ABSTRACT—A case of primary renal candidiasis is reported in which the candida infection was superimposed on a transitional-cell carcinoma. Review of the literature reveals 25 previously reported cases of primary renal candidiasis, and in 24 of these cases there were preexisting renal pathologic findings. We suggest that a diagnosis of primary renal candidiasis presupposes underlying renal disease, and the physician must be aggressive in searching for it.

Renal candidiasis has received considerable attention in the recent literature and is included in the differential diagnosis of a radiolucent filling defect in the collecting system. The physician must be cautious, however, in accepting this diagnosis. Candida are opportunists and are rarely pathogenic in man; therefore, their isolation should trigger a vigorous search for an underlying pathologic process permitting their growth. The following case report is an illustration.

Case Report

A fifty-year-old white man was evaluated in Germany for complaints of right flank pain and intermittent gross hematuria. Urography demonstrated a staghorn calculus in the right kidney and a lucent filling defect in the left renal collecting system. A right pyelolithotomy was performed. Postoperatively, pneumonia developed, and he required prolonged antibiotic therapy.

Following convalescence, he was transferred to Walter Reed Army Medical Center. Repeat evaluation at this time revealed one small calculus remaining in the right kidney and an applecore deformity in the left lower calyx suggestive of transitional-cell carcinoma (Fig. 1). Cytologic study of urine obtained during left retrograde urography was negative for malignant cells. Bronchial brush biopsy of the suspicious area was accomplished, and as the brush was withdrawn multiple small fragments of whitish tissue were observed to pass from the left ureteral orifice. Microscopic examination revealed these fragments to be composed of fungal hyphae. Results of urine cytologic study were again negative, and culture yielded large quantities of Candida albicans. An exhaustive diagnostic evaluation failed to reveal any systemic disease which would predispose the patient to deep fungal infection. The possibility of coexisting transitional-cell carcinoma was considered; however the contralateral calculus disease and the absence of a positive cytologic study mitigated against nephrectomy.

| TABLE I. Conditions predisposing patients to primary renal candidiasis reported in literature |
|----------------------------------|------------------|
| Renal Disease                  | Number of Patients |
| Diabetes mellitus              | 13               |
| Renal allograft                | 4                |
| Calculus disease               | 3                |
| Chronic pyelonephritis         | 1                |
| Chronic glomerulonephritis     | 1                |
| Renal tuberculosis             | 1                |
| Inadvertant surgical injury to ureter | 1            |
| No disease reported            | 1                |

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Amphotericin B therapy was administered during which the blood urea nitrogen rose from 11 to 27 mg. and serum creatinine from 1.1 to 2.2 mg. per 100 ml. Evaluation thirty days later showed both blood urea nitrogen and creatinine to be normal; however the filling defect in the left kidney was more apparent. Repeat brush biopsy revealed no hyphae, and the urine was sterile. Cytologic study of urine was now reported as suspicious for malignant disease. A left nephroureterectomy was performed, and a large grade II transitional-cell carcinoma was found. The tumor was confined to the mucosal surface, and the ureter and bladder cuff were normal. Following an uneventful convalescence the patient was discharged.

Primary renal candidiasis has been defined as the invasion of the kidney by Candida in the absence of concomitant invasion of other internal organs. The term was meant to differentiate this process from renal involvement in the patient with disseminated candidiasis. One must not, however, take the word “primary” too literally. A review of the literature reveals that in all but 1 of the 25 previously reported cases, renal candidiasis was secondary to underlying renal disease (Table 1).

We are convinced that renal candidiasis is rarely if ever truly primary. The normal kidney should not be susceptible to Candida infection. The diagnosis of renal candidiasis must be made with suspicion and a vigorous and complete search for an underlying cause must be made.

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References