

# Cystic renal mass

S.-J. Lu<sup>1\*</sup>, S.W. Loo<sup>2</sup>

<sup>1</sup>Department of Diagnostic Imaging, National University Hospital, 5 Lower Kent Ridge Road, Singapore 119074, <sup>2</sup>Department of Oncology, Addenbrooke's Hospital, Hills Road, Cambridge, CB2 0QQ United Kingdom, \*corresponding author: tel.: +65 6772-52 07, fax: +65 6872-30 02, e-mail: suat\_jin\_lu@yahoo.com

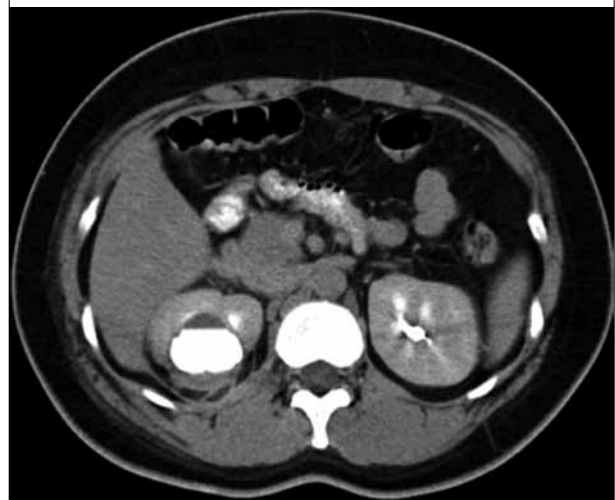
## CASE REPORT

A previously well 30-year-old woman presented with two-day history of fever, right loin pain and dysuria. A positive right renal punch was elicited. The white cell count and serum inflammatory markers were raised and urine analysis revealed pyuria. Blood and urine cultures did not yield bacterial growth. A computed tomography was performed (*figure 1*).

## WHAT IS YOUR DIAGNOSIS?

See page 159 for the answer to this photo quiz.

Figure 1. Computed tomography



ANSWER TO PHOTO QUIZ (ON PAGE 158)

CYSTIC RENAL MASS

DIAGNOSIS

The computed tomography showed stranding of the right perinephric fat and thickening of the right renal fascia consistent with the clinical impression of a right pyelonephritis. In addition, there was a cystic lesion in the upper pole of the right kidney communicating with the pelvicalyceal system (figure 2, black arrowhead) and showing retention of contrast medium in the delayed phase of the scan (figure 2, arrows), consistent with a calyceal diverticulum. Calculi were seen at the dependent part of the calyceal diverticulum in the precontrast scan (figure 2, white arrowhead). The pyelonephritis resolved with antibiotic therapy and the calyceal diverticulum was managed with watchful waiting.

Urinary tract infection can be secondary to underlying structural abnormalities of the urinary system such as calyceal diverticulum. Calyceal diverticulum is a cystic cavity lined by transition cell epithelium within the renal parenchyma that communicates with the collecting system.<sup>1</sup> It is important to distinguish calyceal diverticulum from renal cyst because the management is different. Communication with the pelvicalyceal system differentiates calyceal diverticulum from renal cyst and this may be seen on computed tomography and is confirmed by contrast filling of the calyceal diverticulum

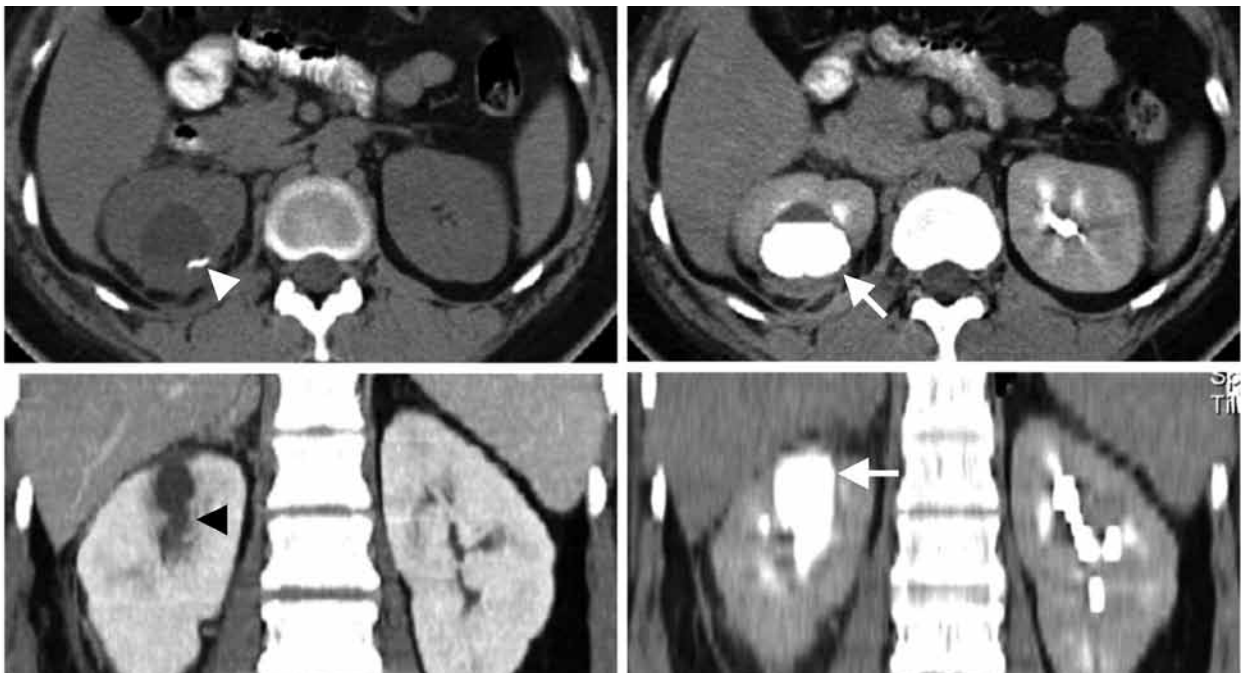
in the delayed phase of computed tomography or intravenous urography.<sup>2</sup> The mobility of the calculi within the calyceal diverticulum, which can be demonstrated on ultrasound or computed tomography, differentiates the calculi from the mural calcification of renal cyst.<sup>3</sup>

Although rare and usually asymptomatic, calyceal diverticulum can result in a variety of urological problems including renal colic, haematuria, stone formation, urinary tract infection and hypertension.<sup>2</sup> It is therefore important to be aware of the complications associated with calyceal diverticulum and the need for definitive treatment if there are recurrent symptoms or complications.<sup>4</sup>

REFERENCES

1. Wulfsohn MA. Pyelocaliceal diverticula. J Urol. 1980;123:1-8.
2. Gayer G, Apter S, Heyman Z, Morag B. Pyelocalyceal diverticula containing milk of calcium – CT diagnosis. Clin Radiol. 1998;53:369-71.
3. Rathaus V, Konen O, Werner M, Shapiro Feinberg M, Grunebaum M, Zissin R. Pyelocalyceal diverticulum: The imaging spectrum with emphasis on the ultrasound features. Br J Radiol. 2001;74:595-601.
4. Gross AJ, Herrmann TR. Management of stones in calyceal diverticulum. Curr Opin Urol. 2007;17:136-40.

Figure 2. Computed tomography



A cystic lesion was seen in the upper pole of the right kidney communicating with the pelvicalyceal system (black arrowhead) and showing retention of contrast medium in the delayed phase (arrows). Calculi were seen at the dependent part of the calyceal diverticulum in the pre-contrast scan (white arrowhead).