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Zehra Akkaya, Nurettin Oksuz, Aysegul Gursoy Coruh

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Conclusion: Ultrasonography is important to rule out stent malposition or other serious stent complications.

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CASE REPORT

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Keywords: Double-J stent, Kidney, Hematoma

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INTRODUCTION

Double-J ureteral stents, which were described by Finny in 1978, are commonly used in urologic practice for the relief of obstructive uropathy or postoperatively [1–3]. Besides relatively harmless and common complications such as inadequate relief of obstruction or infection, the rare but important complications such as ureteral perforation or subcapsular renal hematoma should not be underestimated [3]. Previous cases of life-threatening perirenal hematoma soon after stent insertion have been reported [4, 5]. This report emphasizes the importance of thorough radiologic evaluation in a case of undiagnosed chronic subcapsular renal hematoma due to double-J ureter stent.

CASE REPORT

A 21-year-old male with left sided flank pain presented to urology department with a history of having bilateral ureteral double-J stent insertions two months ago via retrograde route in another hospital. He declined having any kind of radiologic work-up for control visits but he mentioned that his previous complaints subsided, except for vague right sided flank pain and persistent hematuria for one week after the insertion procedure. Two weeks prior to admission to our clinic, both of his stents were removed in another hospital. Soon after the removal of double-J stents, he started having left sided flank pain and a brief course of mild hematuria. Physical examination revealed costovertebral angle tenderness on both the sides. Blood work-up showed no significant finding other than moderately elevated erythrocyte sedimentation rate and C-reactive protein. Urine analysis revealed urinary tract infection along with erythrocyturia. On kidney ureter bladder X-ray of the abdomen stones were observed in both kidneys (Figure 1). He was then referred to the ultrasonography unit for further evaluation.

On ultrasonography examination, left kidney demonstrated grade 2–3 hydronephrosis and an obstructing proximal ureter stone was noticed. On the right side, however, the right kidney showed a 5.6x1.6 cm sized lentiform shaped perirenal collection with debris and internal septa, following the renal contour. The normal right kidney parenchyma was displaced and indented because of the mass effect (Figure 2A). On color Doppler ultrasound, there was no vascular signal within this collection (Figure 2B).

On computed tomography (CT) scan of the upper abdomen, the centrally hypodense collection and its mass effect on the neighboring renal cortex was confirmed (Figure 3). Additionally, the proximal left ureter stone was confirmed by CT scan (Figure 3).

The patient was put on antibiotic therapy and re-stenting of the left kidney to relieve the dilatation by double-J stent after the antibiotherapy and close weekly ultrasonography follow-up for the right perirenal collection were planned.

Figure 1: Kidney ureter bladder radiograph of abdomen showing the borders of enlarged right kidney (arrows), and radio-opaque kidney stones on both the sides (arrow heads).

DISCUSSION

Ureteral stenting is a common urologic procedure which provides near-physiologic drainage of the kidney without external diversion. Memon et al. and Richter et al. report the most common indication of stent insertion as obstructive uropathy and Nawaz et al. report prophylactic stenting as the most common indication [6–8]. Although the reported complication rates may be as high as 79.2% among different studies, the most common complications of double-J stents

Figure 2: (A) Gray scale, and (B) Color Doppler ultrasound images of the right kidney showing the lentiform-shaped subcapsular hematoma (arrows) and the stone (arrowhead). Note the indentation of the renal cortex by the hematoma (thick arrow). The avascular structure of the subcapsular collection and the partially observed twinkle artifact (arrow in B) of the stone are noteworthy.

include irritative voiding symptoms, flank pain, suprapubic discomfort, and hematuria [8–10]. Stent migration or encrustation, infection, hematuria, forgotten stents, bladder erosions and misplaced stents are other complications [10]. In literature, there are case reports on renal parenchymal perforation and hematoma formation following double-J stent insertion [4]. Complications associated with the use of ureteral stents are basically mechanical in nature and are related to stent material [3]. The safe window period of stenting is probably 6–8 weeks. If left for a long time, nearly all stents will encrust [3, 6]. Hence, Pansota et al. recommend stent monitoring with regular monthly urine cultures, kidney ureter bladder X-ray [3]. For complicated cases close, individualized radiologic follow up by CT scan and ultrasonography scan are recommended [4, 5]. However, as indicated in this report we believe that ultrasonography should be regarded as a more valuable tool to give unequivocal information not only about the pelvicalyceal system but also about the renal parenchymal changes, perirenal space diseases and when coupled with color Doppler imaging, renal vasculature too. We think

Figure 3: (A, B) Axial computed tomography images of the abdomen showing right sided hypodense subcapsular renal collection (arrow). Note the left ureter stone (arrowhead) and enlarged left kidney in the computed tomography image 5 cm caudally.

that because of the increased intrarenal pressure in a hydronephrotic kidney, renal parenchyma would be more fragile than normal. As a result even minor pelvicalyceal trauma may not be well tolerated and may lead to capsule-cortex detachment without necessarily direct parenchymal penetration by the stent or guide wire. The precise time of development of subcapsular hematoma in this patient was not known. It is possible that the hematoma developed during or soon after initial stenting due to direct trauma by stent malposition, or within the two months time the patient spent with bilateral double-J stents without radiologic workup for control, due to stent migration. We believe that this was a lucky patient whose hematoma was self-limiting but catastrophic outcomes could have taken place. The patient was hemodynamically stable when he was diagnosed, invasive surgical procedures or minimally invasive percutaneous drainage was avoided. However, we recommend that such procedures should be promptly employed in cases with infected collections, perirenal abscesses or in acute

massive hematomas which may lead to hypovolemic shock. Follow-up ultrasonography revealed shrunken hematoma by the end of first month.

CONCLUSION

Possible stent complications should come to mind in patients with unexpected flank pain or hematuria. Ultrasonography both in early postoperative period and later with regular intervals is the best way to rule out stent malposition or other serious complications such as subcapsular renal hematoma in patients with double-J ureteral stents.

Author Contributions

Zehra Akkaya – Substantial contribution to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Nurettin Oksuz – Substantial contribution to conception and design, Drafting the article, Final approval of the version to be published

Aysegul Gursoy Coruh – Substantial contribution to acquisition of data, Revising the article critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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