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Case Report

A Splenule Disguised as a Pancreatic Mass: EUS-FNA Cytology Raises the Curtain and Steals the Show- Review of Cytologic Features and Differential Diagnoses

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Abstract

Intrapancreatic accessory spleens (IPAS) are benign lesions that are rarely encountered in endoscopic ultrasound-guided fine-needle aspirations (EUS-FNA). However, an incidentally discovered IPAS can radiologically resemble a pancreatic neoplasm, and a definitive diagnosis made by EUS-FNA can prevent an unnecessary surgical procedure that could significantly change the clinical management of the patient. Here, we review cytological features of IPAS and differential diagnoses.

ABBREVIATIONS

EUS-FNA: Endoscopic Ultrasound-Guided Fine Needle Aspirations; IPAS: Intrapancreatic Accessory Spleen; PanNET: Pancreatic Neuroendocrine Tumor

INTRODUCTION

The intrapancreatic accessory spleen is an uncommon lesion found in the pancreas as parts of splenic tissue become trapped in the dorsal pancreatic bud during embryological development [1-3]. It is estimated that accessory spleens are present in 10% of the general population, with 15%-20% of accessory spleens being present in the pancreatic tail and incidentally noticed during radiological examinations in patients presenting as a pancreatic tail mass.

Fine-needle aspiration cases of IPAS have rarely been reported [4-6]. According to Tatsas et al., over a 23- year period, from January 1989 to June 2011, only six cases of IPAS FNA were identified [1]. Due to its high sensitivity, endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) is increasingly being used for the diagnosis of solid and cystic pancreatic masses [4,7]. The primary application of EUS-FNA for pancreatic masses is to confirm preoperative histo-cytological evidence of malignancy, to help in diagnosing ambiguous non-excisable tumors, to differentiate between localized pancreatitis and pancreatic malignancies with unusual imaging findings, and for the staging of tumors [2,8]. EUS-FNA use by pathologists is crucial to avoid unnecessary surgical interventions or additional treatments that may significantly change the clinical management of the patients [1-3]. In this case report, we review cytological features of IPAS present in a 77-year old woman and discuss the differential diagnosis.

CASE PRESENTATION

A 77-year-old African-American lady with a history of diverticulitis and thyroid cancer was found to have a pancreatic tail mass (18 x13 mm) on computed tomography. Initial radiological image findings of the mass were highly suggestive of a pancreatic neuroendocrine neoplasm. Other differential diagnoses included acinar cell carcinoma, solid pseudo papillary neoplasm, and adenocarcinoma or lymphoma.

To further classify the mass, the patient underwent endoscopic ultrasound (EUS)–guided transgastric fine-needle aspiration (FNA).Cytology smears prepared from FNA showed a mixed population of inflammatory cells present, both embedded in a vascular meshwork and loosely dispersed throughout the aspirate smears (Figure A, B). Initial diagnosis was determined cytomorphologically compatible with pancreatic neuroendocrine tumor, in a lymphoid background.

Cell block material was sent for hematopathalogy consultation and CD3 (Figure C), CD5 (Figure D), CD10, CD20 (Figure E), CD21, CD23, CD43, BCL-2, and CD79a (Figure F) markers in mixed B and T cell population showed no evidence of a lymphoproliferative process. KI67 showed low proliferation <10%. Hematopathalogy confirmed that the dense cellular

