International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

A Case of Perinephric Abscess - Radiological Characterization from Cystic Renal Tumour

Dr. Sharmada Vakwadi Holla[1], Dr. Pooja K[2], Dr. Ashwini M[3]

Srinivas Institute of Medical Sciences, Mukka, Mangalore, India

Abstract: ***Perinephric space is a space on each side which is distinctly defined by the cone of renal fascia. A variety of pathologies can occur in this space which are categorised based on their clinical and radiological presentation. An abscess within the perinephric space is a potentially fatal disease which occurs secondary to a site of renal infection that perforates through the capsule to contaminate the perirenal fatty compartment [1,2]. With non-specific radiological findings, a perinephric abscess can pose a diagnostic dilemma. [2, 3] Teaching points: 1) Radiological characterization and pattern of spread of perinephric abscess.[1] 2) Imaging differentiation of perinephric abscess and cystic renal tumor.[3]***

Keywords: Perinephric space, perinephric abscess, cystic renal tumor

1. Introduction

Perinephric abscess is the collection of suppurative material / pus between the renal capsule and para renal fascia. It can occur due to spread of infection from contiguous urological infection or from a local spread of disease from a non-contiguous infection of the surrounding structures such a liver, pancreas, small bowel, etc. Perinephric abscesses are mostly caused by gram negative enteric bacilli (such as Escherichia coli) or can be of polymicrobial aetiology. Diabetes mellitus is an important association with perirenal abscess.

2. Case Description

An 84-year-old lady with diabetes presented to the emergency department with generalised weakness and left flank pain. Her total leucocyte counts were elevated. She was initially referred to the radiology department for an ultrasound examination of the abdomen and pelvis, followed by contrast enhanced CT of abdomen and pelvis and MRI s for further evaluation.

Figures:

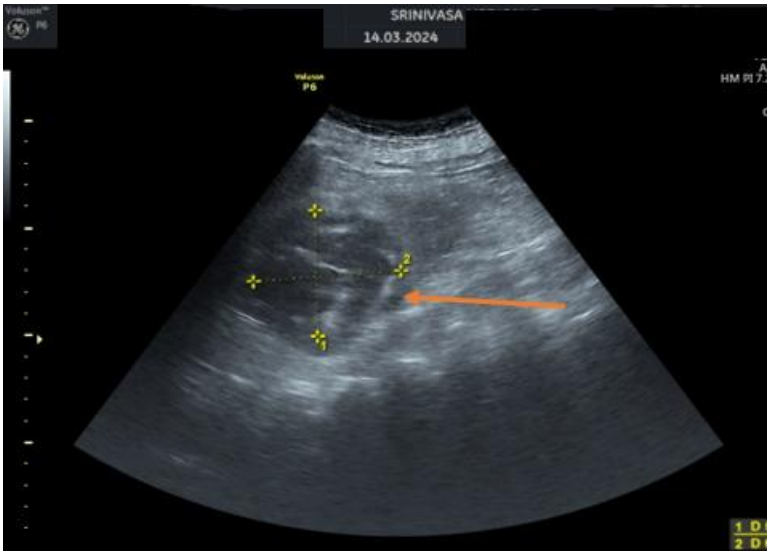

Figure 1: Ultrasound shows mixed echogenic lesion in relation to upper pole of left kidney measuring 5.8 x 6.4 cm. On ultrasound, appeared to be an exophytic renal mass.

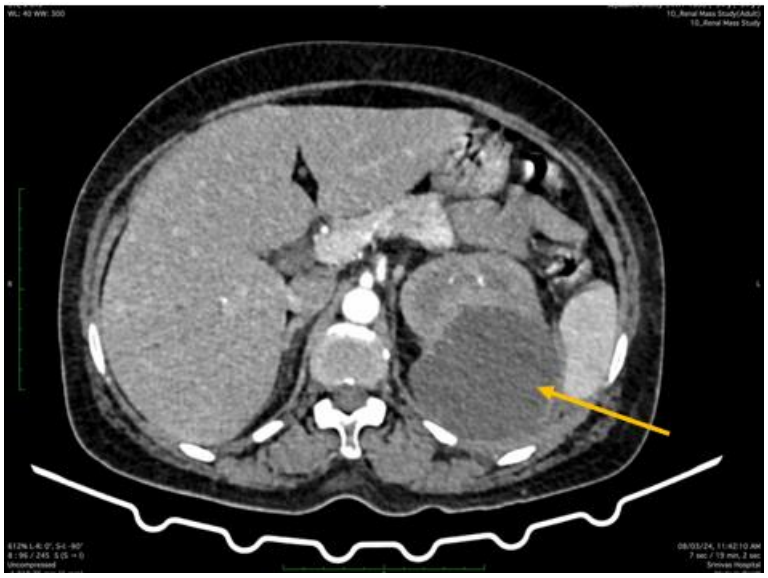

Figure 2a

Figure 2 (a and b) CECT images show well defined peripherally enhancing hypoattenuating lesion seen in posterior left perinephric space with minimal peri nephric inflammatory changes.

