CASE REPORT

Nephrogenic Adenoma Arising in a Renal Cortical Cyst

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Nephrogenic adenoma is an unusual lesion of the urinary tract first described by Davis in 1949 as a hamartoma. In 1950, Friedman and Kuhlenbeck subsequently characterized the lesion in more detail and named it nephrogenic adenoma. It appears to be a metaplastic response of the urothelium elicited by trauma and chronic irritation and is considered to be benign. A MEDLINE search of the literature from 1960 to the present revealed no previous documentation of a nephrogenic adenoma arising from a renal cortical cyst. Herein, we present such a case arising in a renal cortical cyst. [*J Chin Med Assoc* 2005;68(9):444–446]

Key Words: hamartoma, nephrogenic adenoma, renal cortical cyst

Introduction

Nephrogenic adenoma is an unusual lesion of the urinary tract first described as a hamartoma by Davis in 1949.[1] Friedman and Kuhlenbeck subsequently characterized the lesion in more detail and named it nephrogenic adenoma. It appears to be a metaplastic response of the urothelium to chronic inflammation elicited by trauma and chronic irritation.[2] We report the first case of a nephrogenic adenoma arising in a renal cortical cyst.

Case Report

A 66-year-old man presented with right flank pain for 2 days. There was no significant medical or surgical history. Physical examination, including vital signs, was unremarkable. Abdominal ultrasonography revealed a 6 × 4-cm cystic lesion bulging from the right kidney with a fixed mural hyperechoic nodule of about 1 cm in diameter. No acoustic shadow was found at the junction of the cyst and renal cortex. Contrast-enhanced magnetic resonance imaging (MRI) showed a 5 × 4 × 9-cm homogeneous hyperintense cyst with a mural nodule arising from the right kidney on both T1 and T1 with fat-suppression weighted images (Figure 1). Urinalysis and blood biochemistry studies were normal.

At surgery, 25 mL of bloody cystic fluid was aspirated on opening the cyst for cytology. A papillary mural nodule was transected from the depressed cortex for frozen section. Partial nephrectomy was performed based on the frozen section report of benign papillary cystic tumor. Cytology of the bloody cystic fluid was negative for malignant cells. The final pathologic examination revealed a 0.7 × 0.5 × 0.2-cm nephrogenic adenoma characterized by papillary outgrowth and proliferation of small tubular structures arising in a cyst (Figure 2A). The nephrogenic adenoma was composed of papillary and tubular structures lined with a single layer of cuboid cells with pale to oxyphilic cytoplasm. Nuclear atypism and mitotic figures were absent. The cyst was lined with a single layer of flattened cuboid cells or hobnail cells, compatible with a simple cortical cyst (Figure 2B).

The patient had an uneventful recovery and was followed up for 12 months by imaging studies (intravenous urography and sonogram) without evidence of recurrence.

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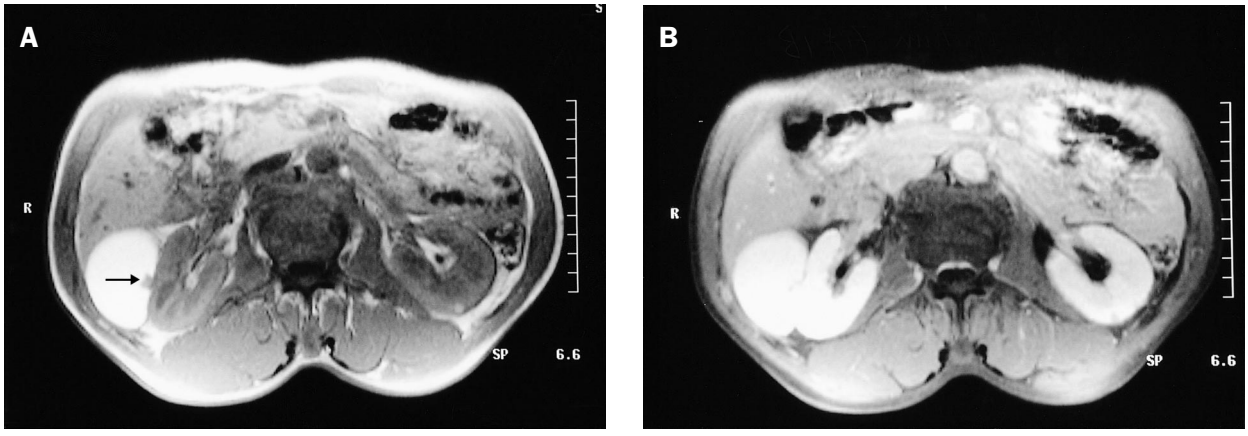

