Difficult endoscopic diagnosis of a pancreatic plasmacytoma: Case report and review of literature

Nicolas Williet, Radwan Kassir, Muriel Cuilleron, Olivier Dumas, Leslie Rinaldi, Karine Augeul-Meunier, Michèle Cottier, Xavier Roblin, Jean-Marc Phelip

Difficult endoscopic diagnosis of a pancreatic plasmacytoma: Case report and review of literature

A 71-year-old man, with history of plasmacytoma in relapse since one year, was hospitalized for a initial presentation of acute pancreatitis and hepatitis. Although there was a heterogeneous infiltration around the pancreas head, the diagnosis of an extramedullary localization of his plasmacytoma was not made until later. This delayed diagnosis was due to the lack of specific radiologic features and the lack of dilatation of biliary ducts at the admission. A diagnosis was made with a simple ultrasound guided paracentesis of the low abundance ascites after a transjugular hepatic biopsy, an endoscopic ultrasound-guided fine needle aspiration of the pancreatic mass, and a failed attempt of biliary drainage through endoscopic retrograde cholangiopancreatography. In order to document the difficulty of this diagnosis, characteristics of 63 patients suffering from this condition and diagnosis were selected from the literature and provided the original work is properly cited and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/

Manuscript source: Invited manuscript

Institutional review board statement: This case report was exempt from the internal Review Board standards of the Hepato-gastroenterology department managed by Pr Jean-Marc Phelip, at University of Saint-Etienne in Saint-Priest en Jarez.

Informed consent statement: The patient who is involved in the present case report gave his verbal informed consent before his death, authorizing use and disclosure of his protected health information.

Conflict-of-interest statement: None.

Open-Access: This article is an open-access article which was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/
identified and discussed through a systematic literature search.

Key words: Plasmacytoma; Pancreas; Diagnosis; Ultrasound endoscopy; Review

© The Author(s) 2017. Published by Baishideng Publishing Group Inc. All rights reserved.

Core tip: We wrote an interesting case report about a pancreatic plasmacytoma for which diagnosis, including endoscopic diagnosis, was a challenge. In a second part, a systematic pubmed search was performed from 1950 to June 2016, reporting characteristics and route to diagnosis of 63 similar cases reports! Strengths of our paper are the original route to diagnosis (by a simple ultrasound guided paracentesis, after failed of the endoscopic route) and our literature search which is particularly exhaustive: we are first to identify more 20 case similar reports (63!!) and their characteristics.

INTRODUCTION
Here we describe the case of a pancreatic plasmacytoma and difficulties to establish the diagnosis. Characteristics of patients and routes to diagnosis in this condition will be identified through a systematic literature search, in a second part.

CASE REPORT
A 71-year-old man was hospitalized for a clinical and biological presentation of acute pancreatitis. Pain occurred suddenly and was associated with an increased level of lipase above 2000 UI/L, a cholestatic icterus (bilirubin: 103 μmol/L) and a hepatic cytosis (ALT: 154 UI/L; AST: 131 UI/L). An initial computerized tomography (CT) scan showed a significant but unspecific infiltration around the pancreas head, without dilatation of biliary ducts. A first endoscopic ultrasound (EUS) (Pentax, EG 3670 URK, France) showed similar data. The hypoechoic infiltration of the pancreas head was heterogeneous and extended to the hepatic hilum, in contact with portal vein. There was no biliary lithiasis, nor context of alcohol consumption during the last days before the admission. However, the patient was treated with Lenalidomide plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA)

However, the patient was treated with Lenalidomide and biological presentation of acute pancreatitis. Pain occurred suddenly and was associated with an increased level of lipase above 2000 UI/L, a cholestatic icterus (bilirubin: 103 μmol/L) and a hepatic cytosis (ALT: 154 UI/L; AST: 131 UI/L). An initial computerized tomography (CT) scan showed a significant but unspecific infiltration around the pancreas head, without dilatation of biliary ducts. A first endoscopic ultrasound (EUS) (Pentax, EG 3670 URK, France) showed similar data. The hypoechoic infiltration of the pancreas head was heterogeneous and extended to the hepatic hilum, in contact with portal vein. There was no biliary lithiasis, nor context of alcohol consumption during the last days before the admission. However, the patient was treated with Lenalidomide plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosed 3 years ago [t(4;14) positive, del(17p) negative; a plus dexamethasone for a Immunoglobulin A (IgA) plasmacytoma diagnosis of pancreatic plasmacytoma
a biological response, especially for monoclonal peak (2.1 g/L), at one month, the patient died 4 mo after the diagnosis of pancreatic plasmacytoma.

