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Case Report

Synchronous Primary Tumors of the Kidney and Pancreas: Case Report

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ABSTRACT

The simultaneous presence of primary carcinomas in the same patient is uncommon and synchronous primary tumors involving the kidney and pancreas are extremely rare. There are a few reports in the English literature of synchronous primary malignancies of the kidney and pancreas. We present a 62-year-old man who had weight loss of 9 kg and epigastric pain. Findings showed a Furhman grade II renal papillary carcinoma confined to the kidney and a synchronous well differentiated pancreatic ductal adenocarcinoma.

Key Words: Synchronous double cancer, renal cell carcinoma, pancreatic carcinoma

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INTRODUCTION

Renal cell carcinoma accounts for approximately 3% of adult malignancies[1]. Reports of synchronous or metachronous cancers of the kidney and pancreas are very rare and poorly documented[2]. We observed an unusual case of a 62-year-old man showing the contemporaneous presence of papillary carcinoma of the kidney and pancreatic ductal adenocarcinoma.

CASE REPORT

A 62-year-old non-smoking male presented with a 4-month history of epigastric pain and episodes of nausea and vomiting associated with weight loss of 9 kg. He had no hematuria or other urinary symptoms. He had no family history of renal or pancreatic diseases or familial genetic syndromes. On physical examination, no palpable mass or tenderness was revealed. Laboratory investigations showed a normal carcinoembryonic antigen (CEA) level and increased serum carbohydrate antigen (CA) 19-9 level (166 IU/ml).

Abdominal ultrasound (US) revealed a solid mass (4 cm in diameter) in the body of the pancreas. Abdominal computed tomography (CT) confirmed the presence of a 57 mm diameter heterogeneous and irregular mass in the body and tail of the pancreas, encasing the celiac trunk. Celiac lymph nodes and dilatation of Wirsung's duct were present. CT also revealed the presence of a demarcated, heterogeneously enhancing right renal mass 52 x 40 x 54 mm in size (Fig. 1 and 2).

The patient underwent right radical nephrectomy and pancreatic biopsy (the reason for this management was the encasement of the celiac trunk). The operation was uneventful, with no postoperative complications. Histopathologic examination showed a Furhman grade II renal papillary carcinoma confined to the kidney, stage pT1b in the 2004 TNM classification (Fig. 3).

The pancreatic biopsy showed a well differentiated pancreatic ductal adenocarcinoma (Fig. 4).

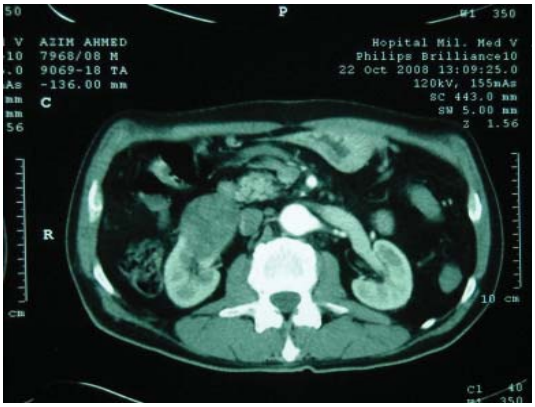

Fig. 1: Abdominal computed tomography (CT) showing heterogeneous enhancing right renal mass.

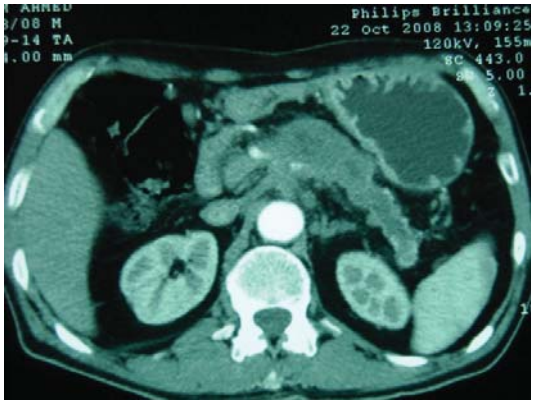

Fig. 2: Abdominal CT: presence of a heterogeneous and irregular mass lesion in the pancreatic body and tail.

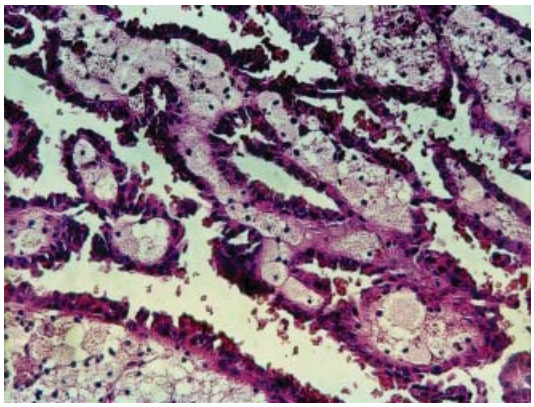

Fig. 3: Microscopy of renal tumour showing tubulo-papillary proliferation of the renal glands (H&E x 100).

