

Endoscopic ultrasound elastography to diagnose sarcoidosis

Erik Rahimi, Mamoun Younes¹, Songlin Zhang¹, Nirav Thosani

Departments of Gastroenterology, Hepatology and Nutrition, ¹Pathology and Laboratory Medicine, University of Texas Health Science Center at Houston, Houston, Texas, USA

A 54-year-old man presented with a 3-month history of sharp intermittent lower abdominal pain along with decreased oral intake, nausea, and a 13.6 kg weight loss. Laboratory results were significant for normocytic anemia (hemoglobin-12.7 g/dL) and hypercalcemia (serum calcium-12.2 mg/dL). Abdominal ultrasound showed a well-defined heterogeneous complex solid mass at the level of the pancreatic head measuring 4.6 cm × 3 cm × 4 cm in size. Subsequently, a computed tomography (CT) abdomen/pelvis was obtained showing lymphadenopathy in the portacaval lymph node chain (5.7 cm × 4.2 cm × 6.4 cm), peripancreatic lymph node chain anterior to the pancreatic head (5.2 cm × 3.8 cm × 5.6 cm), and within the porta hepatis lymph node chain (2.1 cm × 1.4 cm × 2.2 cm) [Figure 1]. Further, blood workup showed an angiotensin-converting enzyme (ACE) level of 144 unit/L (range 8-52 unit/L), and serum protein electrophoresis showed prominent polyclonal hypergammaglobulinemia.

Endoscopic ultrasound (EUS) [PENTAX EG-3870UTK Ultrasound Video Gastroscope, HITACHI Hi VISION 900 (HV900) Ultrasound Scanner system] was performed to evaluate the intra-abdominal

lymphadenopathy and adjacent structures. EUS showed a large sized (35 mm × 39 mm), well-circumscribed homogeneous appearing, round, peripancreatic lymph node [Figure 2]. Using EUS elastography, features of the enlarged lymph node showed a mixed, predominantly green pattern, with an elastography score of 3 [range 1 (soft)-5 (hard/solid)] [Figure 3]. Fine-needle aspiration (FNA) was performed using a 22-gauge ProCore needle (Cook Endoscopy, Winston-Salem, NC, USA). There was another large, 36 mm × 44 mm, retroperitoneal lymph node near the body of the pancreas. Other enlarged lymph nodes were seen in the porta hepatis region, the celiac area, the paraesophageal area, and the aortopulmonary window. Elastography of these additional lymph nodes showed similar mixed, predominantly green pattern. FNA results showed a naked granuloma with a cluster of epithelioid histiocytes on Diff-Quik stain [Figure 4], one multinucleated giant cell on Papanicolaou (Pap) stain [Figure 5], and a hyalinizing naked granuloma with two multinucleated giant cells (one with an asteroid body) on cellblock hematoxylin and eosin (H&E)

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Rahimi E, Younes M, Zhang S, Thosani N. Endoscopic ultrasound elastography to diagnose sarcoidosis. *Endosc Ultrasound* 2016;5:212-4.

Access this article online

Quick Response Code:



Website:

www.eusjournal.com

DOI:

10.4103/2303-9027.183972

Address for correspondence

Dr. Erik Rahimi, University of Texas Health Science Center at Houston, Houston, Texas, USA. E-mail: erikrahimi@yahoo.com

Received: 2015-02-04; Accepted: 2015-12-30

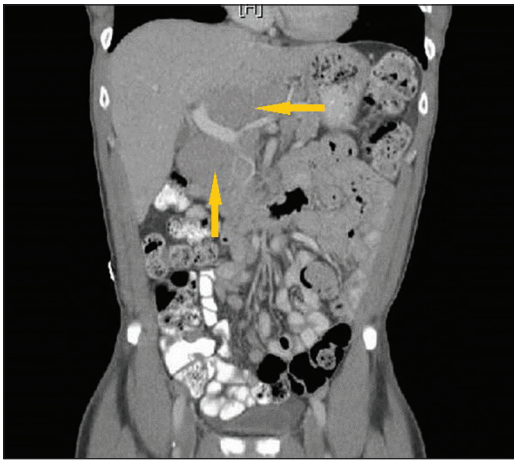


Figure 1. CT abdomen: Intra-abdominal lymphadenopathy (arrows)

