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CASE REPORT

Squamous Cell Carcinoma of the Pancreas: Report of a Case and Review of the Literature

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ABSTRACT

Context Although, squamous metaplasia of the ductal columnar cells can be observed during periods of inflammation, squamous cell pancreatic carcinoma is an extremely rare tumour.

Case report We present the case of a 72-year-old man who presented to our hospital with painless obstructive jaundice. After careful and adequate staging investigations that revealed a malignant mass in the head of pancreas he underwent a laparotomy which revealed an inoperable pancreatic cancer. Palliative bypass procedure was done. The biopsy specimens revealed a squamous cell cancer.

Conclusion Pure squamous cell carcinoma of the pancreas is a very rare malignancy. In most cases it is not possible to make a pre-operative histological diagnosis and curative resection is unlikely because of dissemination at the time of initial diagnosis or laparotomy.

INTRODUCTION

Normally, the pancreas is entirely devoid of squamous cells. During periods of inflammation such as in pancreatitis, squamous metaplasia of the ductal columnar cells can be observed. Squamous metaplasia of the pancreatic ducts is found in 9-64% of pancreases routinely examined at necropsy [1]. Despite the relative frequency of squamous metaplasia, squamous cell carcinoma (SCC) of the pancreas is an extremely rare tumour. We present a case of SCC of the pancreas and the relevant review of the published literature.

CASE REPORT

A 72-year-old man was admitted in our hospital for investigation of painless jaundice. Initial laboratory investigation revealed abnormal liver tests; bilirubin 266 μmol/L (reference: range: 0-17 μmol/L), alkaline phosphatase 844 IU/L (reference: range: 40-120 IU/L), and alanine aminotransferase 60 IU/L (reference: range: 0-40 IU/L). Abdominal ultrasound demonstrated a mass in the head of pancreas and dilation of both pancreatic and common bile duct. Subsequently, he underwent endoscopic retrograde cholangiopancreatography (ERCP) that showed a long distal common bile duct stricture which was brushed and stented. Brushings were negative for malignancy.
Abdominal and chest computed tomography scan confirmed the presence of a low attenuation mass lesion in the head of the pancreas measuring 6 cm in the maximum diameter. The mass was extending posteriorly

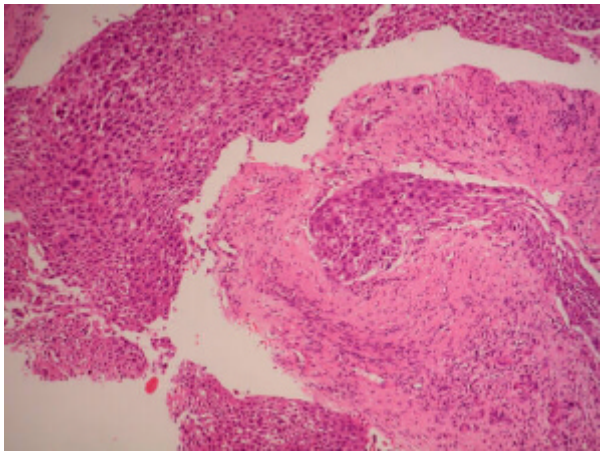

Figure 1. Histology section (H&E stain) demonstrating a squamous-cell carcinoma of the pancreas with no adenomatous features.

and eliminating the fat plane around the aorta but with no evidence of vessel involvement elsewhere and no secondary deposits. An endoscopic ultrasound of the pancreas was performed, which showed a 5 cm hypoechoic lesion in the region of the pancreatic head not involving any of the main vessels. Fine needle aspiration cytology of the mass (two passes) revealed malignant cells. The patient underwent laparotomy. Unfortunately, the lesion was deemed non resectable due to invasion of the mesenteric vessels. He therefore underwent palliative Roux en Y hepato-jejunostomy and gastroenterostomy. Tru-cut biopsies from the head of pancreas revealed a moderately differentiated SCC. No glandular components were seen (Figure 1). The patient refused to receive chemotherapy and died 4 months after the operation.

DISCUSSION

In a review of 6,668 cases of exocrine pancreatic cancers from various cancer registries between 1950 and 1985, the reported incidence of squamous and adenosquamous carcinomas were 0.005 and 0.01%, respectively [2]. No cases of SCC were found in the 1,211 cases compiled by Saitou from registries for pancreatic cancer in Japan [3]. Other reports cite an incidence of 0.5-1% [4]. However, most of these cases represent adenosquamous carcinomas.

Adenosquamous carcinoma is an unusual ductal cell cancer with a mixture of neoplastic glandular and squamous components, with the squamous component comprising at least 30% of the tumour tissue. The relative frequency is about 3% [5]. Pure SCC of the pancreas is a very rare malignancy. According to the World Health Organization (WHO) classification, it represents a special form of adenosquamous carcinoma [5]. In most cases extensive sampling may reveal the presence of neoplastic glands in the squamous tissue. However, in some cases, as in ours, only pure squamous cell tumour can be demonstrated.

