

## TRANSITIONAL CELL CARCINOMA IN A PELVIC KIDNEY ASSOCIATED WITH RECURRENT LUNG CANCER

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We report a case of transitional cell carcinoma of the renal pelvis arising in a pelvic kidney two years after resection of bronchogenic carcinoma. Primary cancer in a pelvic kidney has been rarely described and this is the second reported case of transitional cell carcinoma originating in a pelvic kidney and the first associated with recurrent lung cancer.

**Key words:** Transitional cell carcinoma, Pelvic kidney, Lung cancer

The pelvic kidney is infrequently encountered in clinical practice. Patients with a pelvic kidney are usually asymptomatic or present nonspecific symptoms and in many cases are incidentally found on urological examinations. Such pathological conditions as hydronephrosis, urinary tract infection and calculus formation have been reported in increased frequency, but only 8 previous cases with primary cancer have been described. Herein, we report a case of transitional cell carcinoma in a pelvic kidney. On histological examination, this case proved to be a double cancer but preoperative diagnosis was confused by the history of bronchogenic carcinoma.

### CASE REPORT

A 66-year-old man was hospitalized with a 2-month history of intermittent hematuria and a palpable lower abdominal tumor with dull pain. Two years previously he had had a moderately differentiated squamous cell carcinoma in the right lung, which had been resected. On examination a tender, barely movable, 9 × 9 cm mass was palpable just below the umbilicus. An excretory urogram (IVP) showed a normal left kidney and right non-visualizing kidney. A retrograde pyelogram demonstrated that the right kidney was ectopically located in the

right pelvis and had a short ureter and an irregular filling defect in the pelvis (Fig. 1). Urine cytology was negative. A computerized tomographic scan of the abdomen revealed an ill-defined low density mass with heterogeneous enhancement in the ectopic kidney (Fig. 2). Angiographic study revealed the right renal artery, which was the

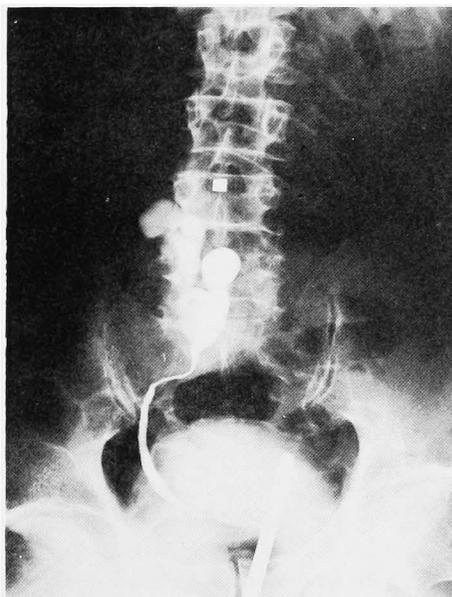


Fig. 1. Retrograde pyelogram shows right pelvic kidney with an irregular filling defect in the pelvis

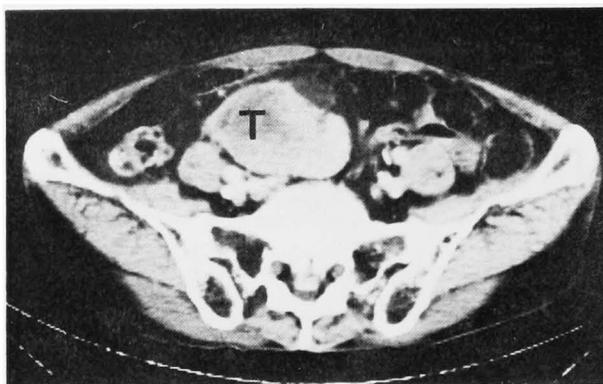


Fig. 2. Abdominal CT scan demonstrates a large mass (T) with central necrosis in the right kidney and a ventrally oriented renal pelvis

