Celiac and perigastric lymph node metastasis of prostate cancer diagnosed with endoscopic ultrasound-guided fine-needle aspiration

Tan Attila MD¹, Reva Ricketts-Loriaux DO², David A Sauer MD², Douglas O Faigel MD¹

T Attila, R Ricketts-Loriaux, DA Sauer, DO Faigel. Celiac and perigastric lymph node metastasis of prostate cancer diagnosed with endoscopic ultrasound-guided fine-needle aspiration. *Can J Gastroenterol* 2009;23(7):479-480.

Endoscopic ultrasound has been used to diagnose and stage gastrointestinal and nongastrointestinal tumours. To our knowledge, the present report describes the first case of celiac and perigastric lymph node metastasis of prostate cancer diagnosed with endoscopic ultrasound-guided fine-needle aspiration.

Key Words: Endoscopic ultrasound; Fine-needle aspiration; Lymph node; Prostate

CASE PRESENTATION

An 82-year-old Caucasian man presented to his primary care physician with a 9.1 kg unintentional weight loss, decreased appetite and new-onset difficulty in voiding. Five years previously, the patient underwent suprapubic prostatectomy for benign prostatic hypertrophy, with no malignancy on transrectal ultrasound biopsies. Initial laboratory results showed abnormal levels of prostate-specific antigen (PSA) 1.57 µg/L (normal less than 0.065 µg/L), aspartate transaminase 100 U/L (normal range 5 U/L to 43 U/L), alanine transaminase 82 U/L (normal 10 U/L to 58 U/L), alkaline phosphatase 577 U/L (normal range 40 U/L to 129 U/L), total bilirubin 29.07 µmol/L (normal less than 20.52 µmol/L) and direct bilirubin 10.06 µmol/L (normal 6.84 µmol/L). The patient's PSA level three years previously was 0.01 µg/L. An abdominal ultrasound showed normal liver parenchyma, intrahepatic biliary ductal dilation with a normal common bile duct (6 mm in diameter) without any stones or sludge within the biliary tree, a solid peripancreatic mass (1.6 cm × 2.3 cm × 1.3 cm in size) and ascites. A subsequent computed tomography (CT) scan showed extensive peripancreatic and retroperitoneal adenopathy (3.4 cm in the greatest cross-sectional diameter), a dilated intrahepatic biliary tree and ascites. A transrectal prostate ultrasound and biopsy revealed a prostate adenocarcinoma (Gleason score of 4+5 out of 9) with perineural involvement but no lymphatic, vascular or extraprostatic invasion. A bone scan revealed multiple, small, focal osteoblastic lesions consistent with metastatic disease. An upper endoscopic ultrasound (EUS) Olympus GF-UM160 and GF-UC140P, Olympus America Inc, USA) revealed eight hypoechoic, heterogeneous, oval and round-shaped lymph nodes (gastrohepatic, periduodenal, peripancreatic and celiac) (Figure 1). The size of the lymph nodes ranged from 15 mm to 30 mm. EUS-guided fine-needle

Métastases d'un cancer de la prostate aux ganglions lymphatiques coeliaques et périgastriques diagnostiquées après une aspiration à l'aiguille fine échoguidée

L'endoscopie échoguidée a été utilisée pour diagnostiquer et stadifier les tumeurs gastro-intestinales et autres. À notre connaissance, le présent rapport décrit le premier cas de métastases d'un cancer de la prostate propagées aux ganglions lymphatiques coeliaques et périgastriques diagnostiquées par aspiration à l'aiguille fine lors d'une endoscopie échoguidée.

Figure 1) Linear endosonography showing a hypoechoic, heterogeneous, amorphous celiac lymph node 2.9 cm × 2.3 cm in size

aspiration (FNA) (22 gauge Echotip ultra-endoscopic ultrasound needle, Wilson-Cook Medical Inc, USA) was performed (total of six passes) on the perigastric and celiac lymph nodes. Five millilitres of straw-coloured ascitic fluid was obtained for cytological examination by EUS-guided transgastric puncture. Although intrahepatic biliary dilation was noted, the diameter of the common bile duct (6 mm) was normal. The aspirate and cell block preparations from the lymph nodes showed metastatic adenocarcinomas that were positive for PSA and prostate-specific acid phosphatase, consistent with metastatic prostate adenocarcinoma (Figure 2). Rare aggregates of atypical cells with similar features were present within the ascites specimen. The patient was subsequently treated by androgen blockade with

¹Division of Gastroenterology and Hepatology; ²Department of Pathology, Oregon Health and Science University, Portland, Oregon, USA
Correspondence: Dr Douglas O Faigel, Oregon Health and Science University, Physician's Pavilion, Suite 310, 3181 Southwest

