

A CASE OF ADENOCARCINOMA OF THE RENAL PELVIS

Yutaka Takezawa, Kazuhisa Saruki, Susumu Jinbo
and Hidetoshi Yamanaka

From the Department of Urology, Gunma University School of Medicine

A 28-year-old female had adenocarcinoma arising from the renal pelvis with ascites containing adenocarcinoma cells. The primary site was treated with radical nephrectomy, resection of the remnant ureter with a bladder cuff. Combination chemotherapy with cisplatin, doxorubicin, and cyclophosphamide (CAP) was performed as an adjuvant therapy. Approximately 3 years after the nephrectomy, she is currently alive with no clinical evidence of recurrence. CAP seems to have been effective in the treatment of the disease.

Key words: Renal pelvis, Adenocarcinoma, Chemotherapy

INTRODUCTION

Adenocarcinoma of the renal pelvis is a rare neoplasm of which only 57 cases have been reported¹⁾. There have been no reports regarding effective adjuvant therapy. This report concerns a case of adenocarcinoma of the renal pelvis with ascites containing adenocarcinoma cells in which CAP seems to have been effective as an adjuvant therapy.

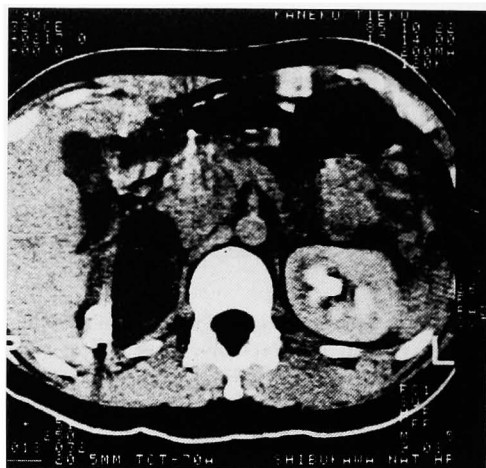
CASE REPORT

In October 1985, a 27-year-old female was admitted to our hospital complaining of colic pain on the right flank. Intravenous pyelography (IVP) showed calcification and deformity of the upper pole of the right kidney. Computed tomography (CT) revealed a cystic lesion containing calcification at the upper pole of the right kidney (Fig. 1A). Aspiration cytology of the cyst revealed no malignant cells in the mucinous material aspirated. The possibility of a malignant tumor could not be ruled out completely, because it is unusual for a simple renal cyst to contain mucinous material and calcification. We recommended laparotomy, but she refused the operation, and was discharged on her own will.

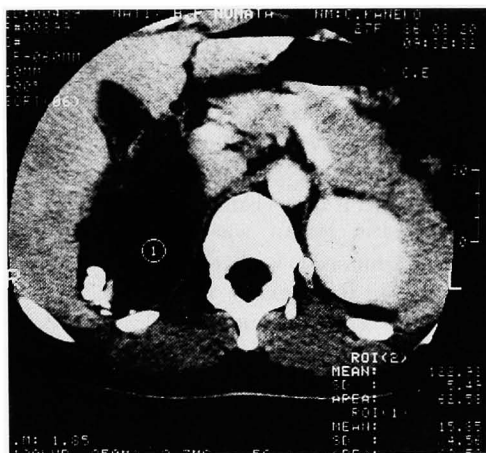
One year later, she was admitted again complaining of right flank pain. Physical

examination showed right costovertebral angle tapping pain. Laboratory findings were normal except for iron deficiency anemia, probably due to hypermenorrhea. IVP showed a non-visualized right kidney.

The cystic lesion was enlarged on the CT as compared with the previous study (Fig. 1B). Retrograde pyelography (RP) revealed right hydronephrosis with a shadow defect (Fig. 2). Urine cytology by the ureter catheterization was negative. Selective renal angiography showed an avascular area. We decided to perform a radical nephrectomy because of the enlargement of the cyst which contained calcification and an irregular shadow defect on RP. These findings suggested malignancy, and the kidney had ceased to function. On section of the resected kidney, the pelvis and calices were slightly dilated. There was a cyst at the upper pole of the kidney which contained mucinous material in it, and which extravasated into the renal pelvis, filled it, and caused renal obstruction. The calcification was in the mucinous material of the cyst, not in the renal pelvis (Fig. 3). Histologically, normal transitional epithelium was translated into mucinous adenocarcinoma. The tumor cells were tall columnar, and were arranged in a single layer (Fig. 4A). Parenchymal invasion and infiltration of tumor cells to lymphatic vessels were pres-



A



B

Fig. 1. A: Computed tomography (CT) revealing a cystic lesion containing calcification at the upper pole of the right kidney.