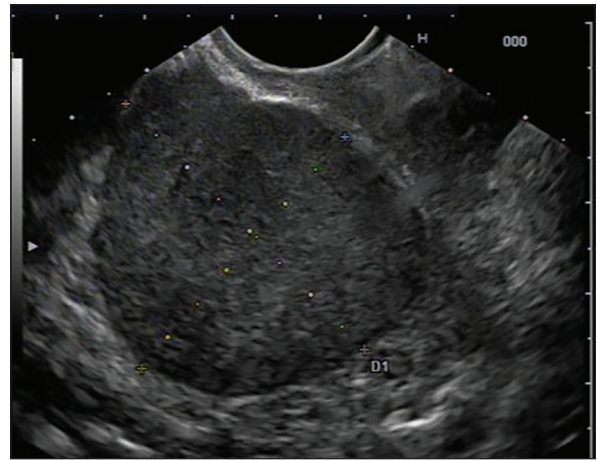


Figure 2. EUS: Round homogeneous peripancreatic lymph node

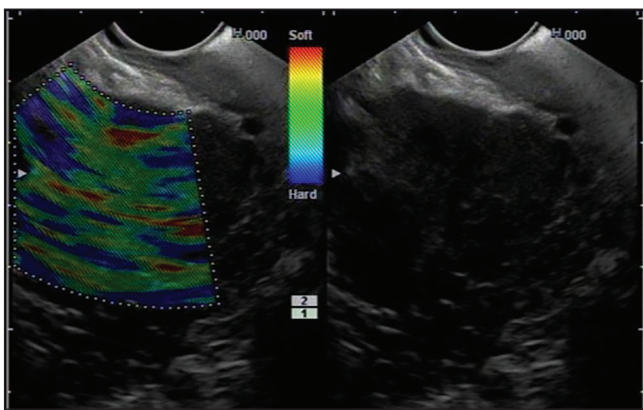


Figure 3. Lymph node elastography: A mixed, predominantly green pattern

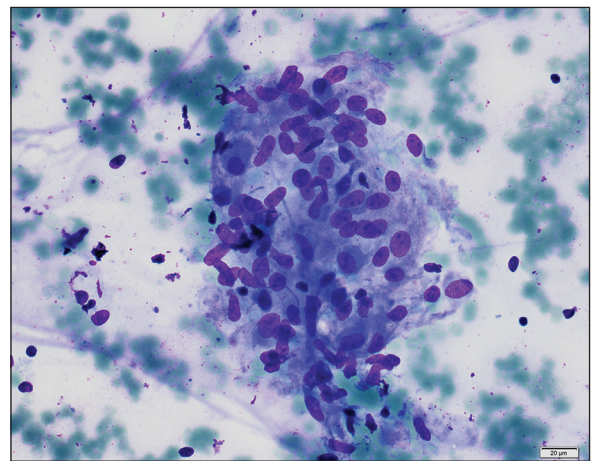


Figure 4. Diff-Quik stain: Epithelioid histiocytes

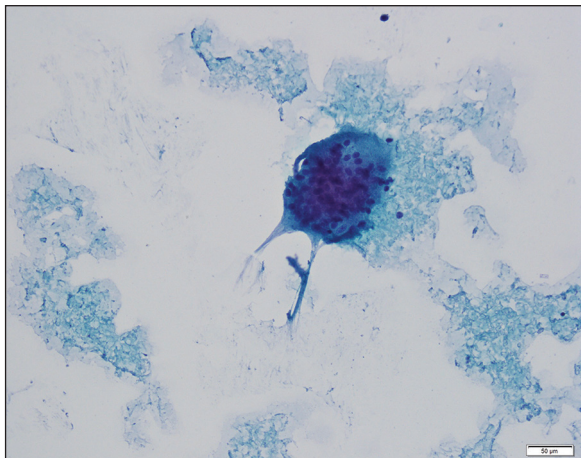


Figure 5. Pap stain: A multinucleated giant cell

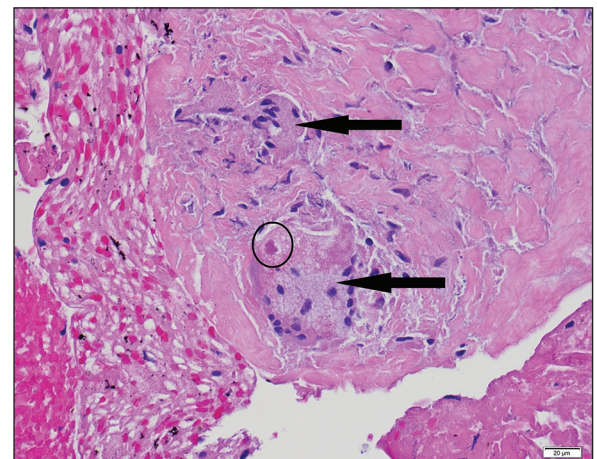


Figure 6. H and E stain: Giant cells (arrows) and asteroid body (circled)

stain [Figure 6]. Special stains for acid-fast bacilli and fungi were negative, along with normal flow cytometry. Overall findings were consistent with sarcoidosis.

Sarcoidosis is a granulomatous disorder of unknown etiology affecting multiple organs. Diagnostic criteria includes clinicoradiological findings and noncaseating

granulomas with no alternative diagnosis.^[1] In patients with mediastinal lymphadenopathy, diagnosis of sarcoidosis using EUS with FNA has a sensitivity and specificity of 89% and 96%, respectively.^[2] We used EUS elastography to further characterize the targeted

lymph node. EUS elastography shows differences in tissue hardness based on tissue elasticity. Blue colors are considered “harder” possibly malignant tissue versus mixed green–yellow–red hues being “softer” possibly benign tissue.^[3] A previous case using EUS elastography further characterized a hepatic lesion from sarcoidosis with a predominant blue pattern.^[4] Another case of a cervical lymph node had features highly suspicious for malignancy with a predominant blue pattern on EUS elastography; however, the pathology was consistent with sarcoidosis.