Immunohistochemistry showed positivity of the pancreatic tumoral glands to anti-cytokeratin (AE1, AE2) (Fig. 5). The patient was referred to the oncology department for chemotherapy containing gemcitabine.

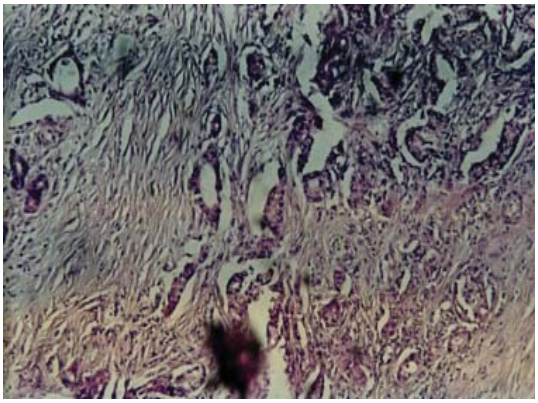

Fig. 4: Microscopy of pancreatic biopsy showing tumoral proliferation of the glands and fibrous desmoplasia of the stroma (H&E x 40).

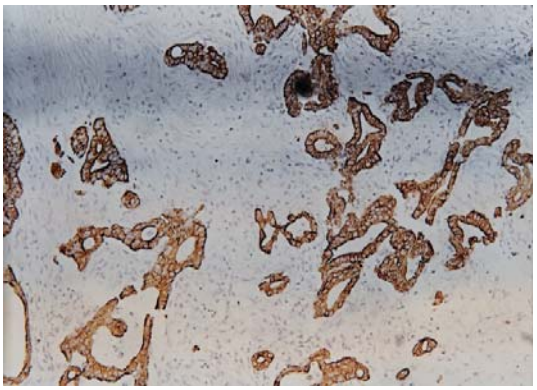

Fig. 5: Immunohistochemical analysis showing positivity of pancreatic tumoral glands to anti-cytokeratin (AE1, AE2).

DISCUSSION

Multiple primary malignancies in the same patient represent 1.8% to 3.9% of all cancers, but synchronous multiple primary tumors are extremely rare[3, 4]. Most synchronous primary tumors involve the genitourinary and the gastrointestinal tract, followed by both breast and genitourinary tract or breast and gastrointestinal tract[3,5]. Second malignancies associated with renal cancer include bladder tumors, non-Hodgkin's lymphoma, multiple myeloma, chronic lymphocytic leukaemia, melanoma and cancer of the prostate, breast, rectum and lung with an incidence that varies from 5% to 27%[2]. A Japanese autopsy study of pancreatic cancer found associated malignancies in 134 of 2394 (5.6%) autopsies, including 7 with renal cell cancer (0.29%)[6].

Table 1: Reported cases of double pancreas-kidney primary cancers.

Authors	Type of study	Number of cases	Temporal association
Makino et al[6]	Analysis of annual autopsy	7	All 7cases Synchronous at autopsy
Sasaki et al[10]	Single case report	1	Patient with PDAC RCC and polyposis coli
Kantor et al[7]	4176 patients with RCC Collected by the Connecticut Tumour Registry	6	PDAC metachronous to RCC
Rabbani et al[8]	763 patients undergoing resection for RCC in a single unit	3	All 3 cases with synchronous PDAC and RCC
Alexakis et al[2]	373 patients with pancreatic tumours treated in a single unit	2	Single patient with synchronous PDAC and RCC
Olgyai et al[11]	Single case report	1	Synchronous PDAC and RCC
Toshiyuki et al[9]	Single case report	1	Synchronous RCC and pancreatic tubular carcinoma
Nobili et al[12]	Single case report	1	A case of pancreatic heterotopy of duodenal wall, intraductal papillary mucinous tumor and intraepithelial neoplasm of pancreas, papillary carcinoma of the kidney
Present case	Single case report	1	Synchronous PDAC and renal papillary carcinoma

PDAC: pancreatic ductal adenocarcinoma; RCC: renal cell carcinoma

Analysis of the Connecticut tumour registry for the period 1935-1982 revealed that 19% of 4176 patients with renal cell cancer developed a second primary malignancy (relative risk= 1.2; $p<0.05$)[7]. There were also 6 cases (0.14%) of pancreatic cancer but there was no significant association (relative risk=1.0)[7]. In a series from Memorial Sloan Kettering Cancer Center, New York comprising 763 patients who underwent surgery for renal cell cancer during 1988-1999, there was a significantly increased incidence of prostate, colorectal and bladder cancers and non-Hodgkin's lymphoma, but not pancreatic ductal adenocarcinoma[8].

