Case Report

Lack of visual endoscopic appearance of ureteropelvic urothelial cancer; Is it a deterrence for nephroureterectomy? A case study and literature review

Nasser Simforoosh, Seyed-Mohammad Ghohestani, Hamidreza Abdi, Mohammadhossein Soltani, Abbas Basiri
Urology and Nephrology Research Center (UNRC), Shahid Labbafinejad Medical Center, Shahid Beheshti University, M.C.(SBMU), Tehran, I.R. Iran.

Abstract

Two case reports are presented with an important question what should be done when an endoscopic appearance of the urotherial lesion is unavailable. As seen in clinical practice, many patients choose nephroureterectomy with frequent follow up procedures. The other question raised is that what should be done when the lesions are ureteroscopically inaccessible. These patients can avail the advantages of radical treatment without accepting the probable as initial form of treatment to evade the risk and detriments of unnecessary additional endoscopic procedures.

Introduction

The advent of flexible ureteroscopy and percutaneous nephroscopy seemed to change the ureteropelvic urothelial carcinoma (UC) diagnosis and management dramatically. This was true in many areas.[1,2] In most cases, ureteropelvic UC is demonstrated as a filling defect in excretory urography (IVP) or contrast enhanced computerized tomography (CT). The differential diagnosis includes fungal bezoars, sloughed papillae, clots, overlying bowel gas and stones.[3] Emergence of flexible ureteroscopy heralded the availability of a ready in use technique to deal with these rare but potentially misleading differential diagnoses. At the same time with prevailing experience with the instrument, concerns rose about the danger of extravasation, retrograde and extra-ureteral seeding. Although many studies have shown the safe nature of flexible ureteroscopy in these cases, the danger still is present.[4] Similar concerns have been raised for antegrade renoscopy. Despite low incidence, cases of percutaneous tract seeding have been reported.[5] It is still undetermined whether endoscopic visualization is necessary for the diagnosis of ureteropelvic UC in the case that endoscopic ablation seems impossible due to the radiographic appearance of the lesion or to lacking required equipment in the centre.

Two cases of ureteropelvic UC are presented where an endoscopic appearance of the lesion was not possible.

Case 1:

The patient was a 53-year-old man with the main complaint of gross haematuria for 2 months. He had no flank pain, irritative symptoms, and constitutional signs and symptoms. His past history was uneventful. He was taking aspirin since 2 years and had a history of cigarette smoking. Ultrasonography revealed mild hydronephrosis in the left kidney with left proximal ureter dilatation. IVP demonstrated a filling defect in the pelvis of left kidney (Figure-A). CT scan showed an 18.8-mm mass in the pelvis of left kidney and mild hydronephrosis. Other findings were unremarkable.

Figure-A: Excertion of both kidneys are normal. A filling defect in the pelvis of left kidney is seen.

Bladder was normal on cystoscopy. Left ureteroscopy was performed but the pelvis could not be reached because of tightness in the middle left ureter. Selective urine cytology was obtained from the left ureter. Urine cytology from left ureter revealed mildly atypical urothelial cell clusters, but the probability of low grade papillary tumour was not excluded. Nephroscopy and biopsy from suspicious lesion of left renal pelvis was performed. Pathology report was non-specific inflammatory fibroconnective tissue. On suspicion of urothelial carcinoma, the patient underwent nephroureterectomy and resection of bladder cuff. Histopathologic examination showed low grade papillary urothelial carcinoma (Stage T1).

Case 2:

A 57-year-old female presented with a history of gross haematuria and clot passage for 8 months. She did not mention any constitutional signs or symptoms. Her past history was unremarkable except for a history of

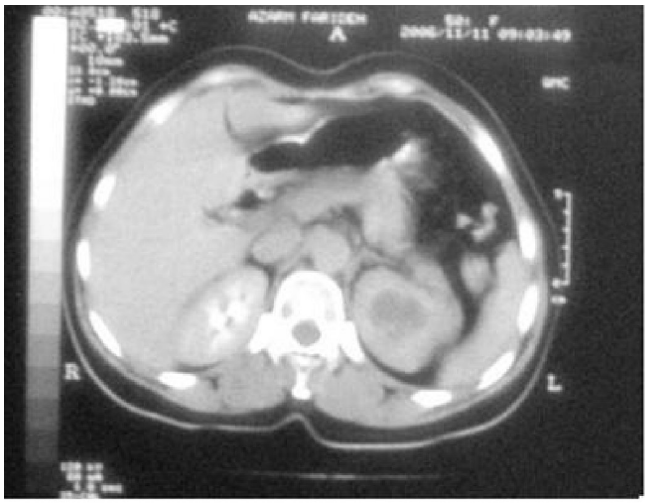

Figure-B: Irregular hypodense area. In the upper pole of left kidney due to Infarction or cystic or mass lesion.

thyroidectomy performed 22 years ago due to thyroid cancer with unknown pathology. She did not have a history of cigarette and alcohol consumption. Ultrasonography revealed an irregular area in the upper pole of left kidney. IVP showed a filling defect in the upper pole of left kidney. CT scan demonstrated an irregular hypodense area in the upper pole of left kidney which could be due to infarction, cystic or mass lesion (Figure-B). Urine cytology was negative for malignancy. Cystoscopy was performed; a vegetative mass was seen near to the orifice of right ureter, and urine jet from the orifice of left ureter was bloody. Rigid ureteroscopy was undertaken and selective urine specimen from the left ureter was obtained to examine urine cytology. Findings of ureteroscopy were normal. Atypical cells suspicious of malignancy were seen in urine cytology. Left retrograde pyelography showed a filling defect in the left upper calyx (Figure-C). Flexible ureteroscopy was performed but because of the stenotic infundibulum of left upper calyx, the ureterscope could not be passed beyond the infandibulum. The patient underwent laparoscopic radical nephroureterectomy and resection of bladder cuff. Pathology report confirmed the diagnosis of urothelial carcinoma (Stage T1 Low grade).

