

CA19-9-PRODUCING TRANSITIONAL CELL CARCINOMA OF THE RENAL PELVIS: A CASE REPORT

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We report a case of CA19-9-producing transitional cell carcinoma of the renal pelvis. A 59-year-old male patient with left hydronephrosis was referred to us from a local physician. Retrograde pyelogram revealed irregular filling defects involving calices, pelvis and proximal ureter. The serum CA19-9 level was elevated. Under the diagnosis of renal pelvic tumor, we performed radical left nephroureterectomy. The tumor was histologically diagnosed as transitional cell carcinoma. The tumor cells showed positive immunostaining for CA19-9. The serum CA19-9 level was normalized after the operation. To our knowledge, this is the 28th case of a CA19-9-producing tumor in the Japanese literature.

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Key words: CA19-9, Renal pelvic tumor, Transitional cell carcinoma

INTRODUCTION

CA19-9 is known as a tumor marker for pancreatic cancer. Recently, there have been sporadic reports of cases of urothelial cancer showing elevated CA19-9 values. Here, we report a case of transitional cell carcinoma in the renal pelvis showing elevation of serum CA19-9 level, and revealed CA19-9 production in the tumor immunohistochemically.

CASE REPORT

A 59-year-old male visited his doctor with a complaint of upper abdominal pain. He had been receiving medication for diabetes for two years. A gastric ulcer, and incidentally, left hydronephrosis were found. Therefore, he was referred to our department. Physical examination revealed no tumor on palpation, and there were no swollen superficial lymph nodes. In the urinary sedimentation, microscopic hematuria was detected. Radiographs revealed a 9×5 mm calcification suspected to be left ureteral lithiasis, and the left kidney was not visualized on intravenous pyelography. Retrograde pyelography revealed filling defects in the renal pelvis (Fig. 1). No abnormal findings were detected in the bladder on the cystoscopy. The cytological examination revealed that the urine aspirated from the left renal pelvis was positive for malignancy.

The white blood cell count and serum creatinin value were slightly elevated. Furthermore, the serum CA19-9 value (cut-off value: <37 U/ml) was

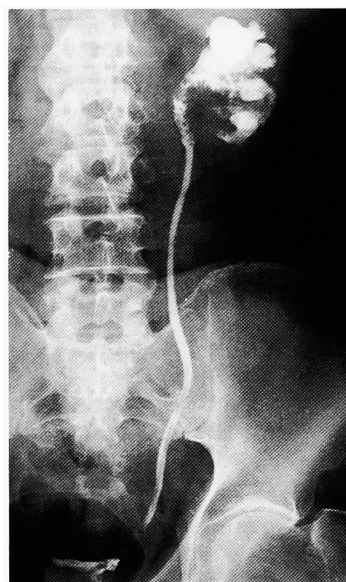


Fig. 1. Retrograde pyelogram revealed irregular filling defects involving calices, renal pelvis and proximal ureter.

also elevated (387.7 U/ml).

The abdominal CT revealed irregular tumor-like shadows in the left renal pelvis (Fig. 2). Chest radiographs and bone scintigrams did not reveal any abnormalities. No abnormalities were detected in the liver, gall bladder or pancreas on the abdominal ultrasonography. We performed left nephroureterectomy and lymph node dissection under the diagnosis of left renal pelvic tumor. The removed

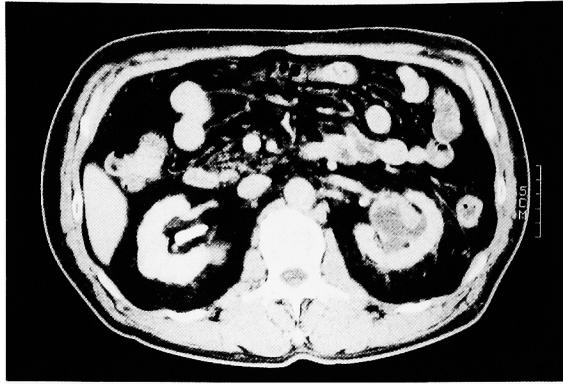


Fig. 2. CT revealed soft-tissue abnormalities of the renal pelvis.

