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WELL DIFFERENTIATED SQUAMOUS CELL CARCINOMA OF THE RENAL PELVIS ASSOCIATED WITH KIDNEY STONE : A CASE REPORT

Urology

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ABSTRACT

Squamous cell carcinoma (SCC) of the renal pelvis (well differentiated) is a rare neoplasm and is usually associated with long standing renal stone disease. This tumor is aggressive in nature and usually has a poor prognosis. We report a case of 45 year old man who presented with left flank pain and hematuria. During the radiologic investigation, a renal mass and staghorn calculi were detected in the left kidney. The patient subsequently underwent left radical nephrectomy. Pathological diagnosis was well differentiated SCC of renal pelvis with infiltration in to the renal parenchyma. The radiologic imaging features and histopathologic findings of this rare tumor are discussed in this report. Chronic renal calculi pose a risk for the development of squamous metaplasia that may lead to squamous cell carcinoma. Although this malignancy is rare in the upper urinary tracts, patients with long-standing nephrolithiasis should be monitored. This diagnosis should be included in one's differential when evaluating a renal mass that is associated with chronic inflammatory conditions.

KEYWORDS

INTRODUCTION

Primary renal squamous cell carcinoma (SCC) constitutes less than 1% of all urinary tract neoplasms. Renal SCC is more frequently reported in the urinary bladder and male urethra than in the renal pelvis. Although this malignancy is rare in the upper urinary tracts, this diagnosis should be included in the differential diagnosis when evaluating a renal mass that is associated with renal calculi.[1] We report a case of incidentally detected renal SCC associated with staghorn disease in a patient having no history of urinary disease. Ultrasound (US), computed tomography (CT) imaging are discussed along with histopathologic findings.

Case Report

A 45-year-old male patient presented to our institute with dull aching left flank pain since 15 days and two episodes of gross hematuria in 1 month. Examination of the abdomen was unremarkable. On examination of genitalia patient had grade 1 varicocele on left side. He had a serum urea level of 12 mg/dL and serum creatinine level of 0.7 mg/dL. Hematological and biochemical parameters including renal function tests were within normal limits. He had no history of prior surgery.

Radiological features

Ultrasound (US) evaluation showed intraparenchymal hypoechoic solid mass approximately 90 mm × 66 mm in size with lobulated contour arising from mid pole of left kidney.There were 40x30 mm size stone in the left renal pelvicalyceal system; with moderate HN .

Renal CT revealed a 115x74mm size, non-functioning left kidney with pelvic stone and 86x66 heterogeneous enhanced lesion involving mid pole of left kidney extending into PCS predominantly involving mid calyx and pelvis. Non enhanced filling defect is noted in left renal vein and it's tributaries suggesttive of thrombosis, IVC shows normal contrast opacification, multiple enlarged preaortic, para aortic left hilar lymph nodes,29x17 mm The metastatic work-up was negative, and the renal malignancy was diagnosed as Stage III (pT3N0M0).[Figure –1]. Right kidney was normal size with normal contrast excretion.

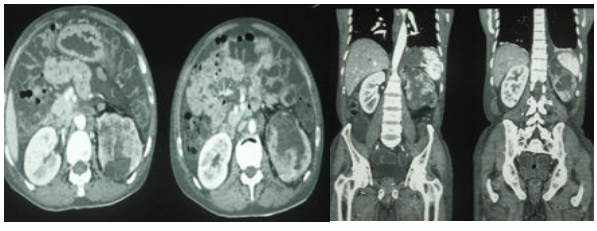

Figure 1

Subsequently, patient underwent Left radical nephrectomy with Regional Lymhadenectomy.he had an uneventful postoperative recovery.

Pathological features

On gross examination of the nephrectomy specimen, the left kidney was found to be enlarged in size, measuring 13 cm × 11 cm × 9 cm. There was an irregular gray-white solid tumor replacing the renal parenchyma and renal pelvis with necrosis at places with a large stone at PUJ [Figure2].

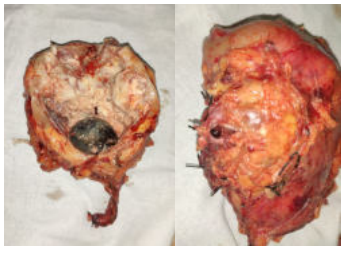

Figure - 2

Histopathological examination revealed a well-differentiated SCC infiltrating the kidney parenchyma and perinephric-pelvic fat. Tumoral mass was invading the renal sinus, renal capsule, perirenal fat. No evidence of vascular or perineural invasion. Section from ureteric margin and vascular margin are free from tumor. Section from pelvis shows squamous metaplasia with severe dysplasia of lining epithelium. Lymphnodes shows reactive hyperplasia with no evidence of malignancy Pathological diagnosis was SCC of renal pelvis extensively infiltrating the renal parenchyma and perirenal fat. Most SCCs of the renal pelvis are moderately or poorly differentiated but this is a case of well differentiated SCC. SCCs are typically more invasive than most transitional cell carcinomas at diagnosis.[3]