**DISCUSSION**

Extramedullary plasmacytoma involvement is not an uncommon presentation, occurring in 10%-15% of patients[3]. They are commonly identified after the diagnosis of multiple myeloma. The most commonly involved organs are those located around skeletal lesions, and less frequently, skin, liver, kidney, or central nervous system. Regarding the digestive system, liver and spleen are classically the organs which could be damaged by disease through deposits of amyloid proteins[4]. Extramedullary plasmacytomas involving the pancreas is a very rare condition with a prevalence rate estimated at 2.3%, based on autopsy studies[5].

After conducting a systematic Pubmed search, we identified 63 case reports of pancreatic plasmacytoma and collected a set of clinical and diagnostic data which were reported in Table 1. About half of them were male, with a median age of 58.5 years old, and presented jaundice in 70.0% with (36%) or without pain. About 2/3 of patients (68.4%) had a known history of plasmacytoma since 1 year (0­13) (median, interquartile ranges 25%­75%), before the involvement of the pancreas head. Only two cases involved the body or the tail of the pancreas[6,7]. Only 1/3 of patients (32.6%) were diagnosed by EUS-guided FNA vs 1/5 (20.9%) by CT-guided percutaneous FNA. About ¼ of patients (25.6%) have needed for a surgical biopsy, including situation involving bowel obstruction. A direct biopsy of the mass was possible in 16.3% during an upper gastrointestinal endoscopy. Most of patients were treated with chemotherapy (56.0%) and/or radiotherapy (52.0%), providing a 100% tumor response rate. A biliary stent was placed in half of patients with jaundice (46.7%).

Hence, to the best our knowledge, this is the first case report of a pancreatic plasmacytoma which was diagnosed by ascites analysis. Diagnosis by noninvasive procedures and rapid response to conservative therapy were important in this patient's care. It is very difficult to radiologically differentiate extramedullary plasmacytoma of the pancreas from other pancreatic tumors. EUS guided FNA provides the easiest and most safe route to diagnosis of pancreatic plasmacytoma. Studies have shown that the overall accuracy of EUS-guided FNA ranges between 71% and 90% in case of pancreatic tumors[8]. However, there is no corresponding data in case of pancreatic plasmacytoma.

In our case, the missed diagnosis of pancreas plasmacytoma through EUS-guided FNA may be due to a sampling bias. Furthermore, we made only one diagnostic EUS attempt while in few cases reported, authors specified the need for repeating EUS-guided FNA[9-13].

This case highlights that a pancreatic mass in patients with plasmacytoma should be systematically considered as an extramedullary extension of the disease until proven otherwise. Ascites analysis could
Williet N et al. Diagnosis of pancreatic plasmacytoma

Table 1 Main characteristics of the 63 patients who had been reported to date with a pancreas plasmacytoma: Results of a PubMed search from 1950 to June 2016

| Demographic characteristics | n (%) |
|-----------------------------|-------|
| Male                        | 22 (56.4) |
| Age (years, median, IQR)    | 58.5 [51.2-82] |
| Symptom(s) at diagnosis     |       |
| Jaundice                    | 35 (70.0) |
| Pain                        | 18 (36.0) |
| Myeloma                     |       |
| Known history of myeloma    | 26 (41.3) |
| Disease duration at diagnosis of pancreas plasmacytoma (years, median, IQR) | 1 [0-13] |
| Type Kappa                  | 13 (71.4) |
| Immunoglobulin              | A (36%), G (52%), M (12%) |
| Diagnosis process of the pancreas plasmacytoma |       |
| Endoscopic ultrasound FNA   | 14 (32.6) |
| Percutaneous FNA            | 9 (20.9) |
| Endoscopic biopsy           | 7 (16.3) |
| Surgical biopsy             | 11 (25.6) |
| Paracentesis                | 0 (0.0) |
| Postmortem biopsy           | 3 (7.0) |
| Management of the pancreas plasmacytoma |       |
| Chemotherapy                | 14 (56.0) |
| Radiotherapy                | 13 (52.0) |
| Biliary stent in patients with jaundice | 10 (40.0) |
| Surgery                     | 8 (32.0) |
| Biliodigestive derivation   | 3 (12.0) |
| Duodenopancreatectomy cephalic | 2 (25.0) |

FNA: Fine needle aspiration; IQR: Interquartile range.

Cytological diagnosis
A (pancreatic) plasmacytoma.

