Clinical History:

The patient presented with severe diarrhoea and dehydration in the emergency department. Urine output was also decreased. She had pain in bilateral loin regions.

Imaging Findings:

Ultrasound abdomen revealed hypoechoic rim in renal cortex in both kidneys and bilateral mild perinephric fluid. So first we were suspecting renal infarct.

Contrast enhanced CT of KUB revealed non-enhancing rim in renal cortex in both kidneys with mild bilateral perinephric fat stranding and fluid. Bilateral renal arteries and veins were normal. Mild enhancement of medulla was noted.

Renal biopsy revealed cortical necrosis.

Discussion:

Bilateral renal cortical necrosis is an uncommon cause of acute renal failure. Renal cortical necrosis occurs in various conditions like severe haemodynamic shock, septic shock, haemolytic uraemic syndrome, severe dehydration and renal transplant complication. Probable pathogenesis behind renal cortical necrosis is vasospasm and disseminated intravascular coagulation. However, exact pathogenesis is not known. [1]

Contrast-enhanced CT demonstrates non-enhancing rim in renal cortex with sparing of subcapsular cortex and enhancement of medulla. Capsular rim sign is due to enhancement of subcapsular cortex which is supplied by capsular arteries. Thin rim of calcification is noted in cortex in old necrosis. [1, 2]

Non-contrast MRI demonstrates low signal intensity in inner cortex and the columns of Bertin on T1 and T2 images. Cortico-medullary differentiation is better seen on T2 images. Acute cortical necrosis shows swelling of kidney with perinephric fluid and fat stranding. MRI is better than contrast-enhanced CT. [1, 2]

Renal biopsy is the gold standard for diagnosis. [2]

Renal cortical necrosis can result in permanent renal failure so prognosis for patient is poor. [2]

Final Diagnosis: Bilateral renal cortical necrosis
References:


Ming-Tsung Wang, Reng-Hong Wu, JyH-Ching Chen (2007) CT findings of Acute Renal Cortical Necrosis. Chin J Radiology 32: 103-106
Description: CECT KUB axial image revealed non-enhancing rim in renal cortex in both kidneys with mild enhancement of medulla and normal left renal artery. Origin: MMHRC, Madurai, Tamilnadu, India

Description: CECT KUB axial image revealed non-enhancing rim in renal cortex in both kidneys with normal right renal artery and left renal vein. Origin: MMHRC, Madurai, Tamilnadu, India
Description: CECT KUB axial image revealed non-enhancing rim in renal cortex in both kidneys with mild bilateral perinephric fluid. Origin: MMHRC, Madurai, Tamilnadu, India