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Metachronous Squamous Cell Carcinoma of Renal Pelvis in Patient with Colonic Cancer Twenty Years after Surgery
- A Case Report -

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Abstract

Squamous cell carcinoma of the kidney is a very rare neoplasm. Some synchronous or metachronous cancer in multiple organs has been sporadically reported, but metachronous squamous cell carcinoma of the renal pelvis and calyces in the patient who had been suffered from colectomy for the colonic cancer has not been reported in the literatures. The authors report a case of metachronous squamous cell carcinoma in the renal pelvis and calyces occuring 20 years after treatment for colonic carcinoma.

INTRODUCTION

Squamous cell carcinoma of the kidney is a very rare neoplasm. Although squamous cell carcinoma arising in urothelial mucosa is rare, with the incidence of 1.3 to 3.4% in urinary bladder, squamous cell carcinoma of the renal pelvis has been sporadically reported.[1)] To the author's knowledge, metachronous squamous cell carcinoma of the renal pelvis and calyces in the patient who had been suffered from colectomy for the colonic cancer has not been reported in the literatures. The authors report a case of metachronous squamous cell carcinoma in the renal pelvis and calyces occuring 20 years after treatment for colonic carcinoma.

CASE REPORT

A 70-year-old female was referred to this hospital because of right flank pain for about 8 months and a recognized large renal mass in ultrasonography. She had undergone colectomy for colonic cancer 20 years ago. Cytological examination of a series of voided urine specimen revealed a few atypical cells. Gross and microscopic hematuria was not seen. Serum creatine slightly increased to just beyond upper limit. Computed tomography showed an irreglar low density mass in the upper portion of the right kidney, with lymph node enlargement in the right renal artery area and a moderate hydronephrosis (Fig. 1A). Any renal stone was not identified, but gallbladder stones were seen. Renal angiography showed hypovascular area in upper portion of the right kidney (Fig. 1B), and embolization of the right renal artery was done. Six days later nephroureterectomy of the right kidney and ureter was done. Macroscopically the kidney revealed an ill-defined solid hard bright yellow to white mass involving the upper a third of the right kidney, with extending into the perirenal fat tissue and adrenal gland (Fig. 2A). The mass measured 6 by 4.5 by 5cm in dimensions. The renal calyces and pelvis showed irregular surface and thickened wall, without protruding mass. Markedly dilated renal calyces were also noted in lower half of the kidney. Otherwise renal parenchyme was coagulatively necrotic. Microscopically the mass is composed of anaplastic squamous epithelial cells with

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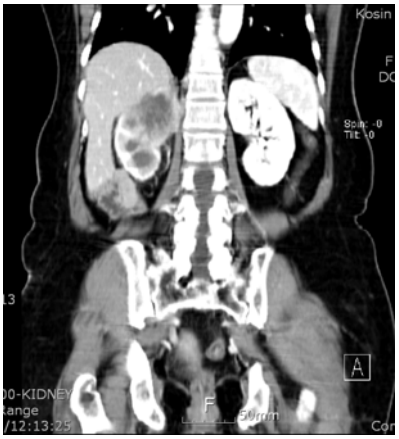
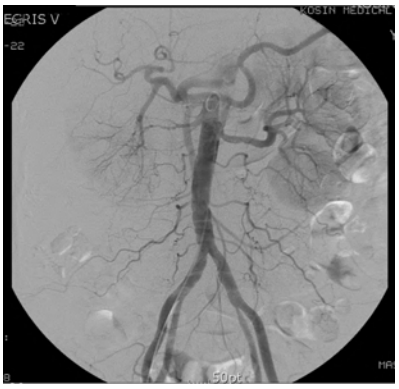
Table 1. Immunohistochemical reagents and results.

Antigens	Antibodies (clone)	Sources	Renal Pelvis SQCC
HMWCK	34bE12	Dako	+++
Cytokeratin 7	N1626	Dako	++
Cytokeratin 18	DC10	Dako	-
Cytokeratin 19	RCK108	Progen, Heidelberg, Germany	+
Cytokeratin 20	K20.8	Dako	-
Vimentin	Vim 3B4	Dako	-
p53 protein	DO-7	Dako	-
Ki-67	MIB-I	Dako	10%

enlarged hyperchromatic nuclei associated with abundunt desmoplastic stroma (Fig. 2B). Malignant cells showed intercellular bridges and keratin pearls. The calyceal surface was extensive erosive and focally showed squamous cell carcinoma in situ involving the lining epithelium, with extensive downward infiltration of malignant cells in

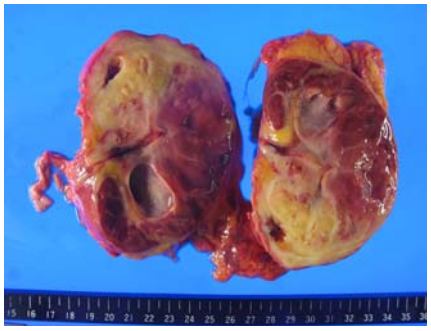


A



B

Fig 1. (A) Coronal CT scan shows an irreglar low density mass in the upper portion of the right kidney, and a moderate hydronephrosis in lower portion of the right kidney. (B) Renal angiography showed hypovascular area in upper portion of the right kidney.