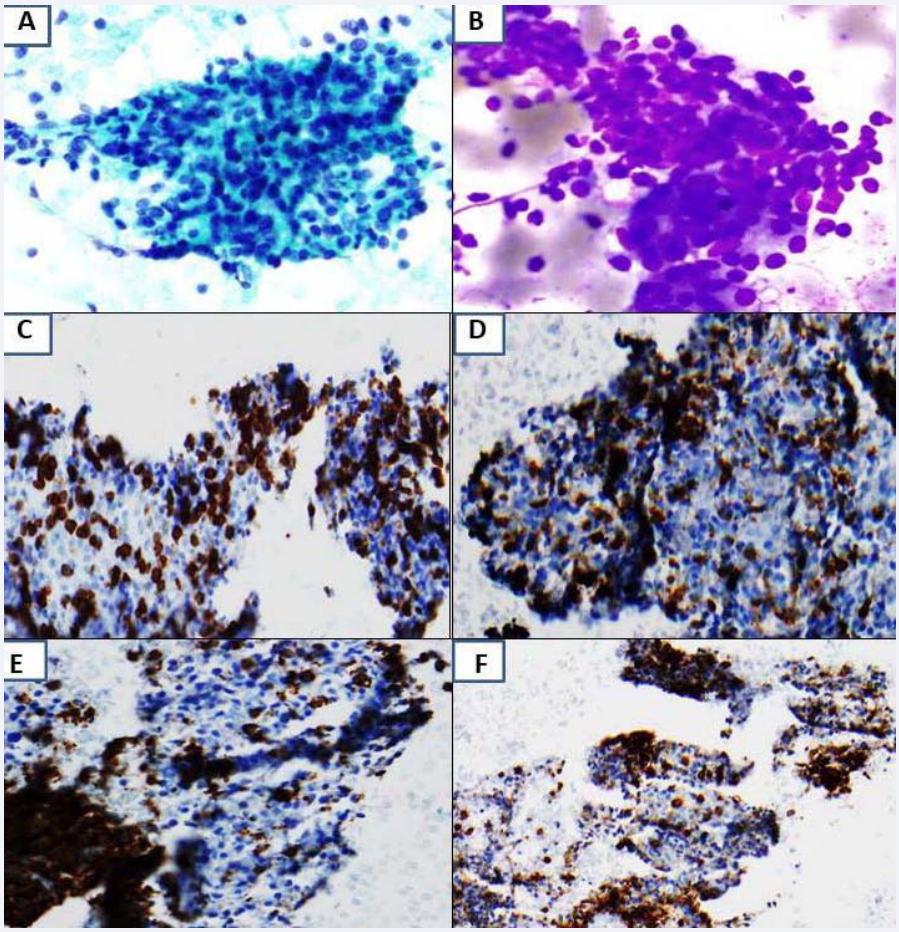

Figure 1 Cytology smears show tissue fragments composed predominantly of small blood vessels surrounded by numerous cohesive small lymphocytes, embedded in perivascular cellular aggregates. In addition, there is a background population of abundant, dispersed hematopoietic cells (Papanicolaou stain; original magnification, X 200) (Figure A). Cytology smear show dispersed population of hematopoietic cells (Diff-Quik stain; original magnification X 400) (Figure B). Cellblock, CD3 immunostain highlights positive T-cells (CD3 immunostain; original magnification X 200) (Figure C). Cellblock, CD5 immunostain highlights positive T-cells (CD5 immunostain; original magnification X 200) (Figure D). Cellblock, CD20 immunostain highlights positive B-cells (CD20 immunostain; original magnification X 200) (Figure E). Cellblock, CD79a immunostain highlights positive B-cells (CD3 immunostain; original magnification X 200) (Figure F).

infiltrates are purely lymphocytic, not epithelial. Mixed reactive B and T cell population were consistent with reactive processes, most likely representing a chronic inflammatory condition. Additionally, immunocytochemical analysis on cell block material showed lack of staining for synaptophysin, chromogranin, CD56, CAM5.2, CK7, and CK20.

This immunoprofile was consistent with the origin of splenic sinuses. Even though, we did not observe the presence of large platelet aggregates, a feature recently described in IPAS. Overall, the cytologic findings and the result of immunosstaining supported a final diagnosis of IPAS.

DISCUSSION

Because accessory spleens are estimated to be present in 10% of the population, and as many as 20% are found in the pancreatic region, it's not unusual that during imaging routines, some present as incidental masses in and around the pancreatic tail. These facts call for important clinical attention to pathologists' imperative use of FNA as a definitive diagnostic tool of the IPAS benign lesions, to avoid unnecessary intervention.

Neoplasms cytomorphologically resembling IPAS include pancreatic endocrine neoplasm (Pan NET), solid pseudopapillary neoplasm, well-differentiated adenocarcinoma, acinar cell carcinoma, as well as, lymphoma [5].

The primary cytological differential diagnosis is a neuroendocrine neoplasm, as the typically dispersed; predominantly single-cell population of inflammatory cells seen in IPAS can be mistaken for a monotonous population of neuroendocrine cells. However, the neoplastic cells of Pan NET typically have more cytoplasm than inflammatory cells and show eccentric round to oval shaped nuclei and finely dispersed chromatin [1]. The differential diagnosis also includes solid pseudopapillary neoplasm, but its blood vessels are typically larger than in IPAS and form fibro vascular cores surrounded by uniform epithelioid cells. Lack of staining for neuroendocrine markers ruled out a neuroendocrine tumor.