Toshiyuki et al[9] reported a case of synchronous cancer of the kidney and pancreas. Pathologically, the renal tumor was a renal cell carcinoma (clear cell type) and the pancreatic tumor was a well differentiated tubular carcinoma. Alexakis et al[2] reported two patients with a pancreatic ductal adenocarcinoma who also presented

with renal cell carcinoma 9 months following nephrectomy in one case and synchronously in the other.

Previous reports that mention an association between pancreatic ductal adenocarcinoma and renal cell cancer were based on a small cohort of patients with pancreatic cancer, and few studies provided clinical details[2, 6-8, 10] (Table 1). In 2004, Olgyai et al[11] reported a new case of synchronous renal and pancreatic body cancers. Histology verified primary pancreatic ductal adenocarcinoma with synchronous primary renal clear cell carcinoma. Recently, Nobili et al[12] reported a case of coexistence of two histologically different pancreatic neoplasms, one renal cancer (papillary carcinoma) and one embryogenic duodenal anomaly in a single patient.

In five cases, the majority of the patients were males over 60 years[2, 9, 11, 12]. Possible causes for such an association include shared environmental risk or genetic factors. Cigarette smoking could be a major environmental risk factor for both pancreatic ductal adenocarcinoma and renal cell cancer, accounting for an approximate 2-fold relative risk[2].

Genetic changes linked to the development of synchronous tumors were investigated in some studies. Satake[13] found a mutation in codon 12 of the k-ras gene in a patient with a synchronous tumors of the kidney and pancreas. Molecular investigations were not considered in our case because of absence of known familial genetic syndromes, but genetic analysis of synchronous tumors in different organs may provide information about the etiology of genetic changes that occur during carcinogenesis[13]. There may be a novel genetic link in patients with pancreatic ductal adenocarcinoma and renal cell cancer dual primaries[2].

CONCLUSION

Synchronous double kidney-pancreas cancers are very rare. This association demands more detailed epidemiological and molecular investigation.

REFERENCES

1. Linehan W, Shipley W, Parkinson D. Cancer of the kidney and ureter. Cancer principles and practice of oncology. Philadelphia: Lippincott; 1993. p. 1362-95.
2. Alexakis N, Bosonnet L, Connor S, Ellis I, Sutton R, Campbell F, et al. Double resection for patients with pancreatic cancer and a second primary renal cell cancer. Dig.Surg. 2003;20(5):428-32.
3. Balat O, Kudelka AP, Ro JY, Edwards CL, Balbay D, Dinney C, et al. Two synchronous primary tumors of the ovary and kidney: A case report. Eur.J.Gynaecol.Oncol. 1996;17(4):257-9.
4. Wong C, Plante M, Eltabbakh G. Synchronous renal cell carcinoma and gynecologic malignancies. Gynecol. Oncol. 2003; Jan;88(1):66-8.
5. Warren S, Gates,0. Multiple primary malignant tumors. A survey of the literature and a statistical study. Am.J.Cancer. 1932;16:1358-414.
6. Makino T, Konishi Y, Takahashi S, Maruyama H, Kohara T, Yokose Y, et al. Clinicopathology of pancreatic cancer analyzed from annual of the pathological autopsy cases in Japan (in Japanese). Tan To Sui. 1984;5:716-68.
7. Kantor AF, McLaughlin JK, Curtis RE, Flannery JT, Fraumeni JF,Jr. Risk of second malignancy after cancers of the renal parenchyma, renal pelvis and ureter. Cancer. 1986; Sep 1;58(5):1158-61.
8. Rabbani F, Reuter VE, Katz J, Russo P. Second primary malignancies associated with renal cell carcinoma: Influence of histologic type. Urology. 2000; Sep 1;56(3):399-403.
9. Toshiyuki M, Hiroshi K, Shuichi I, Masaru T. A case with synchronous double cancer of the pancreas and kidney. J.Jpn.Surg.Assoc. 1998;59(12):3205-8.
10. Sasaki E, Kushida S, Okinaka T, Sasaki K, Abe S. Case report of double cancer of the pancreas and the kidney with polyposis of the large intestine. Gan no Rinsho. 1969;15(2):203-6.
11. Olgyai G, Haulik L, Oláh A. Double resection for synchronous pancreatic and renal cell cancer--case report [Primer pancreas- és vesetumor szinkron reszekciója--esettanulmány]. Magy.seb. 2004;57(5):287-9.
12. Nobili C, Franciosi C, Degrate L, Caprotti R, Romano F, Perego E, et al. A case of pancreatic heterotopy of duodenal wall, intraductal papillary mucinous tumor and intraepithelial neoplasm of pancreas, papillary carcinoma of kidney in a single patient. Tumori. 2006;92(5):455-8.
13. Satake K. Gene expression in synchronous tumors in different organs: Pancreas and other organs. J.Hepatobiliary.Pancreat.Surg. 1996;3(2):167-71.