Acta Scientific Gastrointestinal Disorders (ISSN: 2582-1091)

Volume 6 Issue 11 November 2023

Case Reports

Arteriocalyceal Fistula-A Rare Complication of Iatrogenic Injury and its Endoarterial Management under Angiographic Control- A Case Report from Pakistan

Mustafa Zaboli[1], Syed Mohammad Faiq[1], Sara Waqar[1] and Zain Majid[2]*

[1]*Department of Radiology, Sindh Institute of Urology and Transplantation. SIUT, Karachi, Pakistan*

[2]*Department of Gastroenteorlogy, Sindh Institute of Urology and Transplantation, SIUT, Karachi, Pakistan*

***Corresponding Author:** Vain Majid, Department of Gastroenteorlogy, Sindh Institute of Urology and Transplantation, SIUT, Karachi, Pakistan.

Received: July 10, 2023

Published: October 05, 2023

Abstract

Percutaneous renal biopsies are used to extract kidney tissue, are an essential means of investigation in nephrology and are significant in the diagnosis of glomerular, tubulointerestitial and vascular renal pathologies. However, the post biopsy complications are rare but can be life-threatening. Iatrogenic renal traumas are manage primarily by angioembolization. CT Renal Triphasic scan performed prior to angioembolization provides a 3D visualization of traumatic lesion providing a trace map for radiologist for selective embolization. Arteriocalyceal fistulas are a rare posttraumatic entity then arteriovenous fistulas. This case report describes non-surgical management of a post renal biopsy arteriocalyceal fistula in a young female diagnosed with SLE presented with post renal biopsy hematuria. Pre and post embolization hemoglobin level and ultrasonographic evaluation is provided in this report.

Keywords: Renal Biopsy; Arteriocalyceal Fistula; Angioemobolization

Introduction

Incidence of Arteriocalyceal fistula (ACF) in which the renal artery directly drain into the pelvicalyceal system is a rare iatrogenic complication hardly reported in the medical literature [1,2]. More than 50% of all renal vessel injuries are due to iatrogenic trauma [3,4]. Distortion of normal renal vascular i.e., injury due to trauma is seen after percutaneous nephrostomy, nephrolithotomy, open surgical procedures and percutaneous renal biopsy [5]. However, the gold standard for constitutional renal disease investigation is renal biopsy [6]. Post traumatic gross hematuria are secondary to these injuries causing sudden decrease in hemoglobin level. Minimally invasive intervention procedure angioembolization is safe and significant in management of such traumatic lesions [3,8]. The indications recognized by most nephrologist elects nephrotic syndrome, acute or chronic renal disease, primary glomerulonephritis in which IgA nephropathy is most frequent. Systemic lupus erythematosus (SLE) is frequently indicated for biopsy [7].

Case Report

A 35 years old female admitted via the emergency with the complains of low grade fever on and off along with body swelling, shortness of breath and loose stools was admitted in Medical ICU of our hospital. On physical examination, bilateral pedal edema was evident, with occasional crackles were noted on auscultation. While rest of the systemic examination was unremarkable. Labs showed Hb 8g/dl, TLC 15 x10cells/cubic millimeter of blood, Platelets 450109/L, Cr 1.3mg/dl, Urine DR had 2+ albumin with occasional RBCs. Investigation showed C reactive protein value = 7.4mg/L and ESR = 67mm per hour. Based upon his history and the findings on his urine report, he was planned for renal parenchymal biopsy, which showed segmental immune deposits, features suggestive of Lupus Nephritis class V.

However post biopsy, he developed hematuria with significant fall in hemoglobin level (from 8.0g/dl to 3.0g/dl). Post biopsy ul-

trasound showed minimal perinephric collection. So a CT Triphasic Scan with Multiple axial sections of Chest, Abdomen and Pelvis was done with I/V contrast showed consolidation with air bronchogram in posterior basal segment of left lower lobe with mild pleural effusion seen in both lung fields. Plain abdominal sections showed hematomas in collecting system with few subcentimeter simple cortical cysts seen at mid pole of left kidney along with streak of perinephric collection and extensive perinephric fat stranding. The cause of hematuria was rule out by evidence of contrast opacification of left pelvicalyceal system with contrast early in arterial phase which suggest active extravasation of contrast from interlobar branch of renal artery into collecting system representing arteriocalyceal fistula. Filling defects were also noted in pelvicalyceal system and ureter down to the level of urinary bladder representing clots formation. Clots in urinary bladder lumen were also seen. After the detection of cause of hematuria angioembolization was planned to selectively embolize arteriocalyceal fistula.

The Left renal angiogram was obtained after right common femoral artery was punctured by 18G needle and site was secured by 5Fr sheath. 4Fr RDC catheter was used and selective angiogram were obtained. Successful emobization of interlobar branch of left renal artery draining in PCS was achieve by 2mm*4cm and 3mm*10cm IDC coil. Resolving hematuria and stability of hemoglobin level provide evidence of successful angioembolization. No significant difference in echotexture of kidney in pre and post biopsy and pre and post embolization were seen. Patient was discharged after 17 days of embolization as soon as improvement in lab parameters and patient's condition was achieved.

