CASE REPORT

The diagnosis of abdominal tuberculosis (TB) has been a clinical challenge for gastroenterologists because it is both uncommon and, until recently, fairly inaccessible for sampling. The advent of endoscopic ultrasound (EUS) and the ability to examine the perigastric area has made visualization of the lesions now possible. The ability to pass a needle through the gastric wall under ultrasound guidance (fine needle aspiration or FNA) to sample these lesions has contributed significantly to the diagnosis of these, thus far, evasive lesions. However, FNA may yield few numbers of bacilli, which can often be insufficient for diagnosis. Trucut biopsy sampling under EUS guidance has increased diagnostic yield in conditions such as pancreatic cancer and lymphoma (1,2). It is important to realize that there has been a resurgence of tuberculosis since the 1990s (3,4,5) and that extra-pulmonary manifestations, including abdominal TB, are increasingly recognized. Therefore, tuberculosis needs to be considered in the differential of intra-abdominal masses. In the following two cases, we examined the utility of EUS in the diagnosis of perigastric lesions. EUS with FNA was initially performed in both patients, but due to inadequate tissue samples, further diagnostic testing was pursued using Trucut biopsy.

Case 1

An 80-year-old Italian male presented with left upper quadrant pain, excessive fatigue, weight loss and normocytic anemia. EGD revealed thickened and inflamed gastric mucosa and two submucosal gastric impressions. CT scan of the abdomen showed low attenuation lesions in the omentum adjacent to the stomach and enlarged gastro hepatic ligament lymph nodes. Using linear EUS and fine needle aspiration, tissue was collected for cytology and microbiology. Pathology was initially non-diagnostic, favoring lymphoma. Perigastric lymph node cytology was positive for necrotic material with numerous lymphoid cells. AFB and fungal studies were negative. As a definitive diagnosis was required before initiating chemotherapy, the patient was scheduled for EUS guided Trucut needle biopsy. Trucut biopsy on pathology revealed necrotizing granuloma with acid-fast bacilli, and after 4 weeks AFB cultures of this biopsy material grew Mycobacterium tuberculosis complex. The patient responded very well, with cure, to a four-drug anti-tuberculosis regimen.

Case 2

A 44-year-old male with AIDS presented with fever, dysphagia, vomiting, and weight loss. On admission, he was febrile and tachycardic. Physical exam revealed a cachectic, ill-appearing male. Abdominal examination was unremarkable. There was no palpable lymphadenopathy. The patient was noted to be anemic. The CT scan of the abdomen demonstrated a mass in the splenic hilum, indenting the posterior aspect of the...
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EUS with Trucut Biopsy

stomach, with smaller masses in the perigastric region. EGD revealed extrinsic compression of the stomach. EUS was performed with multiple fine needle aspirations of the lesions, but did not provide a definitive diagnosis. EUS was then repeated with Trucut biopsy. Histology revealed necrotic tissue mixed with lymphoid cells, histiocytes, and caseating granuloma with presence of AFB, further identified as M. tuberculosis.

The patient was treated with a four-drug regimen for TB; his condition improved and he was discharged.

DISCUSSION

Intra-Abdominal Tuberculosis

From the 1980s to the turn of the century, there had been a rise in the number of cases of tuberculosis reported
annually in the United States (5). The increase in the number of TB cases has been attributed to the influx of immigrants, the AIDS epidemic, and the use of immunosuppressant drugs (3,8). Of the 13,299 recorded tuberculosis patients in the United States in 2007, approximately 20% were noted to have extrapulmonary manifestations, including intra abdominal disease (6,7).

In patients with abdominal tuberculosis, the highest incidence of disease was noted in the gastrointestinal tract and in the peritoneum, followed by the mesenteric lymph nodes (9). The most common intra abdominal sites of involvement are the ileum and lymph nodes, which are comparatively richer in lymphoid tissues than other parts, supporting the predilection of tubercle bacilli for the lymphatic system (9). Because of chronic and nonspecific clinical and radiological findings mimicking several diseases, such as Crohn’s disease (14,15), carcinoma, sarcoma (16,17), amebiasis, yersinia infection, and gastrointestinal histoplasmosis (9,10,11,12), the diagnosis of abdominal tuberculosis requires a high index of suspicion.