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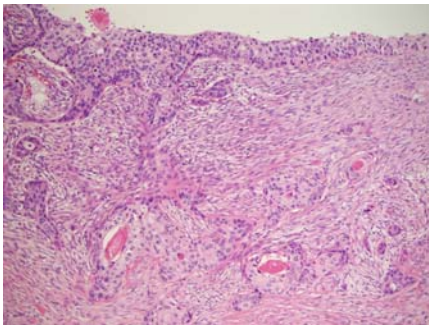

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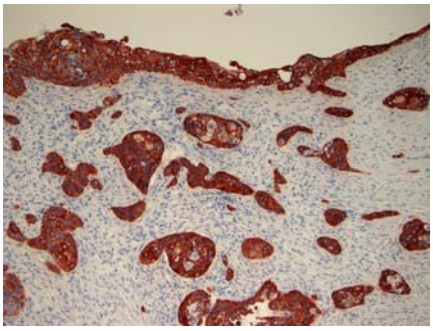

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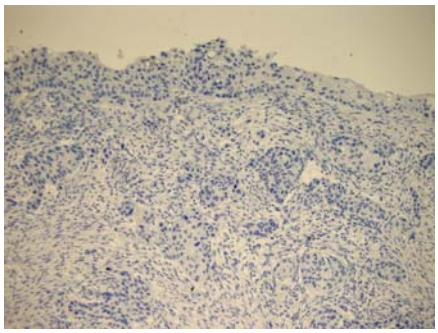

D

Fig. 2 The photographs of squamous cell carcinoma arising in renal pelvis and calyces. (A) Gross photograph reveals an ill-defined solid hard bright yellow to white mass and a moderate hydronephrosis (HE, x100), (B) The microscopic photograph shows squamous cell carcinoma in situ involving the calyceal lining with extensive invasion of malignant cell into the renal parenchyme (HE, x100), (C) High molecular-weighted cytokeratin is positive in all malignant cells (immunostaining, x100), (D) Cytokeratin 20 is negative in all malignant cells (immunostaining, x100)Discussion

desmoplastic stroma. There were no obvious urothelial components. Adrenal gland was directly invaded by malignant squamous cells, and vascular invasion by malignant cells was also noted. Immunohistochemical study was performed. The antigens examined and the results are shown in table 1. Cytokeratin 20 and cytokeratin 18 were negative in all malignant cells (Fig. 2D), and vimentin was negative in malignant neoplastic cells. Ki-67 index was low, about 10%. (Fig. 2C and 2D)

Now after follow-up period of 7 months the patient is alive with no evidence of metastases or recurrence.

Squamous cell carcinoma of the renal pelvis and calyces is a rare neoplasm, the incidence of which is 0.7-7% among renal pelvic tumors although urothelial carcinoma occurs in more than 90% of cases.[2] Only several cases of squamous cell carcinoma of the renal pelvis has been reported in Korean literatures.[3] In definition, squamous cell carcinoma arising in urothelium is restricted to the pure type of squamous cell carcinoma without any urothelial component. Urothelium in urinary bladder and renal pelvis occasionally display a variety of metaplastic changes, and urothelial neoplasms sometimes contain areas of several types of differentiation, including squamous differentiation, especially in high grade neoplasms. The urothelial carcinoma is occasionally accompanied with areas of squamous differentiation even occuping more than 30% of the tumor.[4] So if any squamous cell carcinoma in urothelium contains a small area of urothelial cell carcinoma, this neoplasm should be considered urothelial cell carcinoma with extensive squamous differentiation. Squamous metaplasia present in adjacent epithelium, particularly presence of squamous dysplasia, supports the diagosis of squamous cell carcinoma in the urothelium. The present case showed extensive fibrocollagenous stroma and necrotic areas, and squamous cell carcinoma in situ lesion and invasive carcinoma lesion involving the lining of the renal pelvis and calyces. Although squamous metaplasia in neighboring epithelium is not identified, presence of squamous cell carcinoma in situ and negative immunostaining for cytokeratin 20 supports the diagnosis of squamous cell carcinoma in upper urothelium. Squamous cell carcinoma in renal pelvis is frequently associated with renal stones and chronic infection,[5] but the present case has no history of renal stones in spite of presence of gallbladder stones.

Synchronous or metachronous primary cancers in multiple organs has sporadically reported, and even a case of five metachronous primary cancers, including sigmoid colon cancer and renal pelvic cancer, completely resected during 39 years was reported. In a hospital-based study of 3,722 cases, 1.26% (47 cases) of second other-site primary cancers (SOPC) following sporadic colorectal cancers was reported.[6] Histologic type of these metachronous renal and ureteral cancer was not described, although SOPC in kidney and ureter, 0.08% (3 cases), followed those of liver, prostate, stomach, and lung, The present case would be a first case of metachronous squamous cell carcinoma in renal pelvis and calyces occuring twenty years after surgical treatment for colonic cancer.

Hereditary nonpolyposis colorectal cancer (HNPCC) is reported to be frequently associated with synchronous or metachronous SOPCs. In case of hereditary nonpolyposis colorectal cancer (HNPCC), recently screening for deleterious germline mutation in one of a set of DNA mismatch repair (MMR) genes, namely, mutL homolog 1 (MLH1), mutS homologs 2 and 6 (MSH2, MSH6), and postmeiotic segregation increased 2 (PMS2) is applied to detect tumor MMR protein by immunohistochemistry. In present case the malignant cells are negative staining for MLH1 and MSH2 in immunohistochemistry although the specimen applied on is renal pelvis carcinoma rather than the specimen of colonic cancer.

The authors report a case of metachronous squamous cell carcinoma in renal pelvis and calyces occuring twenty years after surgical treatment for colonic cancer.

국문요약

콩팥의 편평상피암종은 대단히 드문 종양이다. 동시성 또는 이시성 암종이 다수의 장기에서 원발성으로 발생한 것이 간헐적으로 보고되었다. 그러나 대장암의 수술을 받은 환자에서 이시성으로 신우 및 신배에 발생한 것을 문헌에 보고된 적이 없다. 이에 저자들은 대장암 수술을

받고 20년이 지난 후 신우신배에 발생한 신장의 편평상피암의 증례를 병리학적으로 경험하고 보고한다.

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