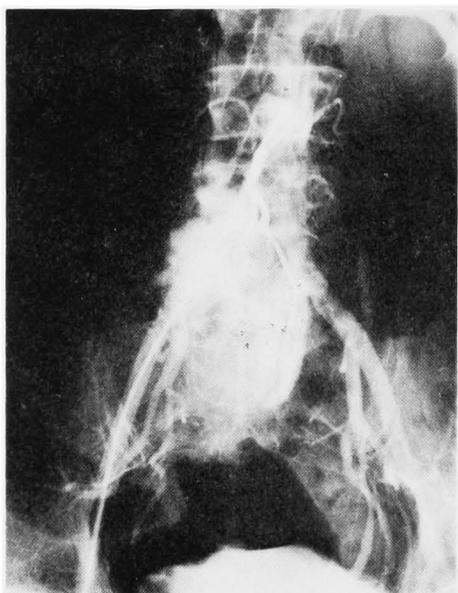


Fig. 3. Selective renal angiogram shows the mass is hypovascular

major feeding vessel, to have originated aberrantly just proximal to the aortic bifurcation. The tumor was hypovascular and showed no signs of neovascularity or displacement of renal vessels (Fig. 3). Right nephrectomy through a paramedian incision was performed. The kidney was found lying over the right iliac vessels.

On opening the dilated renal pelvis of the excised specimen, we found one of the calyces obstructed by a papillary tumor, while the rest of the pelvocalyceal mucosa was macroscopically free of tumor. The

cut surface showed that the renal parenchyma was largely replaced by a hard solid tumor with central necrosis. Whether the tumor was primary or metastatic could not be determined from macroscopic examination. Histological examination revealed the cancer cells to show lack of squamous change, loss of polarization in cell layers and frequent mitotic figures. Histological diagnosis was high grade transitional cell carcinoma (Fig. 4).

The patient died of widespread metastases 5 months after nephrectomy. On autopsy all of the metastases showed squamous differentiation and had metastasized from the bronchogenic carcinoma (Fig. 5).

#### DISCUSSION

The pelvic kidney is reported to be subject to more diseases than a normal kidney including hydronephrosis, urinary tract infection and calculus formation. However, carcinoma arising in a pelvic kidney is a rare entity and only eight cases have been reported so far. They include three cases of adenocarcinoma<sup>1-3</sup>), three of squamous cell carcinoma<sup>4-6</sup>), one of undifferentiated carcinoma of the renal pelvis<sup>7</sup>) and one of transitional cell carcinoma<sup>8</sup>). The last case was originally described as papilloma, but it seems to correspond to low grade transitional cell carcinoma. There are no reports stating that a pelvic kidney is more liable to malignant change than a normal kidney. Ho-

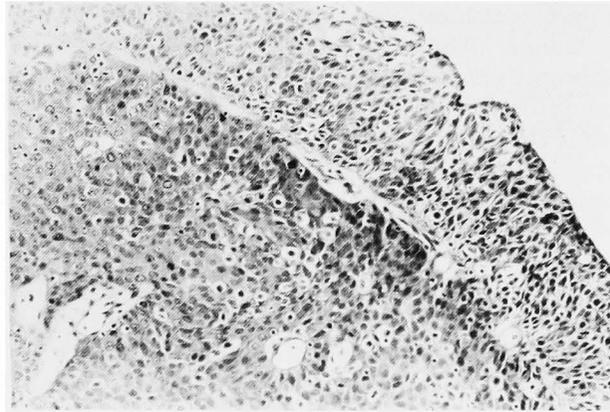


Fig. 4. This section shows the characteristics of transitional cell carcinoma and extensive stromal invasion. H & E, reduced from  $\times 100$

