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Case Report

INCIDENTAL DETECTION OF COLLECTING DUCT CARCINOMA FROM A HYDRONEPHROTIC KIDNEY – A CASE REPORT OF A RARE TUMOR WITH UNUSUAL PRESENTATION

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Abstract: We present here a case of a collecting duct carcinoma in a 60 yr old male who presented with a history of pain in the right flank for 1 month. He was evaluated a hydronephrotic kidney with nephrolithiasis and significant impairment of parenchymal functioning on USG and IVP. Nephrectomy was done and was sent for histopathological study. Grossly enlarged kidney and on cut section the renal parenchyma is compressed into a thin rim of tissue measuring 0.5 cm. Corticomedullary junction was indistinct and the pelvicalyceal system is dilated and contains blood clot. No growth identified. Microscopy showed a tumor in the medulla with proliferation of tubules and papillary structure. Epithelium showed marked anisonucleosis, prominence of nucleoli, and characteristic hobnailing of cells with desmoplastic stroma. It was diagnosed as collecting duct carcinoma of right kidney.

Keyword: Collecting duct carcinoma, Rt kidney.

INTRODUCTION

Collecting duct carcinoma is a highly malignant rare neoplasm that arises from the collecting duct epithelium of the kidney and accounts for approximately 0.4 % to 2.6% of all renal neoplasm [(1),] & 1-3% by other authors[(2).] Till now 100 cases of CDC have been reported in the English literature. The largest series comprised 12 cases [(3)]. We report a case of CDC who presented with features of hydronephrosis with multiple stones. The diagnosis was only made after the histopathological study of the nephrectomy specimen. This is a very unusual presentation of the rare tumor and have not been reported previously.

MATERIALS AND METHODS

A 60 yrs male presented with pain in the right flank for 1 month. USG report was grossly hydronephrotic right kidney with multiple stones. IVP detected multiple renal stones in the pelvis and diuretic renogram detected a grossly hydrpnephrotic right kidney with significant impairment of parenchymal functioning. The patient underwent nephrectomy and specimen was sent for histopathological study. Clinical diagnosis was non-functioning hydronephrotic right kidney with multiple stones. Gross received was a nephrectomy specimen measuring 20 x 15 x 10 cm with ureter measuring 10 cm in length. Kidney is enlarged with depressed areas at places and capsule was easily trapped off. On slicing the overlying renal parenchyma is compressed into a thin rim of tissue measuring 0.5 cm. Corticomedullary junction is indistinct. Pelvicalyceal system is dilated. Ureter is of normal calibre. Grossly no stone, stricture or growth identified (Fig 1).

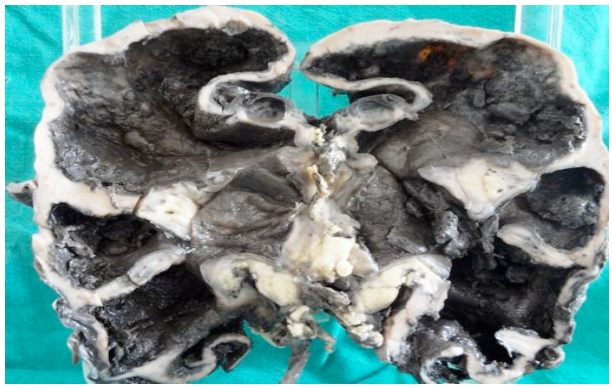

Fig.1: Compressed renal parenchyma with dilated pelvicalyceal system

RESULTS

Multiple sections were studied through the renal parenchyma reveal cortex is thin and atrophied and absence of glomeruli (fig.2). In the medulla there is a tumor showing proliferation of tubules and papillary structures (Fig. 3) surrounded by fibrosis and dense chronic inflammation. The epithelium show marked anisonucleosis; prominence of nucleoli (Fig.4) and characteristic hobnailing and ureter is free from tumor. Histopathological diagnosis was collecting duct carcinoma of right kidney. Patient was on follow up for 6 months after which he was lost to follow up.