B: CT taken 1 year later, revealing that the cystic lesion had enlarged.

ent (Fig. 4B), but invasion to the extra-renal region was not present. Stromal infiltration of the lymphocytes was present. The diagnosis was muco-secretory adenocarcinoma arising from the renal pelvis. The pathologist commented that the tumor resembled mucinous cystadenocarcinoma of the ovary.

Resection of the remnant ureter with a bladder cuff was performed to prevent recurrence. Based on the pathologist's comment that the tumor resembled mucinous cystadenocarcinoma of the ovary, we



Fig. 2. Retrograde pyelography revealing the right hydronephrosis with an irregular shadow defect.

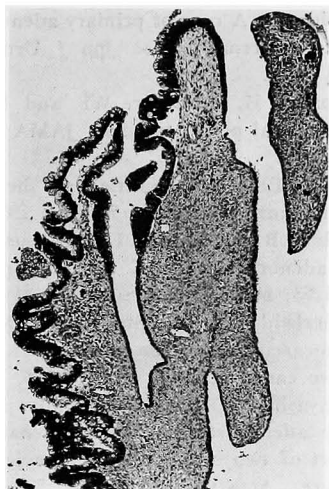


Fig. 3. Section of the resected kidney. The pelvis and calices were slightly dilated. There is a cyst at the upper pole of the right kidney containing mucinous material, which extravasated into the pelvis. The calcification was in the mucinous material.

incised the peritoneum and examined both ovaries in the operation. Both were normal on inspection and palpation. The small and large intestines were also normal. A small amount of bloody ascites was present.

The remnant ureter and bladder cuff contained no pathologically malignant elements. Cytologic examination of the ascites showed a well differentiated adenocarcinoma (Fig. 5).

CAP (intravenous administration of 70 mg/m² cisplatin on day 1, 250 mg/m² cyclophosphamide on day 2, 45 mg/m² doxorubicin on day 3)



A



B

Fig. 4. A: Normal transitional epithelium was translated into mucinous adenocarcinoma. The tumor cells were tall columnar, and were arranged in a single layer. The nucleus of each tumor cell was located in the basal layer. B: Some of the tumor cells invading lymphatic vessels (arrow).

bicin on day 3, 2 cycles every 4 weeks) was performed as an adjuvant therapy. Approximately three years after the nephrectomy, she is alive with no clinical evidence of recurrence.

DISCUSSION

Adenocarcinoma arising from the renal pelvis is a rare tumor with only 57 cases



Fig. 5. Cytologic examination of the ascites showed well differentiated adenocarcinoma.

having been reported since 1901¹⁾ According to Grabstalt et al²⁾, 92% of renal pelvic tumors are transitional cell carcinoma and 7% are squamous cell carcinoma, whereas less than 1% are adenocarcinoma or undifferentiated carcinomas.

There is a hypothesis concerning histopathogenesis of unusual adenocarcinoma of the renal pelvis that transitional epithelium of the renal pelvis first undergoes glandular metaplasia and then neoplastic transformation³⁾. Ragins⁴⁾ stated that metaplastic transformation of the transitional epithelium into mucus producing epithelium occurs in inflammation or in response to stimuli from the renal calculi. Aufderheide⁵⁾ emphasized the frequency of the chronic infection and renal calculi associated with this tumor, and recommended routine frozen section of the pelvic mucosa with calculi or severe infection. Renal calculi were observed in 27 of the 48 cases of the reported renal pelvic adenocarcinoma, and the other 21 cases had a history of long standing urinary infection⁶⁾. These findings seem to support the hypothesis.

The calcification in our case was in the cyst, and so did not irritate the renal pelvis, but stromal infiltration of the lymphocytes demonstrated the presence of chronic inflammation.