Thin minimally enhancing septae are seen at superior and inferior aspect of this lesion. Ischaemic changes are noted in the form of hypo enhancing areas at upper and mid pole. Similar wedge-shaped hypo enhancement is also seen at mid pole of right kidney.

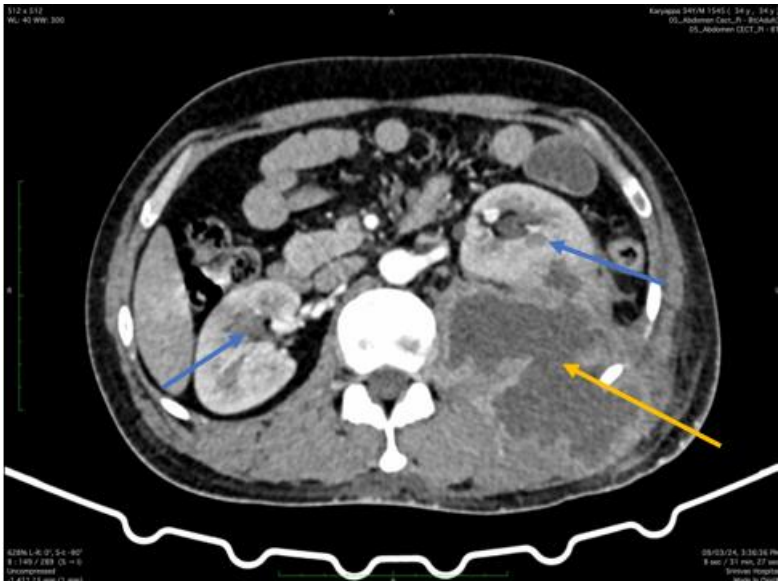

Figure 2b

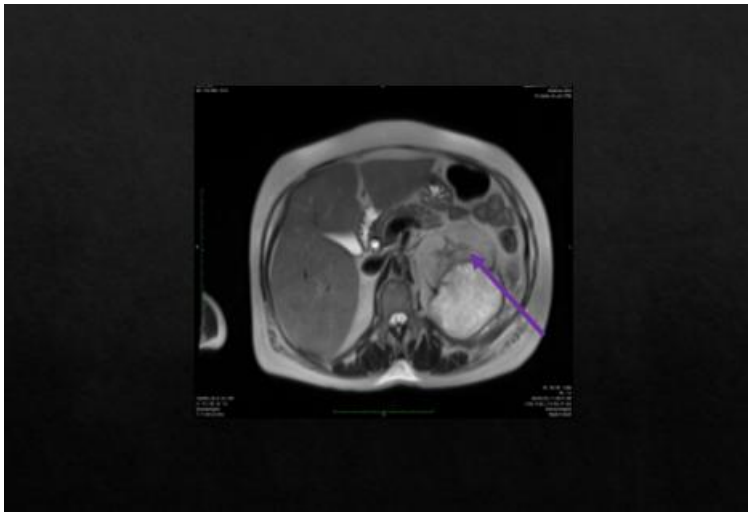

Figure 3: T2W MRI heterogeneously hyperintense lesion in upper pole of left kidney

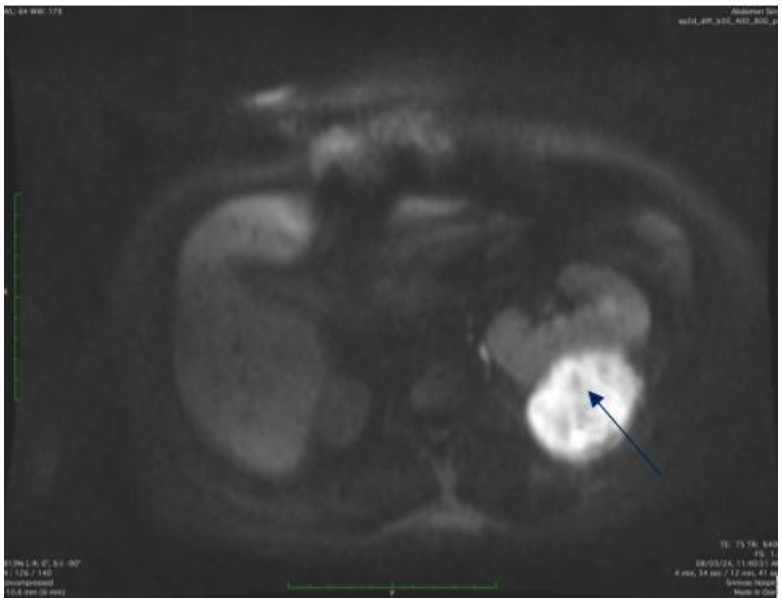

Figure 4 a

Lesion shows diffusion restriction on MRI.