Figure-C: Filling defect in the left upper calyx.

Discussion

A trivial bleeding may obscure the vision in flexible ureteroscopy. This was experienced in the first case presented. In a kidney with a stenotic infundibulum it is practically impossible to reach a caliceal tumour. The risk of tract seeding in percutaneous approaches is small but factual. Seven cases of needle tract seeding have been reported in the context of upper tract urothelial cancer.[6] Fong et al reported a case of intra-tubular seeding of ureteral tumour.[7] In a large study of modern semirigid ureteroscopy, the risk of perforation was estimated 0.65%, avulsion 0.11%, and total complication rate was estimated up to 16% including minor intraoperative incidents.[8] Despite all advances in endoscopic technology, the reference standard treatment for upper tract urothelial cancer is still nephroureterectomy.[9] The need for frequent and long term endoscopic follow up for these tumours treated by conservative surgery have been underscored in many studies.[10] Considering the cumulative risk of frequent procedures, the afore mentioned risks of ureteroscopy will be much higher. Nonetheless, flexible ureteroscopy looks to decrease these risks and especially office based flexible ureteroscopy under local anaesthesia may decrease the patients' reluctance to commit to strict follow up protocols.[9] In patients with a history of bladder cancer, lower survival with conservative surgery has been reported adding the technical difficulty with endoscopic follow up for those previously under going urinary diversion.[11] Having these drawbacks of conservative surgery clearly and frankly explained to the patients, many patients with healthy contralateral kidney or lack of renal insufficiency, initially choose nephroureterectomy before even knowing whether their tumour is low or high grade.[12] Presumptively, if a patient chooses radical surgery at the beginning, ureteroscopy for diagnosing grade of the disease may not be mandatory.

It should be noted that about 10% to 20% of small,

solid, CT enhancing lesions undergoing radical nephrectomy prove to be benign after surgical excision.[13] The percentage of filling defects in pyelocalyceal system which prove not to be stone by spiral non-contrast enhanced CT with eventual benign nature may be less. Regarding the present data the necessity of performing endoscopy for the sole purpose of diagnosis is dubious considering the accompanying risks of non-visualization and threatening complications. However, more data is necessary to achieve an acceptable clinical conclusion for such cases.

References

1. Goel MC, Mahendra V, Roberts JG. Percutaneous management of renal pelvic urothelial tumours: long-term followup. J Urol 2003; 169: 925-9.
2. Mugiya S, Maruyama S, Nagata M, Hadano S, Nagae H. Retrograde endoscopic laser therapy for transitional cell carcinoma of the upper urinary tract. Int J Urol 2003; 10: 371-6.
3. Lantz EJ, Hattery RR. Diagnostic imaging of urothelial cancer. Urol Clin North Am 1984; 11: 567-83.
4. Hendin BN, Streem SB, Levin HS, Klein EA, Novick AC. Impact of diagnostic ureteroscopy on long-term survival in patients with upper tract transitional cell carcinoma. J Urol 1999; 161: 783-5.
5. Tomera KM, Leary FJ, Zincke H. Pyeloscopy in urothelial tumours. J Urol 1982; 127: 1088-9.
6. Kakuta Y, Kobayashi Y, Tanaka M, Yazawa K, Harada Y, Itoh K. [A case of needle tract implantation of ureteral carcinoma]. Hinyokika Kiyo 2005; 51: 273-6.
7. Fong CJ, Chen T, Hsieh DS, Yen CY, Chen HI. Possibility of spontaneous seeding of transitional cell carcinoma of the ureter in renal tubules: another mechanism of transitional cell carcinoma dissemination. Int J Urol 2006; 13: 997-9.
8. Geavlete P, Georgescu D, Nita G, Mirciulescu V, Cauni V. Complications of 2735 retrograde semirigid ureteroscopy procedures: a single-center experience. J Endourol 2006; 20: 179-85.
9. Reisiger K, Hruby G, Clayman RV, Landman J. Office-based surveillance ureteroscopy after endoscopic treatment of transitional cell carcinoma: technique and clinical outcome. Urology 2007; 70: 263-6.
10. Krambeck AE, Thompson RH, Lohse CM, Patterson DE, Elliott DS, Blute ML. Imperative indications for conservative management of upper tract transitional cell carcinoma. J Urol 2007; 178: 792-6.
11. Krambeck AE, Thompson RH, Lohse CM, Patterson DE, Segura JW, Zincke H, et al. Endoscopic management of upper tract urothelial carcinoma in patients with a history of bladder urothelial carcinoma. J Urol 2007; 177: 1721-6.
12. Defidio L, Di Pinto A. Retrograde laser-ablation with flexible ureterorenoscope of an upper urinary tract tumour in an orthotopic urinary diversion. Arch Ital Urol Androl 2007; 79: 36-8.
13. Licht MR. Renal adenoma and oncocytoma. Semin Urol Oncol 1995; 13: 262-6.