DISCUSSION

Primary SCC of the renal pelvis is rare and represents only 0.5-0.8% of malignant renal tumors. In general, these tumors are highly aggressive in nature and are usually present at an advanced stage when detected and have a poor prognosis when compared to the other upper urinary tract malignancies.[4] Chronic irritation, inflammation, and infection induce squamous metaplasia of the renal collecting system, which may progress to dysplasia and carcinoma in some patients. Whether the occurrence of squamous metaplasia is due to the presence of the calculus that leads ultimately to the development of carcinoma or existence of SCC causes the formation of calculus is not clear yet.[5]

Radiologically, primary SCC of the renal pelvis may appear as a solid mass, with hydronephrosis, calcifications, or as a renal pelvic infiltrative lesion without evidence of a distinct mass. The radiologic differential diagnosis includes primary and secondary renal neoplasms and xanthogranulomatous pyelonephritis (XGP) associated with renal calculi. XGP is an uncommon form of chronic pyelonephritis, typically occurring as a result of chronic obstruction, which leads hydronephrosis, causing destruction of renal parenchyma. XGP is commonly associated with lithiasis however, rarely causes keratinizing squamous metaplasia and its manifestations closely mimic renal neoplasm, leading to misdiagnosis of malignancy.[6] In

our case, there was a large infiltrative mass in the renal parenchyma. The radiologic findings of SCC are variable and may present with diffuse enlarged non-functional kidney with renal calculi, perirenal infiltration, and low density or echogenity in the renal parenchyma. The primary renal SCC cannot be distinguished from XGP or other malignant neoplasms of the kidney. A large transitional cell cancer with both renal pelvis and parenchymal involvement may present with similar CT and MR imaging findings. MR imaging features of renal SCC have been rarely described in literature.

Raghavendran *et al*.,[7] reported a case series of stones associated renal pelvic malignancies and they suggested that a patient with long standing stone disease and associated poor functional kidney or hematuria necessitates a screening CT. Lee *et al*.,[2] found that the most helpful features in CT of renal SCC was presence of enhancing extra-luminal and exophytic mass and in some cases, with an intraluminal component. They further suggested that as it is impractical to perform CT for every patient with renal stone, intravenous urography (IVU) should be carried out periodically, especially, in patients with long standing stones, and should be read as a split function test for all portions of renal parenchyma. Because the filling defects, delay in appearance of pyelogram, or renal parenchymal thickening in IVU may indicate a renal tumor despite the absence of mass effect and preservation of renal contour, warranting further studies.

The fact that the urothelium normally does not have squamous cells renders the pathogenesis of these tumors interesting. The process is assumed to begin with an urothelial metaplasia resulting from a reaction to chronic irritation, leading to dedifferentiation, dysplasias, and in the end, to a SCC.The relevant medical history include chronic episodes of pyelonephritis or nephrolithiasis.

Renal SCC usually presents at an advanced stage-pT3 or higher. Because of advanced stage at presentation, the prognosis is generally poor, as surgical resection is rarely curative and adjuvant chemoradiotherapy is usually ineffective. The prognosis is dismal with a 5-year survival rate of less than 10%.[6]

CONCLUSION

SCC of renal pelvis is an aggressive disease, presenting with a higher grade and thus have dismal prognosis as the only effective management which is surgery. Our patient presented with localized disease without regional nodal or distant spread indicating that a radical nephrectomy can achieve R0 resection and can be curative if the disease is diagnosed early. This outlines the importance of keeping this diagnosis in the back of the mind while dealing with patients of chronic renal calculi and also emphasizes the need for prompt management of patients with renal calculi even when they are non obstructive by nature to prevent secondary changes due to chronic irritation.

REFERENCES

1. Jain A, Mittal D, Jindal A, Solanki R, Khatri S, Parikh A, et al. Incidentally detected squamous cell carcinoma of renal pelvis in patients with staghorn calculi: Case series with review of the literature. ISRN Oncol. 2011;2011:620574
2. Lee TY, Ko SF, Wan YL, Cheng YF, Yang BY, Huang DL, et al. Renal squamous cell carcinoma: CT findings and clinical significance. Abdom Imaging. 1998;23:203–8.
3. Karabulut A, Emir L, Gonultas M, Incel N, Germiyanoglu C, Erol D. Squamous cell carcinoma located in the renal caliceal system: A case report and review of the literature. Turk J Cancer. 2002;32:20–4.
4. Berz D, Rizack T, Weitzen S, Mega A, Renzulli J, Colvin G. Survival of patients with squamous cell malignancies of the upper urinary tract. Clin Med Insights Oncol. 2012;6:11–8
5. Holmäng S, Lele SM, Johansson SL. Squamous cell carcinoma of the renal pelvis and ureter: Incidence, symptoms, treatment and outcome. J Urol. 2007;178:51–6
6. Mardi K, Kaushal V, Sharma V. Rare coexistence of keratinizing squamous cell carcinoma with xanthogranulomatous pyelonephritis in the same kidney: Report of two cases. J Cancer Res Ther. 2010;6:339–41
7. Raghavendran M, Rastogi A, Dubey D, Chaudhary H, Kumar A, Srivastava A, et al. Stones associated renal pelvic malignancies. Indian J Cancer. 2003;40:108–12.