Investigation Parameter	Pre-biopsy	Post biopsy	Post angioembolization
Haemoglobin	8.0	3.0	10.2
Creatinine	0.5	1.3	0.6
Urea	66	71	26

Table a

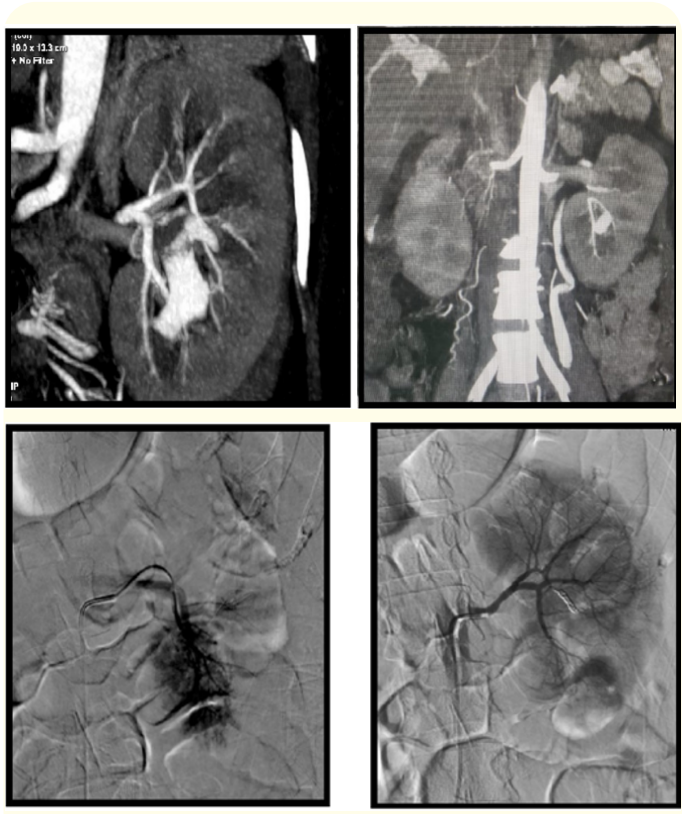

Figure 1: A: Opacification of collecting system B: Communication of artery and in early arterial phase. collecting system with opacification of ureter in early arterial phase Investigation Parameter Pre-biopsy Post biopsy Post angioembolization. C: Pre-embolization angiogram. D: Post-embolization angiogram.

Discussion

Serious renal injuries can be marked by presence of gross hematuria but the degree of severity is not related with the degree of hematuria [9,10]. The significance of renal biopsy was first coined in 1951 by Brun an Iversen [11,12]. It provides valuable information regarding underlying (primary and secondary) renal pathologies. Also provide time estimation of ESRD progression [7]. Percutaneous renal biopsy is still a landmark for nephrologist and is documented safe in most of the series of nephrology and radiology. The range of post biopsy complication reported is 5 to 15% [13]. Commonly documented post biopsy complication include bleeding

may seen as hematuria, hematomas or combinely both. Post biopsy hemorrhage is mostly self limiting but rarely requires interventional management to prevent hemodynamic instability [12].

Conclusion

Transarterial angioembolization (TAE) is less invasive and safe procedure in management of gross hematuria caused by iatrogenic renal injuries [14,15], and is applied where conservative treatment for management remain unsuccessful. CT triphasic scan opacify the whole urinary tract with contrast in 3D providing visualization of fine details of iatrogenic lesions. CT is indicated in patients with gross hematuria [16]. In arteriocalyceal fistulas an important finding in contrast enhanced CT Scan is early ureteric opacification (during arteriCT scane) showing arterial drainage in ureter as shown in figure B.

Bibliography

1. Philipoff AC., *et al*. "Acute traumatic renal arteriocalyceal fistula: selective angioembolisation for haemodynamic instability". *BMJ Case Reports* 2017 (2017): bcr2016216795.

2. Hyams ES., *et al*. "Iatrogenic vascular lesions after minimally invasive partial nephrectomy: a multi-institutional study of clinical and renal functional outcomes". *Urology* 78.4 (2011): 820-826.

3. Seif HM and Hameed DA. "Endovascular Management of Iatrogenic Renal Vascular Injury: Experience in 28 Cases". *The Medical Journal of Cairo University* 79.2 (2001).

4. Chatziioannou A., *et al*. "Effects of superselective embolization for renal vascular injuries on renal parenchyma and function". *European Journal of Vascular and Endovascular Surgery* 28.2 (2004): 201-206.

5. Jain V., *et al*. "Management of non-neoplastic renal hemorrhage by transarterial embolization". *Urology* 74.3 (2009): 522-526.

6. Lees JS., *et al*. "Renal biopsy: it is time for pragmatism and consensus". *Clinical Kidney Journal* 11.5 (2018): 605-609.

7. Visconti L., *et al*. "Renal biopsy: Still a landmark for the nephrologist". *World Journal of Nephrology* 5.4 (2016): 321.

8. Güneyli S., *et al*. "Endovascular management of iatrogenic renal arterial lesions and clinical outcomes". *Diagnostic and Interventional Radiology* 21.3 (2015): 229.

9. Kawashima A., *et al*. "Imaging of renal trauma: a comprehensive review". *Radiographics* 21.3 (2001): 557-574.

10. Harris AC., *et al*. "CT findings in blunt renal trauma". *Radiographics* 21.1 (2001): S201-14.