Adenocarcinoma accounts for up to 85% to 90% of all

pancreatic neoplasms and it is important to be included in the differential diagnoses [5]. Well-differentiated adenocarcinoma may present a diagnostic dilemma considering the atypical features. The aspirates are hypercellular, with numerous, large, 2-dimensional sheets of neoplastic cells with well- to ill-defined cytoplasmic borders. The nuclei are unevenly distributed within the sheets and thus present a "drunken honeycomb" appearance [5]. The latter described features described in well-differentiated adenocarcinoma were not observed in our tissue samples and was ruled out by immunocytological analysis.

Part of further differential diagnosis is acinar cell carcinoma, a rare malignant exocrine pancreatic neoplasm, which accounts for less than 2% of pancreatic malignancy [9]. The cell arrangement in acinar cell carcinoma is in clusters with acinar formation. Cytoplasm is abundant, with granular, clear, or vacuolated appearance and the nuclei are either centrally or eccentrically located [5]. This neoplasm was also ruled out because cytological features described in acinar cell carcinoma did not match the mixed population of inflammatory cells observed in our smears.

Last but not least, lymphoma is another neoplastic entity that needs to be differentiated from IPAS. The results from hematopathology consultation including lymphoid immunohistochemistry markers showed no evidence of a lymphoproliferative process, signifying the benign nature of the mass.

Cytomorphologically, intrapancreatic accessory spleen (IPAS) will show the same features of normal splenic tissue. However, a limited number of reports describe the cytomorphologic features of normal splenic tissue. Although similar to the smear pattern of lymph node aspirates, FNAs from spleen differ from FNA specimens of lymph nodes in that vascular structures are more common and lymphoid cells adhere to vascular structures in cohesive grape-like arrangements. A clear understanding of cytomorphologic features of normal splenic tissue, recognizing the cytologic features of IPAS and correct classification, is essential to prevent potential pitfalls and avoidable surgical operations that may considerably impact the patients [1,2,4].

REFERENCES

1. Tatsas AD, Owens CL, Siddiqui MT, Hruban RH, Ali SZ. Fine needle aspiration of intrapancreatic accessory spleen: cytomorphologic features and differential diagnosis. Cancer Cytopathol. 2012; 120: 261-268.
2. Conway AB, Cook SM, Samad A, Attam R, Pambuccian SE. Large platelet aggregates in endoscopic ultrasound-guided fine-needle saspiration of the pancreas and peripancreatic region: a clue for the diagnosis of intrapancreatic or accessory spleen. Diagn Cytopathol. 2013; 41: 661-672.
3. Halpert B, Alden ZA. Accessory spleens in or at the tail of the pancreas. A survey of 2,700 additional necropsies. Arch Pathol.1964; 77: 652-654.
4. Bergeron JP, Perry KD, Houser PM, Yang J. Endoscopic ultrasound guided pancreatic fine-needle aspiration: potential pitfalls in one institution's experience of 1212 procedures. Cancer Cytopathol. 2015; 123: 98-107.
5. Lin J, Jing X. Fine-needle aspiration of intrapancreatic accessory spleen, mimic of pancreatic neoplasms. Arch Pathol Lab Med. 2010; 134: 1474-1478.
6. Schreiner AM, Mansoor A, Faigel DO, Morgan TK. Intrapancreatic accessory spleen: mimic of pancreatic endocrine tumor diagnosed by endoscopic ultrasound-guided fine-needle aspiration biopsy. Diagn Cytopathol. 2008; 36: 262-265.
7. Bardales RH, Stelow EB, Mallery S, Lai R, Stanley MW. Review of endoscopic ultrasound-guided fine-needle aspiration cytology. Diagn Cytopathol. 2006; 34: 140-175.
8. Maguchi H, Takahashi K, Osanai M, Katanuma A. Small pancreatic lesions: Is there need for EUS-FNA preoperatively? What to dowith the incidental lesions?. Endoscopy. 2006; 38: 53-56.
9. Klimstra DS, Heffess CS, Oertel JE, Rosai J. Acinar cell carcinoma of the pancreas: a clinicopathologic study of 28 cases. Am J Surg Pathol. 1992; 16: 815-837.

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