Research Paper

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squamous cell carcinoma of the renal pelvis associated with renal stones-a case report

Medical Science

KEYWORDS : squamous cell carcinoma, renal stones, aggressive tumor

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ABSTRACT

Primary squamous cell carcinoma of the kidney is a very rare clinical entity. It is usually associated with long standing renal stones. Hypothesized to originate from squamous metaplasia in response to chronic irritation. This tumor is aggressive in nature and usually has a poor prognosis. We report a case of this rare tumor present in left kidney with calculi and hydronephrosis, treated with left sided nephrectomy.

Introduction

Primary renal squamous cell carcinoma (SCC) constitutes less than 1% of all urinary tract neoplasms[1] 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.[2,3]

Case history

A 44 year old male smoker came with complaints of intermittent pain in the left flank since 3 years. Pain increased in severity few weeks before the surgery. No history of hematuria, pyuria and lithuria. There was no other significant past medical and family history. General and physical examination of the patient were within normal limits. Local examination revealed slight tenderness over the left costovertebral angle. Complete blood count, erythrocyte sedimentation rate, biochemical analysis were all within normal limits. Urine examination also revealed no abnormality.

Radiological investigations

X ray KUB showed multiple radiopaque shadows seen in the left kidney. Ultrasonography of the abdomen revealed staghorn calculus with multiple renal calculi causing gross hydronephrosis with thinning of parenchyma. Intravenous pyelography revealed multiple renal calculi with no function even on delayed film. DTPA SCAN revealed non-functioning left kidney.

Fig 1: X-Ray KUB -Multiple staghorn calculi

Fig 2: Ultrasound- renal calculi causing gross hydronephrosis

Fig 3: Intravenous Pyelography- no function even on delayed film

After the above investigations a left sided nephrectomy was performed.

Pathological features

On gross examination of the nephrectomy specimen, the left kidney was found to be enlarged in size, measuring 14 cm × 11 cm × 9 cm. Cut section showed multiple yellow-brown colored small stones and a single staghorn calculus. Solid and cystic areas were seen. Solid areas were irregular, gray-white replacing the renal parenchyma and renal pelvis.

Fig 4: Distorted architecture with solid areas

Fig 4: Multiple small renal calculi

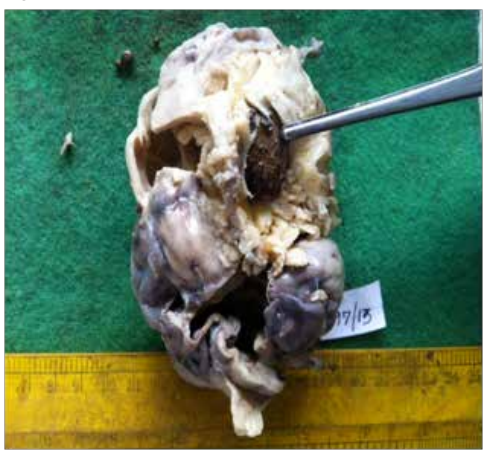

Fig 5: Single large staghorn calculus

Microscopic examination

Hematoxylin and eosin stained tissue revealed a well differentiated squamous cell carcinoma infiltrating the kidney parenchyma and the renal pelvis. Tumor cells are arranged in sheets. Individual tumor cells show pleomorphism, round to oval, clumped chromatin and prominent nucleoli. Keratin pearls seen. Features of chronic pyelonephritis namely lymphocytic infiltration in the interstitium, thyroidisation of tubules, periglomerular and peritubular fibrosis was seen

Fig 6: Sheets of tumor cells

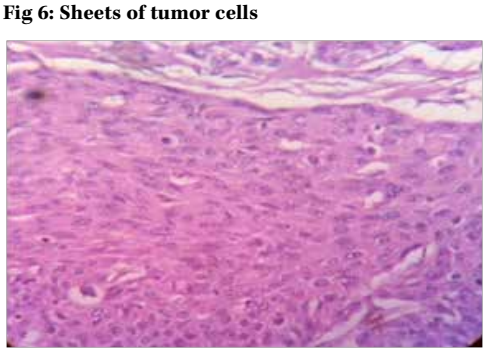

Fig 7: Individual tumor cells

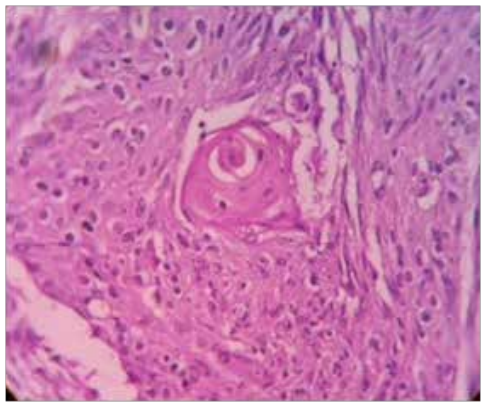

Fig 8: Keratin pearls

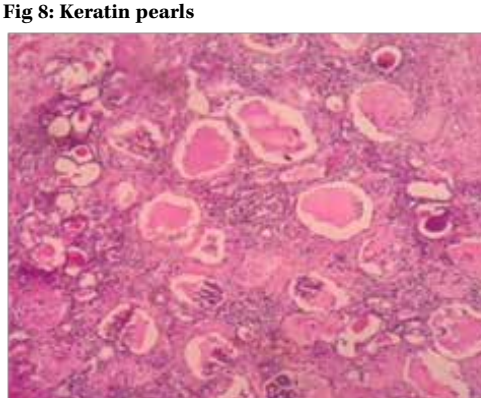

Fig 9: features of chronic pyelonephritis

Discussion

Primary malignancies of the renal collecting system are rare accounting for 4-5% of all urothelial tumors.[4] Most frequently diagnosed cases are the transitional cell carcinoma 85-94% followed by squamous cell carcinoma 6% to 15%, adenocarcinoma 7%.[5,1] Primary SCC of the renal pelvis are relatively aggressive and have bad prognosis compared to other tumors of the upper urinary system Sequence of events seen are chronic irritation, obstructive uropathy leading to hydronephrosis, chronic infections, squamous metaplasia leading to dysplasia and eventually squamous cell carcinoma. Renal calculi seems to be the main causative factor (6). Cases have been reported years after retrograde pyelography was used.(7)

Conclusion

Primary squamous cell carcinoma is an aggressive tumor warranting aggressive management. As these tumors are strongly associated with renal stones, the patients with renal stones and non-functioning kidney should be carefully examined with newer imaging modalities for early detection of the tumor, and warrants aggressive treatment with surgery followed by adjuvant aggressive combination chemotherapy that may provide better results.[8,9]

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