Although the histogenesis of a SCC of the pancreas, whether alone or combined with adenocarcinoma, is not known, at least four theories have been suggested: a primitive cell capable of differentiating into either squamous or glandular carcinoma undergoes malignant change; a pre-existing adeno-carcinoma undergoes squamous change; a squamous metaplasia of the ductal epithelium undergoes a malignant transformation or an aberrant squamous cell undergoes a malignant change [6]. In our case, the histopathologic diagnosis of squamous cell pancreatic cancer was based only in tru-cut biopsies since the tumour was considered to be non-resectable. Two possible explanations could be given for the histogenesis of this tumour: 1) pure squamous cell cancer arising from squamous metaplasia in pancreatic duct, or 2) the squamous cell component arising from morphological change of an adenocarcinoma. However, we believe that most probably the tumour originated from aberrant squamous cells since no adenomatous changes were seen in the carcinoma and no metaplastic lesions of the ductal cells could be demonstrated in the field near the tumour. This hypothesis is strengthened by the fact that tumour cells stained positive with cytokeratine 5/6, and cytokeratine 14 antibodies (Figure 2).

Clinically, the most common symptoms of pancreatic SCC are upper abdominal and back pain, anorexia, weight loss, nausea, vomiting and jaundice [7]. Therefore, it is difficult to obtain a diagnosis prior to operation or autopsy. Little attention has been given to radiographic-pathologic correlations for

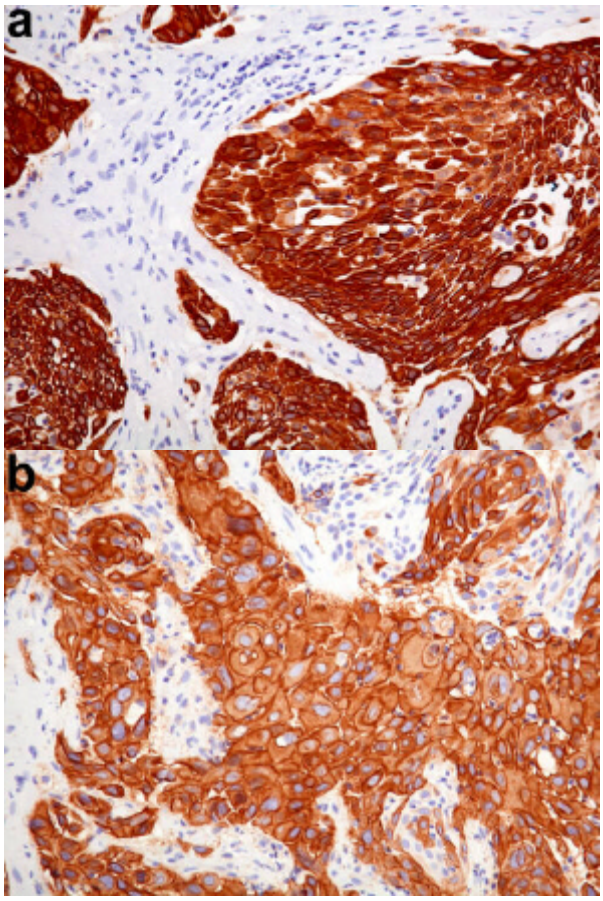

Figure 2. Positive staining with cytokeratine 5/6 monoclonal antibody (**a**) and cytokeratine 14 monoclonal antibody (**b**).

primary pancreatic squamous cell carcinoma. Sprayergen *et al*. reported a case of SCC of the pancreas with new vessel formation and tumour blush demonstrated angiographically [8]. Although this finding is unusual in typical adenocarcinomas of the pancreas, hypervascularity can be seen with cystadenoma, cystadenocarcinoma, islet cell tumours, angiosarcoma, and hemangiomas. Similarly, according to Fajardo *et al*., enhancement of the tumour on contrast CT is characteristic of pancreatic SCC [9]. This finding has been demonstrated also by other authors [7]. Histological preoperative diagnosis of SCC based on EUS-guided FNA results is difficult. Yet, with the recent development of EUS-guided tru-cut biopsies, establishing a preoperative diagnosis may prove feasible.

Prognosis of SCC is generally very poor. In most cases curative resection is impossible because of dissemination at the time of initial diagnosis or laparotomy. Some investigators report a better response to chemotherapy [1], and some patients seem to have a more "benign" course [2]. Since squamous cell carcinomas seem to respond better to chemoradiotherapy regimens based on gemcitabine, this combination could be potentially used in patients with squamous cell pancreatic cancer.

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Keywords Carcinoma, Squamous Cell; Pancreatic Neoplasms

Abbreviations SCC: squamous cell carcinoma

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