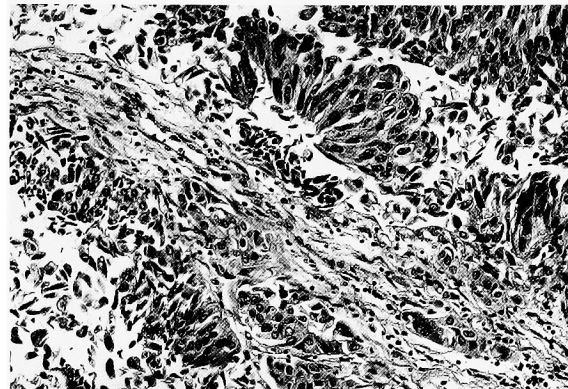


Fig. 3. Histological diagnosis was transitional cell carcinoma.

specimen weighed 550 g, and multiple papillary tumors were found in the renal pelvic tissue macroscopically. Pathological diagnosis was TCC, G3, INF β , pT1, pN0, pM0, v(+) (Fig. 3). Immunohistochemical staining revealed that CA19-9 presented at the cytoplasm or membrane of the tumor cells (Fig. 4).

From day 20 postoperatively, the patient received two cycles of systemic chemotherapy consisting of cisplatin (CDDP), adriamycin (ADM) and methotrexate (MTX). The total doses administered

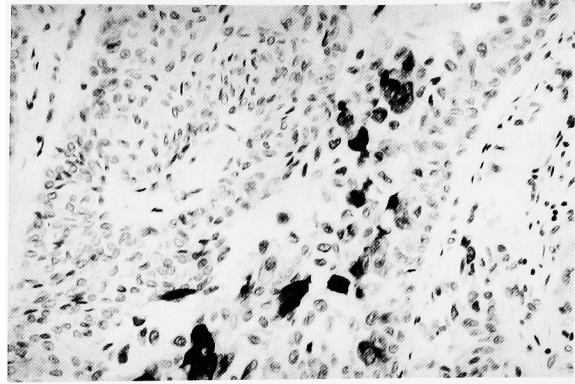


Fig. 4. Production of CA19-9 was detected by immunostaining.

were 110,75 and 75 mg for CDDP, ADM and MTX, respectively. No severe adverse effects were observed. The serum CA19-9 value had decreased to 44.0 U/ml on day 14 postoperatively, and to 24.4 U/ml on day 20. Sixteen months have elapsed since the operation, but neither relapse nor elevation of CA19-9 has been observed.

DISCUSSION

Koprowski¹⁾ produced hybridomas by fusion of mouse myeloma cells with splenocytes of mice immunized against colorectal carcinoma. The antibodies produced by the hybridomas reacted with CA19-9, a cell surface antigen. CA19-9 is an especially valuable tumor marker for pancreatic and gall-bladder cancers, being detected in 80% of the former and 70% of the latter. Recently, elevated serum CA19-9 values have been reported in patients with transitional cell carcinoma. Segawa et al.²⁾ reported 20 cases of transitional cell carcinoma showing production of CA19-9. Six cases have been reported since then³⁻⁷⁾, and the present case is the 28th case (Table 1). The 28 patients consisted of 20 males and 8 females, and the patients ranged from 43 to 82 years old (mean 61).

A consensus has not been obtained on the

Table 1. Cases of renal pelvic and ureteral tumors producing CA19-9 in the Japanese literature after Segawa's report

No.	Author	Age	Sex	Tumor location	Treatment	Pathology	Prognosis	Reference
21	Kaneko, et al.	80	F	lower ureter	NUx.	TCC. G3	16 M NED	Jpn J Urol Surg 11 : 277-279, 1996
22	◇	66	M	renal pelvis	Chemo	unknown	3 M death	◇
23	◇	70	M	renal pelvis	Chemo	unknown	7 M death	◇
24	Kawato, et al.	46	M	renal pelvis, ureter	NUx.	TCC. G1	unknown	Acta Urol Jpn 43 : 69, 1997
25	Kamai, et al.	67	M	bladder	Partial Chemo Cx,	TCC. G3	21 M death	Jpn J Clin Urol 51 : 231-234, 1997
26	Den, et al.	63	M	renal pelvis, ureter, bladder	NUx, TUR, Chemo	TCC. G2	12 M AD	Acta Urol Jpn 44 : 767, 1998
27	Tokonabe, et al.	56	F	ureter	NUx.	TCC. G3>2	10 M death	Jpn J Urol Surg 11 : 1479-1481, 1998
28	Our case	59	M	renal pelvis	NUx.	TCC. G3	17 M NED	

NUx : Nephroureterectomy, Cx : cystectomy, Chemo : chemotherapy, NED : no evidence of disease, AD : alive with disease.

correlation between the serum CA19-9 value and the pathological features of the tumor. Ishii et al.⁸⁾ reported that the detection rate of CA19-9 increased with the increase in degree of tumor infiltration and tumor diameter. On the other hand, Kurokawa et al.⁹⁾ reported that the CA19-9 value did not correlate with the tumor size, degree of infiltration or degree of cell differentiation. Further studies on more cases are awaited.

