CASE REPORT

Long-Term Survival after Surgery of Pancreatic Primary Squamous Cell Carcinoma: A Case Report

Taibi Abdelkader[1,2], Jacques Jeremie[2,3], Durand Fontanier Sylvaine[1,2], Charissoux Aurelie[4], Christou Niki[1], Valleix Denis[1], Mathonnet Muriel[1]

[1]Department of Visceral Surgery, Limoges University Hospital, France

[2]University of Limoges, Limoges, France

[3]Department of Gastroenterology, Limoges University Hospital, France

[4]Department of Anatomopathology, Limoges University Hospital, France

ABSTRACT

Pancreatic cancer is one of the leading causes of cancer death in Western countries. Primary squamous cell carcinoma is a rare form of pancreatic cancer with an incidence rate of 0.2%–4%. We present 72-year-old woman with painless jaundice. The pancreatic primary SCC confirmed by endoscopic ultrasound-guided fine needle aspiration. Imaging methods demonstrated a hypodense mass at the head of the pancreas. Additionally 26 months after curative surgery and adjuvant chemotherapy, this patient was alive without evidence of disease.

INTRODUCTION

Pancreatic cancer is one of the leading causes of cancer-related death in most Western countries. Adenocarcinoma is the most common subtype. Primary squamous cell carcinoma (SCC) is much rarer, with an incidence rate of 0.2%–4% [1, 2]. Squamous cells do not naturally exist in the pancreas. Squamous metaplasia of ductal columnar cells has been observed in chronic pancreatitis [3] and in 9%–64% of cases examined at autopsy [4]. Despite this high frequency, transformation to SCC is rare. Diagnosis of primary pancreatic SCC is made only after excluding other neoplastic lesions of the pancreas that contain squamous epithelial components, adenosquamous carcinoma, or metastatic disease [3]. No optimal treatment has been validated. We present a case of primary SCC in an elderly female with abnormal liver function tests and acute onset of painless jaundice.

CASE REPORT

A seventy-two-year-old woman with a medical history of arthrosis was admitted to our institution with jaundice. Laboratory testing indicated elevated transaminase levels (Alanine aminotransferase (ALT): 83 UI/L; Aspartate Aminotransferase (AST): 206 UI/L) and an elevated total bilirubin level (206 µmol/L). The carcinoembryonic antigen level was normal, and the cancer antigen 19-9 level was slightly elevated (51 U/mL). The patient received an abdominal ultrasound and chest plus abdominal Computed Tomography (CT), which revealed a mass in the head of the pancreas measuring 2.2×1.7 cm with biliary and pancreatic ductal dilatation **(Figure 1a)**. Positron Emission Tomography (PET)–CT was used to investigate the origin of this mass, which revealed a unique pancreatic mass with a standardized uptake value of 12.5 **(Figure 1b)**. Endoscopic ultrasound-guided Fine Needle Aspiration (FNA) was performed. The histopathology of the biopsy was consistent with SCC. The workup for identifying an alternative primary tumor was negative, including the gynecological, dermatological, "ear, nose, throat" exams, and endoscopic evaluation of the upper and lower gastrointestinal tracts. A diagnosis of primary SCC of the pancreas was made. Based on the patient's age, performance status, and the non-metastatic tumor stage, curative therapy was rapidly implemented. The patient received a cephalic duodenopancreatectomy and transverse colectomy. The definitive histology confirmed the diagnosis of primary pancreatic SCC with perineural neoplastic invasion **(Figures 1c and d)**. Based on the tumor–node–metastasis–resection classification, the tumor was diagnosed as T2N0M0R0. Subsequent to surgery, the patient received chemotherapy using gemcitabine (six cycles). The patient is currently in complete remission after a follow-up interval of 26 months. The nature and objectives of the study were explained to the patient, and informed consent was formally obtained. No reference to the patient's identity was made at any stage during data analysis or in the report.

Received March 06th, 2019 - Accepted April 24th, 2019
Keywords Carcinoma ; Squamous Cell; Pancreas; Pancreatic Neoplasms; Surgery
Abbreviations CT Computed tomography; FNA Fine needle aspiration; SCC Squamous cell carcinoma
Correspondence Abdelkader Taibi
Department of Visceral Surgery
Limoges University Hospital, France
Tel +33 5 55 05 62 96
Fax +33 5 55 05 62 12
E-mail abdelkader.taibi@hotmail.fr