Sam Jackson Park Road, Portland, Oregon 97239-3098, USA. Telephone 503-494-8577, fax 503-494-8776, e-mail faigeld@ohsu.edu
Received for publication May 11, 2008. Accepted May 23, 2008

Figure 2) Immunohistochemical studies performed on the cell block show the atypical epithelial cells. Patchy, strong positivity for prostate-specific antigen and prostate-specific acid phosphatase (brown in colour) is consistent with a metastatic adenocarcinoma of prostatic origin (original magnification $\times 200$)

the leutenizing hormone-releasing hormone agonists leuprolide and bicalutamide. A CT scan four months after the initiation of androgen blockade therapy revealed a marked decrease in retroperitoneal/peripancreatic adenopathy and the persistence of ascites.

DISCUSSION

The role of EUS is well-established in gastrointestinal, pancreatobiliary, and lung cancer diagnosis and staging (1). Until the introduction of EUS-FNA, only lymph node echofeatures (ie, size greater than 1 cm), echopoor appearance, distinct margins and round shape were used to predict malignant involvement

of a lymph node (2). The accuracy of predicting malignant involvement of a lymph node is 80% when all four endosonographic criteria are present in a lymph node; however, only 25% of malignant lymph nodes have all four criteria (3). FNA allows for cytological evaluation of a lymph node. EUS-FNA has been found to be superior to lymph node echofeatures alone (4).

In the United States, adenocarcinoma of the prostate is the most common cause of cancer among men and the second most common cause of cancer mortality (5). Prostate cancer metastasizes hematogenously and/or lymphogeneously (6). With the measurement of PSA levels and the evaluation of asymptomatic men for prostate cancer, the incidence of lymph node metastasis has decreased from 40% to 10% (7). Prostate cancer usually metastasizes to regional lymph nodes. Despite the declining incidence of lymph node metastasis, the number of patients with positive lymph nodes is still significant.

The anatomical proximity of the prostate gland to the rectum allows for the use of EUS for locoregional staging of prostate cancer (8). EUS and EUS-FNA have rarely been used to detect distant prostate cancer metastases, with only a single report of EUS-FNA of mediastinal lymph nodes (9). To our knowledge, we describe the first use of EUS-FNA to detect metastatic prostate cancer from celiac and perigastric lymphadenopathy. Celiac lymph nodes, which are located within 2 cm of the origin of the celiac trunk, may be involved with malignant (esophageal, pancreatobiliary, lung cancer and lymphoma) as well as benign diseases (pancreatitis, infections, autoimmune hepatitis and sarcoidosis). Cytology with immunohistochemical staining of FNA samples for tumour markers allowed for the correct diagnosis in the present, unusual case of metastatic prostate cancer. We recommend routine sampling of abnormal-appearing lymph nodes as well as immunohistochemical staining to reach the correct diagnosis.

REFERENCES

1. LeBlanc JK, DeWitt J, Sherman S. Endoscopic ultrasound: How does it aid the surgeon? *Adv Surg* 2007;41:17-50.
2. Catalano MF, Sivak MV Jr, Rice T, Gragg LA, Van Dam J. Endosonographic features predictive of lymph node metastasis. *Gastrointest Endosc* 1994;40:442-6.
3. Bhutani MS, Hawes RH, Hoffman BJ. A comparison of the accuracy of echo features during endoscopic ultrasound (EUS) and EUS-guided fine-needle aspiration for diagnosis of malignant lymph node invasion. *Gastrointest Endosc* 1997;45:474-9.
4. Chen VK, Eloubeidi MA. Endoscopic ultrasound-guided fine-needle aspiration is superior to lymph node echofeatures: A prospective evaluation of mediastinal and peri-intestinal lymphadenopathy. *Am J Gastroenterol* 2004;99:628-33.
5. Jemal A, Siegel R, Ward E, Murray T, Xu J, Thun MJ. Cancer statistics, 2007. *CA Cancer J Clin* 2007;57:43-66.
6. Arya M, Bott SR, Shergill IS, Ahmed HU, Williamson M, Patel HR. The metastatic cascade in prostate cancer. *Surg Oncol* 2006;15:117-28.
7. Swanson GP, Thompson IM, Basler J. Current status of lymph node-positive prostate cancer: Incidence and predictors of outcome. *Cancer* 2006;107:439-50.
8. Artifon EL, Sakai P, Ishioka S, et al. EUS for locoregional staging of prostate cancer – a pilot study. *Gastrointest Endosc* 2007;65:440-7.
9. Perez NE, Maryala S, Seren S, Feng J, Pansare V, Dhar R. Metastatic prostate cancer presenting as mediastinal lymphadenopathy indentified by EUS with FNA. *Gastrointest Endosc* 2007;65:948-9.