Treatment
An empirical corticotherapy followed by a second line of chemotherapy (Bortezomib + Cyclophosphamide).

Related reports
Cytology of the mass was not contributory in contrast with the very low abundance ascites located around the liver.

Terms explanation
Extraduodenal plasmacytoma involvement is not an uncommon presentation, and occurs preferentially in located around skeletal lesions, or less frequently in, skin, liver, kidney, or central nervous system.

Experiences and lessons
A pancreatic mass occurring in a patient with history of plasmacytoma and with an uncommon presentation should make suspecting an extramedullar site of the disease. No diagnostic way should be forgot, even a simple analysis of an ascites sample.

Peer-review
This is an interesting case about pancreas involvement in a case with relapsed myeloma.

REFERENCES
1. Nojkov B, Signori C, Konda A, Fontana RJ. Lenalidomide-associated hepatotoxicity—a case report and literature review. Anticancer Res 2012; 32: 4117-4119 [PMID: 22993370]
2. FDA. Revlimid: highlights of prescribing information. Federal Drugs Administration 2012. Available from: URL: http: //www.accessdata.fda.gov/drugsatfda_docs/label/2012/021880s028lbl.pdf
3. Pinto-Marques P, Martins C, Mendonça E, Castro H, Serra D. Pancreatic head mass of unusual etiology: multiple myeloma diagnosed by endoscopic ultrasound-guided fine needle aspiration. Endoscopy 2010; 42 Suppl 2: E263-E264 [PMID: 20931474 DOI: 10.1055/s-0030-1255659]
4. Michopoulos S, Petraki K, Petraki C, Dimopoulos MA. Light chain deposition disease of the liver without renal involvement in a patient with multiple myeloma related to liver failure and rapid fatal outcome. Dig Dis Sci 2002; 47: 730-734 [PMID: 11991600]
5. Fischer A, Suhland MJ, Vogl SE. Myeloma of the head of the pancreas. A case report. Cancer 1991; 67: 681-683 [PMID: 1985760 DOI: 10.1002/1097-0142(19910201)67]
6. Hirata S, Yamaguchi K, Bandai S, Izumo A, Chijiwa K, Tanaka M. Secondary extraduodenal plasmacytoma involving the pancreas. J Hepatobiliary Pancreat Surg 2002; 9: 111-115 [PMID: 12021905 DOI: 10.1007/s005340000012]
7. Deguchi Y, Nomaka A, Takeuchi E, Funaki N, Kono Y, Mizuta K. Primary pancreatic plasmacytoma. Am J Clin Oncol 2004; 27: 247-249 [PMID: 15170142 DOI: 10.1097/01.coc.0000092613.05046.28]
8. Harris MD, Buscaglia JM. How to do pancreatic mass FNA. Gastrointest Endosc 2010; 71: 825-826 [PMID: 20363424 DOI: 10.1016/j.gie.2010.01.068]
9. Hue SS, Azhar R. Plasmacytoma of the pancreas: an unusual manifestation of multiple myeloma. Singapore Med J 2013; 54: e105-e107 [PMID: 23716161 DOI: 10.1162/smedj.201303066]
10. Gupta P, Rice GD, Abraham K, Ghole V, Ketkar M. Extraduodenal plasmacytoma of the pancreas and jejunum. Clin Imaging 2009; 33: 240-243 [PMID: 19411034 DOI: 10.1016/j.clinimag.2008.12.006]
11. Jaubert D, Hauteville D, Verdier M, Houdelette P, Gisserot D, Dupin-Nizard B, Sahel J. Plasmacytoma of the head of the pancreas: a rare case of cholestatic jaundice. Gastroenterol Clin Biol 1985; 9: 532-534 [PMID: 5018487]
12. Scheiman J, Elta G, Francis I. Biliary obstruction secondary to
an extramedullary plasmacytoma of the pancreas: confusion with pancreatitis on computed tomography. *Pancreas* 1987; 2: 237-239 [PMID: 3628227 DOI: 10.1097/00006676-198703000-00019]

Sánchez Acevedo Z, Pomares Rey B, Alpera Tenza MR, Andrade Becerra E. Primary pancreatic plasmacytoma. *Radiología* 2014; 56: e17-e20 [PMID: 22738942 DOI: 10.1016/j.rx.2011.10.010]

P- Reviewer: Bramhall S, Kyrtsonis MC, Mozalek ZT, Paydas S
S- Editor: Ji FF  L- Editor: A  E- Editor: Wu HL