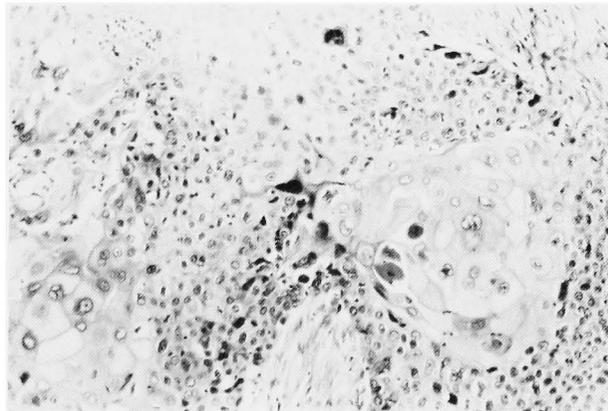


Fig. 5. Cross section of a metastatic lesion shows squamous cell carcinoma. H & E, reduced from  $\times 100$

wever, squamous cell carcinoma may occur more often than expected because of the well-known association of the pelvic kidney with urinary tract infection and calculus formation, and of the latter with squamous cell carcinoma of the renal pelvis. This may be true if one considers that all of the three reported cases of squamous cell carcinoma had coexistent calculi.

In our cases, preoperative diagnosis was not definitive despite extensive investigation. Three diagnostic possibilities were raised; renal cell carcinoma, renal pelvic tumor and metastatic renal tumor from the lung. Retrospectively this is because the tumor was poorly differentiated transitional cell carcinoma extensively infiltrating and destroying the renal parenchyma and had

features of a primary renal parenchymal tumor. Also, the filling defect in the pelvis observed in retrograde pyelogram was not caused by the tumor itself, but probably by the pelvic mucosa compressed by extensive stromal invasion. The possibility of metastatic cancer in such cases is high because the kidney is a common site of metastasis from lung cancer. However, clinically evident cases rarely occur because patients usually do not live long enough. Our review of the literature revealed only one such case, in which bronchogenic carcinoma had metastasized to a crossed ectopic kidney, causing a right lower quadrant mass 14 months after resection of the original tumor<sup>9)</sup>

Our case is unique in that multiple

primary neoplasms are combined with cancer in the pelvic kidney. This combination, that is, transitional cell carcinoma of the renal pelvis and bronchogenic carcinoma, is infrequent. Diagnosis might occasionally be confused if transitional cell carcinoma is nonpapillary and infiltrating as in our case because it may show squamous metaplasia and resemble squamous cell carcinoma. Cellular architecture of these carcinomas may be similar.

In summary, a unique case is described in which bronchogenic carcinoma and transitional cell carcinoma of the renal pelvis arising in a pelvic kidney occurred at an interval of two years. Diagnosis was confused by unusual features of the renal pelvic tumor and a history of lung cancer.

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#### 和文抄録

#### 肺癌切除術後2年目に発生した右骨盤腎腎盂癌の1例

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症例は66歳、男性。肉眼的血尿と腹部腫瘤を主訴として入院した。2年前に肺扁平上皮癌のため右肺部分切除の既往歴がある。IVPで右無機能腎を認めた。RPにて右骨盤腎と診断されたが、腎盂像に陰影欠損を認め、腹部CTでは中心性壊死をともなった腎実質性腫瘍が強く疑われた。血管造影では hypovascular な腫瘍であった。右腎摘除術を施行した。病理組織学的に、腎実質への広汎な浸潤を有する腎盂原発移行上皮癌と診断された。患者は5か月後転移性腫瘍のため死亡したが、組織学的にすべての転移巣は角化を有し、転移性肺癌と診断された。本例は腎盂癌であった

が、その非定型的な特徴のため術前診断が困難であった。

骨盤腎原発性腫瘍は現在までに文献上8例を数えるのみである。内訳は腺癌、扁平上皮癌各3例、腎盂未分化癌、移行上皮癌各1例である。このうち扁平上皮癌は比較的高頻度であるが、報告例は3例とも腎結石の合併をみ、骨盤腎に水腎症、尿路感染および尿路結石を合併する率が高い事実と関連していると推察される。自験例は移行上皮癌であり文献上第2例目である。