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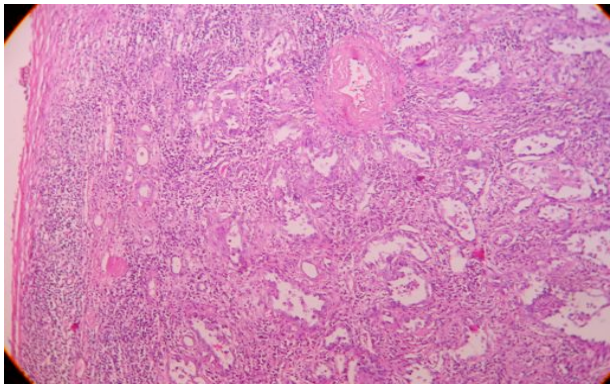

Fig.2: Thin & atrophic cortex with no glomeruli, H&E (40X)

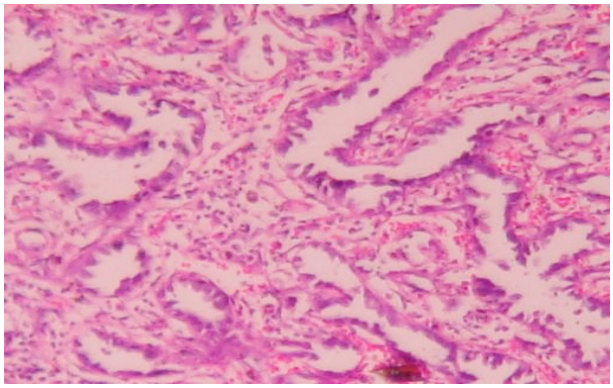

Fig.3: Tumor having proliferation of tubules & papillary structures, H & E (100X)

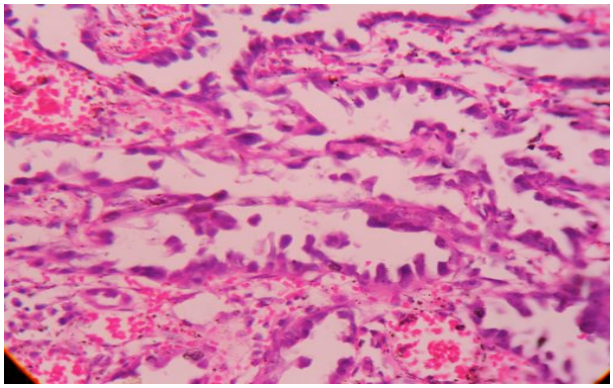

Fig.4: Anisonucleosis, characteristic hobnailing, H & E (400X)

DISCUSSION

CDC is recently been recognized as a separate entity and the latest WHO classification designate it as a distinct type [4]. The average age of all patients reported in the literature as 53 [1]. CDC shows a male predominance with a male to female ratio as 2:1 [3]. Tumors are mainly located in the medulla with secondary extension into the cortex. It is white or grey-white large tumor and has an infiltrating growth pattern. Areas of necrosis are frequent[1]. The histologic features of classic tumors are tubules and papillae in a desmoplastic stroma [5]. The tumors are of high nuclear grade corresponding to Fuhrman grade 3 or 4. An especially useful feature, rarely found in renal cell carcinoma and not found in others carcinoma is the hobnail appearance. Collecting duct carcinoma must be differentiated from any high-grade renal cell carcinoma, urothelial cell carcinoma and metastatic carcinoma. Papillary renal cell carcinoma can be high grade and has a papillary tubular architecture. Collecting duct carcinoma is distinguished by its origin in the medulla, infiltrative nature, and stromal desmoplasia, Expression of high molecular weight Cytokeratin. urothelial carcinoma can diffusely infiltrate the kidney and can spread into collecting ducts mimicking collecting duct carcinoma. The presence of a papillary or in situ component in the renal pelvis, invasion as solid nests with stratified epithelium would support urothelial origin. Metastatic adenocarcinoma also needs to be considered and clinical history should be obtained in such cases to help exclude this clinically. Rumpelty et al., [1] found that collecting duct carcinoma stained strongly positively for Cytokeratin 19 and ulcer esaropaeus lectin but moderately for vimentin. Presently there is not a well established specific immuno-histochemical profile for collecting duct carcinoma, so it is better to restrict the diagnosis of collecting duct carcinoma to those tumors for which the gross pathological findings indicate this origin or which has the characteristic histological appearance described above. CDC generally pursues a more aggressive course than conventional Renal Cell Carcinoma. Metastasis to regional lymph node, bone, adrenal glands, lung, skin and meninges have been reported[6]. Majority of reported patients were treated by surgery and regional lymph node dissection followed by chemotherapy [7]. The prognosis is poor as more than 50% of the reported patients died within 2 yrs of presentation ([6].

CONCLUSION

The index case is very unusual in respect to its clinical presentation. Incidental detection of CDC in nephrectomy specimen is not reported previously. Due to its very aggressive course the patient usually present with metastatic disease and poor general condition. The patient at the time of presentation was having only calculi related pain in the right flank. His general condition was normal. A diuretic renogram detected a grossly hydronephrotic right kidney with significant impairment of parenchymal functioning. The IVP detected multiple renal stones in the pelvis. The patient underwent nephrectomy after which CDC was incidentally detected.

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