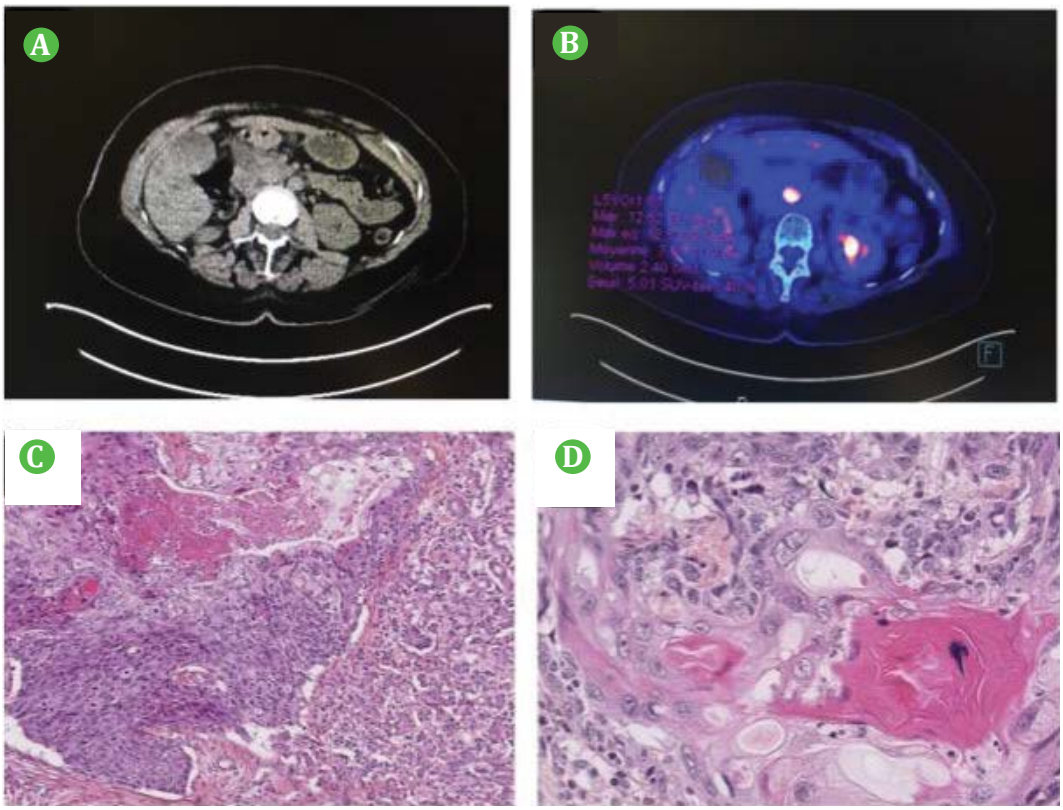

Figure 1. (a). Abdominal CT Scan showed a head pancreatic mass with greatest dimensions of 2.2 × 1.7 cm. **(b).** PET scan showed hypermetabolic mass. **(c).** image of carcinoma with central necrosis and focal squamous differentiation (Hematoxylin and eosin stain (H&E) x 200). **(d).** H&E stained cell block shows a group of malignant squamous cells (x 400).

DISCUSSION

SCC of the pancreas is exceedingly rare, with an incidence rate of 0.5%–5% [5]. Because of this rarity, it is often presumed to be a result of metastasis from another primary site [6]. The first case of SCC was described by Lowry in 1949 [7]. Since then, only case reports from the literature have been available to guide workup and treatment. Identification of the initial stage is necessary for the management of pancreatic cancer. Patients who may be eligible for potentially curative surgery must be identified accurately. Patients with locally advanced disease or metastasis must also be identified and treated with chemotherapy or radiotherapy. This case report confirmed that the clinical presentation of SCC was similar to that of adenocarcinoma [8], with anorexia and epigastric pain as the main symptoms. The presenting symptom was often obstructive jaundice with involvement of the pancreatic head. A recent epidemiologic study reported tumor locations of the pancreatic head in 47.7% of cases and the body or tail in 27.1% of cases [2]. The diagnosis of primary SCC of the pancreas was confirmed after eliminating other possibilities, in addition to immunohistological confirmation prior to treatment. In our case, the patient received an otorhinolaryngological assessment, endoscopic examination of the gastrointestinal tract, and gynecological examination, which were all normal. Additional biopsies may be needed to confirm that the malignant cells are not of adenosquamous origin [9]. Minimally invasive methods, such as FNA, are replacing traditional surgical approaches to obtaining pancreatic tissue [10]. FNA was the method used in this case report. Abdominal CT is often the first imaging test performed when a patient's symptoms suggest a pancreatic tumor [11]. Other procedures and imaging tests used to aid diagnosis and identify metastasis include PET and pancreatic MRI.

It is necessary to identify the pancreatic tumor stage (resectable, locally advanced, or metastatic tumor) prior to initiating treatment. Surgery is the only effective therapy for pancreatic SCC. The quality of surgery is considered a key factor in the long-term survival of patients with pancreatic cancer. In our case, the patient had a small, localized pancreatic tumor and received a cephalic duodenopancreatectomy with transverse colectomy followed by adjuvant chemotherapy. The pancreas tumor should be treated by en bloc resection when it is adherent to other organs, like transverse colon. The resectability rate of SCC reported by Makarova-Rusher *et al.* was 10.4% for patients with SCC and 14.2% for patients with pancreatic adenocarcinoma [12]. Although significant progress has been made in the field of pancreatic resection recently, only 15%–25% of patients present with resectable disease at the time of the primary diagnosis [13]. This finding emphasizes the need for early diagnosis of, and therapeutic approaches to, pancreatic cancer. Even with therapy, SCC of the pancreas is associated with a high mortality rate and overall poor prognosis. Resectable cases had significantly better OS than that of non-resectable cases. Makarova-Rusher *et al*. reported a median OS of 9 months for the patients who underwent surgery compared with 3 months for those who received palliative treatment [2]. In our case, this patient was alive at 26 months of follow-up and was

