INTRODUCTION

Abscesses of the kidney account for 0.2% of all intra-abdominal abscesses. Peri-nephric abscesses are collections of pus between the renal capsule and Gerota’s fascia; they account for 0.02% of all abdominal abscesses.1 These abscesses have a poorer prognosis and are more difficult to treat than intrarenal abscess. Intra-renal abscess or a “Renal carbuncle”, is encapsulated necrotic material within the renal parenchyma which now includes focal bacterial nephritis, acute multifocal bacterial Staphylococcus aureus.2 It is now superseded by E. coli, infections via urinary tract.3

The predisposing factors for renal abscesses includes diabetes mellitus (DM), renal calculi, ureteral obstruction, vesico ureteral reflux (VUR). Intravenous drug abuse (IVDA), chronic debilitating disease and immuno-compromised status are other less common causes. One of the most common features encountered with renal abscesses is back pain followed by fever, chills and rigors with loin tenderness. We report the management and outcome of seven patients with renal abscesses in this communication.

CASE REPORT (STUDY OF SEVEN CASES)

The group consisted of 7 patients (3 females and 4 males), with a mean age was 40 yrs (17-54 yrs), who were admitted to a general medicine/nephrology unit of a tertiary care center from 1998 to 2002. The clinical details of these patients are elaborated in Table 1. High fever with chills/rigors and flank pain was the commonest presentations. USG was the main diagnostic modality. Two of the abscesses were small, two were medium, and two were large and one presented with rupture. CT scan, magnetic resonance angiogram and isotope scan supplemented USG findings in individual cases. Patient no. 2 presented with a rupture of left kidney due to renal abscess and a left nephrectomy was performed under antibiotic coverage. Section of the nephrectomy showed necrotic areas (Fig. 1). Patient no. 4 presented with disseminated tuberculosis (TB), showed bilateral renal calculi with necrotic material in the kidney. Acid fast bacilli were isolated from urine samples through percutaneous nephrostomy. Although she was treated with isoniazid (H) 300mg OD, rifampicin (R) 450gm OD, pyrazinamide (Z) 500mg BD and ofloxacin 200mg BD she died. Patients no. 6 and 7 were renal transplant recipients who developed urinary tract infection and later allograft dysfunction with abscess formation of the allograft within 3 months of the transplantation. As there was no improvement with parenteral antibiotics for 15 to 20 days allograft nephrectomy was done for both. The allograft of patient 6 is shown in (Fig. 2).

The boy with unilateral renal agenesis had pelvicalyceal dilatation suggesting distal obstruction which we could not further investigate. Isolation of the causative organism from urine was achieved in 5 of the 7 patients (71.43%). Blood culture was positive in only one patient. The organisms isolated were Escherichia coli in two followed by K. pneumonia, Enterococcus and Mycobacterium tuberculosis. Empirical antibiotic therapy for Gram negative organism led to resolution in the 2 who were culture negative. Although 6 of the 7 patients recovered from the renal abscess following anti microbial treatment, two died later from other co morbidity conditions.

*Intern; **Assistant Professor of Medicine; ***Professor of Microbiology; +Professor of Pathology; ++Professor of Medicine and Consultant Nephrology; +++Professor of Urology; Sri Ramachandra Medical College and Research Institute, Porur, Chennai - 600 116, India.

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**DISCUSSION**

Predisposing factors noticed were chronic renal failure, immuno-compromised state, unilateral renal agenesis and renal angioplasty. Renal abscess can be reliably diagnosed by USG and CT scan with dimensions varying from 2 cm to 1.5 cm. CT is the most specific imaging method as there is better contrast comparison. Small abscesses are < 3 cm, medium 3-5 cm and large > 5 cm. Gram stain of the aspirated fluid reveals the causative organism in most cases. There is a high correlation between organism grown in urine culture and the abscess. Repeated urine cultures are positive for the causative organism in almost all cases, whereas blood culture may or may not yield positive results.

Unilateral renal agenesis usually have associated urological anomalies in 48% of the cases such as primary VUR (high-grade) (28%), vesicoureteric obstruction (11%), pelviureteric obstruction (7%) and a combination...
of the later two in 2%. All the above listed anomalies can lead to urinary stasis, UTI and even renal abscess.

Urinary tract infection (UTI) are one of the most frequently encountered infections within 3 months of renal transplant, and have an incidence from 10% to 98%. They can range from asymptomatic bacteruria to allograft abscess and septic shock. Gram negative organisms are isolated in over 75% of the cases, E. coli being the most frequent. Female gender and duration of catheterization are major risk factors. Immuno-suppressive (IS) regimens based on azathioprine, mycofenolate mofetil and steroids have a higher incidence of UTI than those with the use of calcineurin inhibitors. Low dose trimethoprim-sulfamethoxazole or fluoroquinolones is a safe and effective prophylactic strategy to prevent UTI. K. pneumoniae cause 12% of UTI's in immuno-compromised patients. DM and urolithiasis also predispose to K. pneumonia renal abscesses. Females, elderly (>65 yrs) and those with impaired renal function are at increased risk and have a poor prognosis.

Renal angioplasty can give rise to renal artery obstruction, auto nephrectomy and renal abscess as in one of our patient. Rupture of renal abscesses has a poor prognosis as it can lead to peritonitis, intra-abdominal abscesses, retroperitoneal hemorrhage and septicemia. These patients must be closely monitored with imaging techniques and may require nephrectomy as illustrated in one of our patients. Genito-urinary tuberculosis (GU TB) is ten times higher in patients with CRF and, conversely GU TB when bilateral can lead to renal failure. Female patients predominate and the infection is frequently bilateral. The most frequent sign is cystitis followed by hematuria and lumbar pain. Definitive diagnosis is by pathological examination or demonstration of acid fast bacilli in urine or pus. Urinary Polymerase Chain Reaction for TB is highly sensitive, specific and rapid for detection of GUTB. HIV infection has led to an increased incidence of all forms of TB, especially drug resistant strains.

Treatment of renal abscess include at least 4 weeks of antibiotics depending on the etiological agent, empirical therapy for Gram negative bacteria is justified when the causative agent is not isolated. Large abscesses and patient who are immuno comprised are best treated with parenteral antibiotics. Smaller abscesses with minimal symptoms can be treated with oral antibiotics surgical intervention may be required if the patients fever and symptoms do not settle down after a short course of antibiotics.

In case of GUTB, the revised "National Tuberculosis Control Programme", "Short Course Chemotherapy Category I" for extra-pulmonary TB is recommend. The regimen recommends H, R, Z and Ethambutol for the first 2 months followed by H and R for the next 4 months. An alternative therapy for GU TB is Ofloxacin 200mg BD for six months, with R 600mg/day and H 300mg/day for the first three months.

Renal abscess are infrequent renal pathology and if diagnosed early can be treated successfully with minimum morbidity and mortality. On the other hand complicated abscess may carry a higher mortality especially in immuno – suppressed and cachectic patients as shown in our series.

REFERENCES