Tuberculosis is a disease of immunocompetent and immunocompromised patients and should be included in the differential in both patient populations. A study from Bolukbas, et al examined the clinical presentation of eighty-eight immunocompetent patients, noting that the most common symptoms were abdominal pain, abdominal distention, and diarrhea (14). Anemia was also noted as a common finding in patients with abdominal tuberculosis (18,19,20). Tuberculosis in the abdomen can present in many forms, with peritoneal, esophageal-gastric, submucosal lesions, small intestinal, colonic, and rectal/anoperineal involvement. Abdominal CT has been the most useful first study with regard to abdominal tuberculosis. Tuberculosis should be considered on abdominal CT based findings of luminal irregularities of the bowel mucosa, lymphadenopathy, ascites, omental and mesenteric thickening, peri-gastric masses and masses involving the liver, spleen, and/or pancreas (21). However, the definitive diagnosis of gastric tuberculosis requires the identification of acid-fast bacilli in biopsy material or microbial culture (13,22).

We wish to emphasize that intra-abdominal tuberculosis should be entertained in the differential diagnosis of abdominal lesions of both immunocompetent and immunocompromised patients, given its resurgence in the general population. Since tuberculosis has an excellent prognosis once identified and properly treated, we should focus our efforts on its accurate and timely diagnosis.

EUS and Trucut Biopsy

Endoscopic ultrasound enables detailed visualization of perimural structures and is readily feasible from the upper gastrointestinal tract. By means of EUS-guided fine needle aspiration a cytologic specimen of lesions can be obtained (23). However, this approach does not always yield the diagnosis. Literature shows that EUS FNA has an accuracy of 60–90% depending on the site (23). However, several limitations exist with regard to its use: cytologic interpretation is complicated by the presence of blood and benign epithelial cells, and a small biopsy sample and destruction of tissue architecture limits the diagnostic sensitivity (23). Fortunately, we now have the availability of EUS-guided Trucut biopsy needles, which allow for a better histological sample. The larger caliber cutting biopsy needles acquire larger tissue samples that allow preservation of tissue architecture (24–26). This yields adequate characterization of the specimen and can often avoid unnecessary surgical exploration. Studies have demonstrated the safety and accuracy of Trucut biopsy for diagnosing solid lesions arising in soft tissue, breast, lung, lymph node, pancreas, liver, kidney, adrenal, spleen, prostate, and other sites (2,25–28).

Parra, et al. examined 39 patients with pancreatic or mediastinal masses (29). They concluded that in patients who have failed other biopsy procedures, EUS FNA/TCB should still be considered an accurate and safe modality to detect malignancy. The addition of TCB to FNA appears safe and should be considered in the absence of on-site cytopathology review (33,34).

In a study of 11 patients, Dodemont, et al showed that the Trucut biopsy does in fact improve the diagnostic yield after an inconclusive FNA, and hypothesized that it may be the first choice for large, readily accessible lesions (30). Levy and Wiersema have studied the Trucut biopsy needle, first in swine models and then in humans. They concluded that the overall accuracy of EUS-TCB was higher than for EUS-FNA (85% vs.

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62%, P > 0.05) and even greater so for submucosal mass lesions and lymphomas (88% vs. 29%). The study also suggested that fewer needle passes might be required for EUS-TCB versus FNA (mean 2.21 vs. 3.62, P < 0.05) (24,27,31–33).

In our two cases of peri-gastric lesions, where the diagnosis was initially obscure, EUS guided TCB proved to be a useful tool in successfully managing these patients. We have demonstrated that the Trucut needle improved tissue acquisition, was accurate, and safe in diagnosing lesions accessible through the gastrointestinal tract. Albeit limited, our experience in these two patients suggests that this technique appears promising. It may avoid the risks associated with more invasive diagnostic interventions, as well as the morbidity related to a delay in diagnosis.

Disclosure

The authors report that there are no disclosures relevant to this publication.

References