ORIGINAL RESEARCH PAPER

Pathology

PRIMARY SQUAMOUS CELL CARCINOMA OF KIDNEY

KEY WORDS: Calculus, kidney, Squamous cell carcinoma.

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ABSTRACT

Primary Squamous cell carcinoma(SCC) of kidney is a rare neoplasm. It is usually suspected in a patient with long history of renal calculus and associated mass in non functioning kidney.This case report deals with a case of SCC kidney in a 50 year old male who presented with dull left sided abdominal pain since 5 years. After work up , a large calculus with heterogenous density mass was detected in non-functioning left kidney. Patient was then treated with radical nephrectomy and was diagnosed as squamous cell carcinoma of renal pelvis on histopathology.

INTRODUCTION:

Primary Squamous cell carcinoma (SCC) of renal pelvis is an extremely rare neoplasm representing less than 1 % of all malignant tumours of kidney [1]. SCC of urinary tract is reported in urinary bladder and male urethra. In most patients Squamous cell carcinoma is associated with long standing chronic infection due to renal calculi of long duration. Other etiological factors associated with SCC kidney are hormonal imbalance, endogenous and exogenous chemicals ,radiotherapy and vitamin A deficiency[2]. Renal SCC usually presents at an advanced stage with extensive infiltration resulting in adverse prognosis[3].

CASE REPORT :

A 50 year old male presented with a dull aching pain in the left flank since 5 years. There was no history of haematuria, weight loss or fever. General physical examination was unremarkable with all routine blood investigations being unremarkable. Serum urea and creatine values were normal. X ray and USG of KUB was suggestive of 4mm calculus in left kidney with heteroechoiec mass in lower pole. DTPA scan was suggestive of left non-functioning kidney (GFR=8 ml/min/1.73 m^2**).** There was no enlargement of retroperitoneal lymphnode seen on CECT abdomen. Radical **nephrectomy** was planned and the gross was sent to our department for histopathological examination. Intact kidney with perirenal fat showing surface lobulations measuring 10x8x7 cm was received. On c/s cortex was thinned out with irregular cystic spaces containing a staghorn calculi. Sections were given from cortex,wall of the cyst and through ureter. Ureter shows presence of stone measuring 1.5cm in diameter (Fig 1 and 2). On histopathology renal pelvis showed dense infiltration of malignant squamous cells forming keratin pearls in the renal parenchyma with entrapped glomeruli and tubules. Surrounding areas showed dense inflammatory cell infiltration without involvement of renal vein ,perinephric fat and Gerota's fascia .[fig 3,4 (a,b,c)]

DISCUSSION:

In comparison to other upper urinary tract malignancies, SCC of renal pelvis are highly aggressive ,infiltrative and are usually high grade at the time of presentation ,so they are associated with poorer prognosis[3]. Although clear cell carcinoma is the most common renal neoplasm followed by papillary carcinoma and chromophobe carcinoma [1] , the most common histological type of renal malignancy in pelvis is transistional cell carcinoma followed by SCC of Kidney. SCC of kidney is rare and is known to arise from the collecting duct system[4].

It is most commonly seen in female population and primarily affects the age group of 50 -70 years. Common presenting complaints are dull aching flank pain ,haematuria ,fever , weight loss or any associated paraneoplastic syndrome[2] .The only presenting feature in our case was dull aching pain. Urinary calculi is most common carcinogenic factor for SCC[5].Only few cases have been reported where no etiological factors were detected[6]. Various controversies have been inflicted in the past regarding its histogenesis. It is postulated that long standing chronic irritation results in development of urothelial metaplasia which progresses to dedifferentiation ,dysplasia and finally results in neoplasia.[7].In our case also chronic irritation by the long-standing staghorn calculi seemed to be the most probable cause of SCC.