^[5] In contrast, our case showed a mixed, predominantly green pattern, which is more consistent with benign tissue being sarcoidosis. An elastographic score of 3 is consistent with a mixed pattern of hard and soft tissues “honeycombed pattern,” which may make the interpretation difficult. An elastography score can range 1-5, which is consistent with soft to hard/solid tissue, respectively.^[6] In summary, EUS elastography can be used as an adjunct to characterize enlarged lymph nodes associated with sarcoidosis or other disease processes. Differing elastographic patterns have been seen in evaluation of sarcoidosis, and further studies are needed to define a set characteristic pattern for sarcoidosis using elastography.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Statement on sarcoidosis. Joint Statement of the American Thoracic Society (ATS), the European Respiratory Society (ERS) and the World Association of Sarcoidosis and Other Granulomatous Disorders (WASOG) adopted by the ATS Board of Directors and by the ERS Executive Committee, February 1999. *Am J Respir Crit Care Med* 1999;160:736-55.
2. Wildi SM, Judson MA, Fraig M, *et al.* Is endosonography guided fine needle aspiration (EUS-FNA) for sarcoidosis as good as we think? *Thorax* 2004;59:794-9.
3. Săftoiu A, Vilmann P, Ciurea T, *et al.* Dynamic analysis of EUS used for the differentiation of benign and malignant lymph nodes. *Gastrointest Endosc* 2007;66:291-300.
4. Rustemovic N, Hrstic I, Opacic M, *et al.* EUS elastography in the diagnosis of focal liver lesions. *Gastrointest Endosc* 2007;66:823-4.
5. Sandu I, Lenghel M, Băciuț G, *et al.* Misleading appearance in cervical lymph node US diagnosis - a report on sarcoidosis, Warthin tumor and squamous cell carcinoma metastases. *Med Ultrason* 2014;16:182-5.
6. Giovannini M, Thomas B, Erwan B, *et al.* Endoscopic ultrasound elastography for evaluation of lymph nodes and pancreatic masses: A multicenter study. *World J Gastroenterol* 2009;15:1587-93.