The cause of the ascites containing adenocarcinoma was not clear. Szpak⁷⁾ evaluated peritoneal washings from 54 women with stage I endometrial carcinoma. Twelve patients had adenocarcinoma in the washings. He explained that the manner

by which adenocarcinoma was present in the peritoneal cavity despite the absence of serosal involvement was passage through fallopian tubes or lymphatic spread. The primary tumor in our case did not invade the peritoneum directly, but renal parenchymal invasion and infiltration of tumor cells to lymphatic vessels were present. Therefore lymphatic spread seemed the most likely cause.

Nephrectomy with a bladder cuff seems desirable as treatment because urothelial epithelium has multicentricity, and cases of ureteral involvement were reported^{6,8)}.

Szpak⁷⁾ demonstrated that some patients with stage I endometrial carcinoma had carcinoma in the peritoneal washings, and their prognosis was poor. He suggested the need for more aggressive therapy for those patients.

Our patient also seemed to need an adjuvant therapy for adenocarcinoma in the ascites, but there has been no report of effective therapy. Some publications stated that CAP is effective for the carcinoma of the ovary and the urothelial tumors^{10,11)}. Because the adenocarcinoma in these cases resembled mucinous cystadenocarcinoma of the ovary, and also since it arose from the urothelial epithelium, we selected CAP as an adjuvant therapy.

Approximately three years after the nephrectomy, she is currently alive with no clinical evidence of recurrence. This suggests that CAP may be effective in the treatment of the renal pelvic adenocarcinoma.

REFERENCES

- 1) Igaya T, Yamamoto H, Hagiwara M and Nishida K: A case of primary adenocarcinoma of the renal pelvis. *Jpn J Urol* 162: 1624, 1987
- 2) Grabstalt H, Whitmore WF and Melamed MR: Renal pelvic tumors. *JAMA* 218: 845-854, 1971
- 3) Mostofi FK: Potentialities of the bladder epithelium. *J Urol* 71: 705-714, 1954
- 4) Ragins AB and Polnick HC: Mucus producing adenocarcinoma of the renal pelvis. *J Urol* 63: 66-73, 1950
- 5) Aufderheide AC and Streitz JM: Mucinous adenocarcinoma of the renal pelvis. Report of two cases. *Cancer* 33: 167-173, 1974
- 6) Kobayashi S, Ohmori M and Miyaji Y: Primary adenocarcinoma of the renal pelvis: report of two cases and brief review of literature. *Acta Pathol Jpn* 33: 589-597, 1983
- 7) Szpak CA, Creasman WT, Vollmer RT and Jhonston WW: Prognostic value of cytologic examination of peritoneal washings in patients with endometrial carcinoma. *Acta Cytologica* 25: 640-646, 1981
- 8) Suzuki H and Siminovitch M: Primary adenocarcinoma of the renal pelvis. Report of a case. *J Urol* 93: 562-566, 1965
- 9) Jain BJ: Adenocarcinoma of the renal pelvis. *J Urol* 97: 55-57, 1967
- 10) Ehrlich CE, Einhorn L, Williams SD and Morgan J: Chemotherapy for stage 3-4 epithelial ovarian cancer with cis-dichloridiaminoplatinum, adriamycin, and cyclophosphamide: a preliminary report. *Cancer Treat Rep* 68: 281-288, 1979
- 11) Schwartz S, Yagoda A, Natale RB, Watson RC, Whitmore WF and Lesser M: Phase 2 trial of sequentially administered cisplatin, cyclophosphamide and doxorubicin for urothelial tract tumors. *J Urol* 130: 681-684, 1983

(Received on October 19, 1989)
(Accepted on April 11, 1990)

和文抄録

腎 盂 原 発 腺 癌 の 1 例

群馬大学医学部泌尿器科学教室（主任：山中英寿教授）

竹沢 豊，猿木 和久，神保 進，山中 英寿

28歳の女性で腺癌細胞を腸水中に含む腎盂原発腺癌の1例を経験した。原発巣に対し根治的腎摘出術，残存尿管摘出，膀胱部分切除術を施行した。補助療法としてシスプラチン，アドリアマイシン，サイクロフォ

スファミド（CAP）を用いた多剤併用化学療法を行った。腎摘出後，約3年経過しているが再発の兆候はなく，CAP療法が有効であったと思われた。

（泌尿紀要 36：841-845，1990）