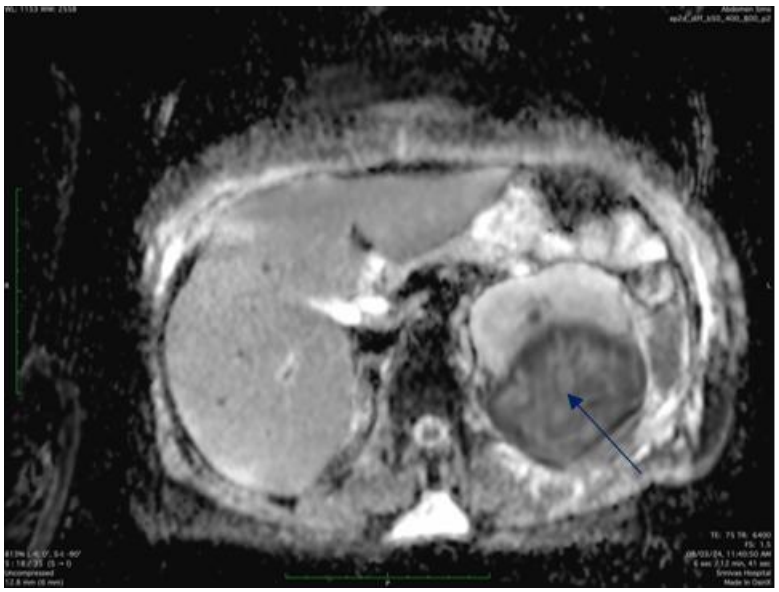

Figure 4 b

With the background of diabetes and elevated leukocyte count, a diagnosis of peri-renal abscess was given. Hypoenhancing lesions in both kidneys were suggestive of focal pyelonephritis.

3. Discussion

The perirenal space on each side is distinctly defined by the cone of renal fascia [1]. Perirenal abscesses are secondary to a site of renal infection that perforates through the capsule to contaminate the perirenal fatty compartment [1]. Peri renal abscess is a collection of suppurative material / pus between the renal capsule and para-renal fascia. Most commonly occurring secondary to renal infection [1,2]. Two predominant forms exist, one is the gas producing infection and the other, an infection that may localize within the perirenal fat as a coalescent abscess.[1]

Common urological complaints like dysuria and increased frequency of micturition are usually not present in diabetic patients. However, they usually present with groin pain or flank pain with an insidious onset of fever. In elderly patients and in patients with autonomic neuropathy, like diabetics, or chronic alcoholism, symptoms are indolent. [1,2]

Perinephric abscess develops when an intra renal cortical abscess ruptures into the peri nephric space, especially when it is associated with an obstructing stone. But it can also develop directly from acute pyelonephritis causing fat necrosis without the development of intra renal abscess with close relation to the kidney. This type of presentation makes diagnosis difficult, and can be mistaken for cystic renal cell carcinoma. [2,3]

Peri renal abscesses are very commonly seen in association with diabetic mellitus and septic emboli. Hematogenous spread of the disease can occur from liver, cervix, vertebra, gall bladder, appendix. Perforation of ureter and calyx is an uncommon cause. [1,2]

Urinalysis may be normal, if abscess does not communicate with collecting system. or in cases with hematogenous mode of infection. [1]

Hence, radiological investigation becomes the main stay for diagnosis.

The imaging findings in these cases may mimic cystic renal tumours. [2,3]

The management of perirenal abscess includes antibiotic therapy with percutaneous drainage.[1]

1) Peri renal collections less than 3cms are treated with antibiotics.
2) Collections more than 3cms warrant image guided percutaneous drainage. Repeat imaging is needed if there is persistent abnormality in laboratory parameters, and no improvement in patient`s condition or if percutaneous drainage is not progressing as expected. [1]

4. Conclusion

Per-renal abscess is a potentially fatal disease and any delay in the diagnosis can lead to increased mortality. Imaging should be done in cases that do not respond to antibiotics or in those which present as a palpable mass with vague abdominal symptoms. An abdominal CT study helps in distinguishing the lesion and identifying the pattern of spread of disease. [1,3]

References

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