asymptomatic. No studies have evaluated the efficacy of chemotherapy or radiotherapy in pancreas SCC. Since the approval of gemcitabine in 1997, more effective cytotoxic substances, such as nab-paclitaxel, and combination regimens, such as FOLFIRINOX, have become available for locally advanced tumors, possibly leading to more effective adjuvant and neoadjuvant treatment concepts for potentially resectable tumors [14]. In this review of sporadic cases, Gemcitabine, Cisplatin, 5-fluorouracil, were the 3 principle drugs utilized (alone or in combination).

CONCLUSION

SCC of the pancreas is aggressive and rare. Clinical presentation and diagnostic approaches are similar to those for other pancreatic tumors. Surgical resection is the only curative option but is often limited by local and distant metastases. A multidisciplinary approach is needed to improve long-term survival in this still-challenging disease. Prospective international research is required to validate the management of SCC.

Conflict of Interest

All authors are in agreement with the contents of the manuscript. There is no conflict of interest.

References

1. Schultheis AM, Nguyen GP, Ortmann M, Kruis W, Büttner R, Schildhaus HU, et al. Squamous Cell Carcinoma of the Pancreas in a Patient with Germline BRCA2 Mutation-Response to Neoadjuvant Radiochemotherapy. Case Rep Oncol Med 2014; 2014:860532. [PMID: 24959366]

2. Makarova-Rusher OV, Ulahannan S, Greten TF, Duffy A. Pancreatic Squamous Cell Carcinoma: A Population-Based Study of Epidemiology, Clinicopathologic Characteristics and Outcomes. Pancreas 2016; 45:1432–7. [PMID: 27214394]

3. Layfield LJ, Cramer H, Madden J, Gopez EV, Liu K. Atypical squamous epithelium in cytologic specimens from the pancreas: cytological differential diagnosis and clinical implications. Diagn Cytopathol 2001; 25:38–42. [PMID: 11466811]

4. Anagnostopoulos GK, Aithal GP, Ragunath K, Kaye P, Rowlands BJ. Squamous cell carcinoma of the pancreas: report of a case and review of the literature. JOP 2006; 7:47–50. [PMID: 16407618]

5. Modi RM, Kamboj AK, Shen R, Krishna SG. Endosonography and Confocal Endomicroscopy of Primary Keratinizing Squamous Cell Carcinoma of the Pancreas. ACG Case Rep J 2017; 4:e17. [PMID: 28184374]

6. Ntanasis-Stathopoulos I, Tsilimigras DI, Georgiadou D, Kanavidis P, Riccioni O, Salla C, et al. Squamous cell carcinoma of the pancreas: A systematic review and pooled survival analysis. Eur J Cancer 2017; 79:193–204. [PMID: 28511147]

7. Bixler HA, Castro MJ, Stewart J. Cytologic differentiation of squamous elements in the pancreas. Diagn Cytopathol 2011; 39:536–9; quiz 539–40. [PMID: 20949450]

8. Lowry CC, Whitaker HW, Greiner DJ. Squamous cell carcinoma of the pancreas. South Med J 1949; 42:753–7. [PMID: 18139941]

9. Minami T, Fukui K, Morita Y, Kondo S, Ohmori Y, Kanayama S, et al. A case of squamous cell carcinoma of the pancreas with an initial symptom of tarry stool. J Gastroenterol Hepatol 2001; 16:1077–9. [PMID: 11595080]

10. Lin E, Veeramachaneni H, Addissie B, Arora A. Squamous cell carcinoma of the pancreas. Am J Med Sci 2018; 355:94-96. [PMID: 29289270]

11. Zacharia G, Levine J, Winstead NS, Antillon MR, Davis NK. Primary squamous cell carcinoma of the pancreas diagnosed by endoscopic ultrasound-guided fine needle aspiration. J Gastrointestin Liver Dis 2012; 21:321–3. [PMID: 23012676]

12. Wong JC, Lu DSK. Staging of pancreatic adenocarcinoma by imaging studies. Clin Gastroenterol Hepatol 2008; 6:1301–8. [PMID: 18948228]

13. Vincent A, Herman J, Schulick R, Hruban RH, Goggins M. Pancreatic cancer. The Lancet 2011; 378(9791):607–20. [PMID: 21620466]

14. Sinn M, Bahra M, Denecke T, Travis S1, Pelzer U, Riess H, et al. Perioperative treatment options in resectable pancreatic cancer - how to improve long-term survival. World J Gastrointest Oncol 2016; 8:248. [PMID: 26989460]