Several studies have recently showed the usefulness of CA19-9 value as a tumor marker. Noto et al.¹⁰⁾ compared the CA19-9 value in the serum and urine of patients with urothelial cancer. They found abnormally high values in the serum in only 27.8% (10 out of 36 patients), but in the urine in about 67% (26 out of 36 patients) of the cases. The detection rate and value tended to increase with the degree of tumor differentiation. Especially in G1 and G2 cases, the detection rate was higher than that obtained by urine cytology. They suggested that CA19-9 would be a useful marker for well-differentiated urothelial carcinoma.

Kurokawa et al.⁹⁾ reported that cases not showing postoperative normalization or elevation after postoperative normalization showed recurrence. Segawa et al.²⁾ reported that the prognosis tended to worsen with the elevation of serum CA19-9 after normalization. In the cases we reviewed, the relapse cases showed elevated serum CA19-9 values (cases 22 and 23 in Table 1). At 12 months postoperatively, relapse has not been observed in the present case. We will continue to follow this case carefully by image analysis and detection of serum CA19-9 as a tumor marker.

REFERENCES

- 1) Koprowski H, Steplewski Z, Mitchell K, et al. : Colorectal carcinoma antigens detected by hybridoma antibodies. *Somat Cell Mol Genet* **5** : 957–972, 1979
- 2) Segawa N, Yamamoto K, Watsuji K, et al. : Ureteral cancer producing carbohydrate antigen 19-9. *Acta Urol Jpn* **43** : 665–668, 1997
- 3) Kaneko H, Kasuya Y, Nakauchi K, et al. : Three cases of ureter and renal pelvic tumors with elevated serum CA19-9. *Jpn J Urol Surg* **11** : 277–279, 1996
- 4) Kawato S and Mori Y : Renal pelvic and ureteral tumor presenting CA19-9 elevation. *Acta Urol Jpn* **43** : 69, 1997
- 5) Kamai T, Tohma T, Masuda H, et al. : A case of CEA and CA19-9 production bladder tumor with multiple bone metastases. *Jpn J Clin Urol* **51** : 231–234, 1997
- 6) Den J, Kobayashi S and Iwai Y : A case of Urothelial transitional cell carcinoma presenting CA19-9 elevation. *Acta Urol Jpn* **44** : 767, 1998
- 7) Tokonabe S, Kimura F, Kawamoto H, et al. : A case of liver metastasis of ureteral transitional cell carcinoma with elevated serum CA19-9 which is difficult to differentiate from cholangiocarcinoma. *Jpn J Urol Surg* **11** : 1479–1481, 1998
- 8) Ishii T, Iwasaki H, Kikuchi M, et al. : Immunohistochemical demonstration of carbohydrate antigen 19-9 (CA19-9) in transitional cell carcinoma of the urinary tract. *Igakunoayumi* **139** : 419–420, 1986
- 9) Kurokawa K, Kurihara J, Nakata S, et al. : The clinical significance of carbohydrate antigen 19-9 (CA19-9) in transitional cell cancer of urinary tract. *Jpn J Urol* **84** : 1074–1081, 1993
- 10) Noto K, Fujime M, Isobe H, et al. : Determination of urinary CA19-9 levels in urothelial cancer. *Jpn J Urol* **88** : 406–413, 1997

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CA19-9 産生腎盂移行上皮癌の1例

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CA19-9 産生腎盂移行上皮癌の1例を経験した。59歳の男性が水腎症により当科へ紹介になった。逆行性腎盂造影で左腎盂内に不整陰影欠損を認め、分腎尿細胞診が陽性であった。左腎盂腫瘍と診断し左腎盂尿管全摘除術を施行，病理診断は移行上皮癌で免疫組織学的に腫瘍内に CA19-9 の局在を認めた。術前高値で

あった血清 CA19-9 が術後漸減，正常化した。術後血清 CA19-9 の上昇ならびに腫瘍の再発を認めていない。CA19-9 産生の尿路移行上皮癌の本邦報告例として，第28例目であった。

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