For diagnosing a case of Primary renal parenchyma SCC , renal pelvis should be histologically normal and metastatic SCC focus should also be excluded. The diagnosis of SCC of the renal pelvis is restricted to tumors showing extensive squamous differentiation. If a significant urothelial element including urothelial carcinoma in situ is found, the tumor should be classified as urothelial carcinoma with squamous differentiation. The histologic hallmarks of SCC like pearl formation, intercellular bridges, and keratotic cellular debris are similar to those of squamous cell carcinoma at any siteH. The characteristic histomorphological findings formed the basis of diagnosis in our case. Sections through the cortex and cyst wall showed many sclerosed glomeruli along with atrophic to dilated tubules. Some tubules showed thyroidisation. Interstitium showed fibrosis and dense chronic inflammatory cell infiltration and at places showed lymphoid follicles with germinal centre formation. There was dense infiltration of malignant squamous cells forming keratin pearls. Report was finally dispatched with a diagnosis of Primary infiltrative SCC (well differentiated) of the renal pelvis. Metastatic SCC of kidney was ruled out by taking proper clinical history ,imaging and histopathology. Adequate search for occult primary SCC was also negative. There was no metaplastic or dysplastic squamous lining of pelvicalyceal area confirming the diagnosis of primary renal SCC.

Surgery is the main stay of treatment in SCC of renal pelvis. Our case was treated with radical nephrectomy. Another treatment

which is under trial is Anti EGFR therapy which may be tried in EGFR positive cases but this needs large number of case studies.

CONCLUSION:

Squamous cell carcinoma of pelvicalyceal system with involvement of kidney is a very rare entity. It should be included in the differential diagnosis while evaluating renal mass that is associated with long standing calculi .Due to extreme rarity there is no standard guideline of treatment. So it necessitates more case studies to establish the risk factors for primary SCC of kidney. Careful history taking , proper imaging and histopathological evaluation should be done to rule out metastatic SCC of kidney.

Fig 1-Gross pic showing cystic cavities in the renal parenchyma on cut section.

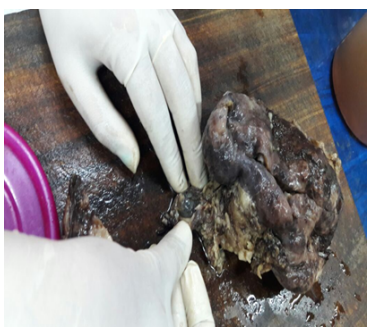

Fig 2- Gross pic showing a calculi in the ureter area.

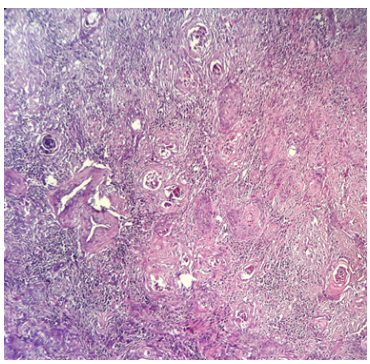

Fig 3- LP 100X showing renal parenchyma containing glomerulus and tubules admixed with nests of squamous epithelium.

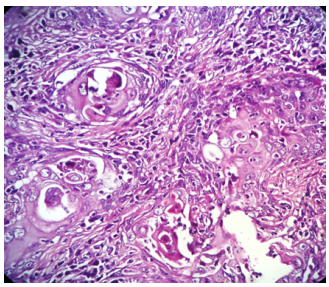

Fig 4(a)

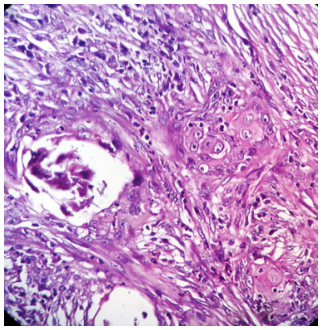

Fig 4 (b)

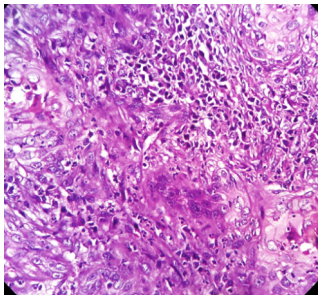

Fig 4 (c)

Fig 4 (a,b.c) showing nests of malignant squamous cells infiltrating the renal parenchyma.

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