Figure 1. A 6.3 × 4.0-cm hemorrhagic cyst bulging from the lateral aspect of the right kidney with a 1.0-cm fixed mural nodule (arrow) at the junction of the cyst and renal cortex on magnetic resonance imaging. (A) T1-weighted image (WI); (B) post-enhanced T1WI with fat suppression.

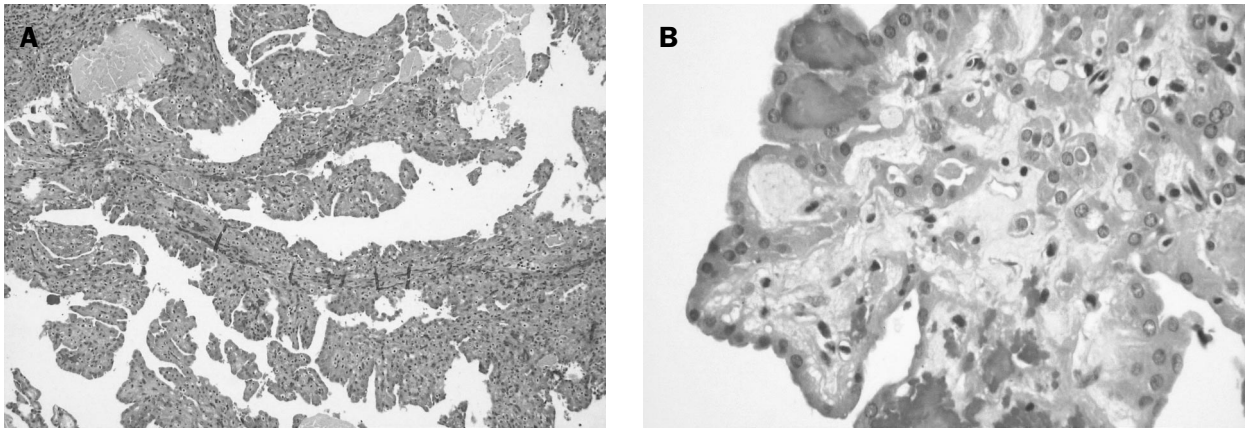

Figure 2. (A) Papillary outgrowth and proliferation of small tubular structures (hematoxylin & eosin, reduced from × 300), (B) arising from a simple cortical cyst lined with a single layer of cuboidal cells (hematoxylin & eosin, reduced from × 400).

Discussion

Nephrogenic adenoma has been encountered along the entire urinary tract. McIntire et al[3] described the most common locations as the bladder (72%), renal pelvis (11%), urethra (9%), and ureter (8%). Clinical manifestations are highly variable and include gross hematuria, dysuria, frequency, suprapubic pain, and no symptoms. The diagnosis is histological and always made incidentally after surgery. Histologically, the lesion is characterized by a mixture of delicate papillary exophytic growth and closely packed tubular formations lined with cuboid to low columnar cells.[4]

A MEDLINE literature search revealed no previous documentation of nephrogenic adenoma arising in a renal cortical cyst. Etiologically, the present case most likely represents a metaplastic response of the epithelium of the cortical cyst to chronic inflammation. The lesion can be differentiated from a papillary renal cell adenoma or carcinoma by its characteristic histologic pattern and the absence of atypical features. The presenting complaint of right flank pain was presumably the result of the cyst or adenoma bleeding. Surgical excision is the recommended treatment for symptomatic or asymptomatic nephrogenic adenoma to confirm the diagnosis, relieve symptoms, and prevent complications.

To our knowledge, this is the first report of a nephrogenic adenoma arising in a renal cortical cyst.

References

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