat chest X-ray and blood cultures remained clear during this time. With this therapy, the patient’s clinical condition dramatically improved and the febrile episodes completely ceased, indicating the liver lesions were most likely infectious abscesses. Blood cultures remained negative and further investigations revealed no cause for the temperature spikes. His ESR was 98 and CRP 265. CEA was undetectable at less than 0.7. With the cyclic fever resolved, the patient was discharged and the treatment was modified to intravenous daptomycin and meropenem.

Two weeks following discharge from hospital, with no further febrile episodes, the patient underwent laparoscopic small bowel resection and core needle biopsy of one of the liver lesions. The small bowel mass was 3 cm in size and located in the distal jejunum. On pathology the small bowel mass had a spindle cell morphology and showed expression of CD117, confirming the diagnosis of a gastrointestinal stromal tumor (Figure 3). The mitotic activity was 0.1 per 10 HPF, no necrosis was seen, and all margins were clear. A follow up FDG-PET/CT a month post surgery showed a near complete resolution of the innumerable hypermetabolic foci scattered throughout both lobes of the liver (Figure 4). A single punctate focus of FDG accumulation was identified within the liver with a maximum SUV value of 4.6 which was a substantial decrease in size and maximum SUV in comparison to the previous examination. CT with intravenous contrast showed significantly smaller hypodense lesions scattered throughout the liver. After about 6 weeks of treatment with daptomycin and meropenem, his antibiotic schedule was changed to oral moxifloxacin and augmentin, which were eventually stopped. He was on antibiotic therapy for a total of 12 weeks. The patient has recovered fully and is feeling well 17 months following the laparoscopic small bowel resection. Surveillance scans have shown no evidence of local recurrence or metastatic disease.
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