ORIGINAL RESEARCH PAPER

Urology

KEY WORDS: Transitional cell carcinoma, hydronephrosis, ureteropelvic junction obstruction

TRANSITIONAL CELL CARCINOMA ARISING IN GIANT HYDRONEPHROSIS DUE TO CONGENITAL URETEROPELVIC JUNCTION OBSTRUCTION; FIVE CASES EXPERIENCE AT IGIMS

Dr. Khalid Mahmood Associate Professor., Urology Dept. IGIMS, Patna.

Dr. Ahsan Ahmad* Associate Professor, Urology Dept. IGIMS, Patna. *Corresponding Author

Dr. Vishrut Bharti MCH, Student Urology Dept. IGIMS, Patna.

ABSTRACT

Objectives: transitional cell carcinoma(TCC) developing in giant hydronephrosis which is an extremely rare entity. Most urologists are not familiar with it. Here, we present our experience with five cases of this disease and a review of literature.

Materials and Methods: This is a retrospective study in a tertiary care center (IGIMS, Patna, Bihar, India) from January 2013 to February 2019.

Results: All the patients were in their fourth to sixth decades of life. large cystic abdominal lump and history of hematuria. was the most common presentation. On evaluation, they were diagnosed as a case of ureteropelvic junction obstruction(UPJO) with giant hydronephrosis and multiple papillary enhancing lesions in renal pelvis. Patients underwent radical nephroureterectomy. Histopathological analysis confirmed the presence of transitional cell carcinoma of renal pelvis.

Conclusion: Longstanding giant hydronephrosis in cases of UPJO might be a risk factor of developing TCC of renal pelvis.

INTRODUCTION

Chronic irritation or infection may cause a neoplastic changes in the urothelium. Long standing obstruction due to calculi have been associated with squamous cell carcinoma. However, multifocal Transitional cell carcinoma (TCC) arising in long standing giant hydronephrosis due to uretero pelvic junction obstruction(UPJO) is very rare . We report 5 cases of multifocal TCC arising in renal pelvis of long standing giant hydronephrosis due to UPJO.

MATERIALS AND METHODS

This is a retrospective study of a total of five patients who were diagnosed as a case of ureteropelvic junction obstruction (UPJO) with giant hydronephrosis and multiple papillary enhancing lesions in renal pelvis between January 2013 and February 2019 in the Urology Department of IGIMS, Patna, Bihar, India. The case records of these five cases were analyzed for clinical presentations; their urine analyzed , routine blood investigation including renal function test and a radiological and histopathological examination was done.

RESULTS

All patients were in their fourth to sixth decades of life. They presented with large upper abdominal lump of six to nine months duration . The lump was gradually increasing in size over the time and associated with dull ache and in two patients with intermittent low grade fever. They had no lower urinary tract symptoms (LUTS) but two to three episodes of gross hematuria. There was no associated co morbidity. Physical examination revealed large cystic lump occupying almost ½ to 2/3 of upper abdomen . Their routine blood investigation including renal function test were normal. Urine analysis revealed pus cells and 30-60RBCs/HPF but no growth on culture. Urine cytology was negative for malignant cells. Liver function test and chest x-ray were normal. Ultrasonoraphy (USG) showed grade IV hydronehrosis with thinned out renal parenchyma. There was multiple small papillary growth in renal pelvis .other kidney and ureter were normal. Computed tomography(CT) urography revealed grossly hydronephrotic non functioning kidney suggestive of ureteropelvic junction obstruction with multiple small papillary enhancing lesions in the renal pelvis. There was no regional lymphadenopathy .

Patient was operated for open radical nephroureterectomy through transperitoneal route. Gross specimen revealed large hydonephrotic kidney with very thin parenchyma. Cut section revealed multiple small growth of about 0.5-1.0cm confined to renal pelvis and away from ureteropelvic junction. Histopathological analysis confirmed the presence of transitional cell carcinoma of renal pelvis with anaplastic cells invading stroma of renal pelvis. They showed improvement in their symptoms on regular follow-up. Patients did not show any recurrence in one year of follow up.

Table1:

Case number	Age/ sex	Clinical feature	USG	Liver function test and Chest x-ray	Urine cytology	Computed tomography(CT) urography	Histopathological examination	Treatment given
1	60/m	abdominal lump , gross hematuria	grade IV hydronehrosis Right,with thinned out renal parenchyma	normal.	negative for malignant cells	grossly hydronephrotic non functioning right kidney suggestive of ureteropelvic junction obstruction with multiple small papillary enhancing lesions in the renal pelvis	transitional cell carcinoma of renal pelvis	Right open radical nephroureterectomy

2	55/m	abdominal lump, intermittent low grade fever and dull ache, gross hematuria	grade IV hydronehrosis Right,with thinned out renal parenchyma	normal.	negative for malignant cells	grossly hydronephrotic non functioning right kidney suggestive of ureteropelvic junction obstruction with multiple small papillary enhancing lesions in the renal pelvis	transitional cell carcinoma of renal pelvis	Right open radical nephroureter ectomy
3	48/m	abdominal lump, gross hematuria	grade IV hydronehrosis left,with thinned out renal parenchyma	normal.	negative for malignant cells	grossly hydronephrotic non functioning left kidney suggestive of ureteropelvic junction obstruction with multiple small papillary enhancing lesions in the renal pelvis	transitional cell carcinoma of renal pelvis	Left open radical nephroureter ectomy
4	44/f	abdominal lump, intermittent low grade fever and dull ache, gross hematuria	grade IV hydronehrosis right with thinned out renal parenchyma	normal.	negative for malignant cells	grossly hydronephrotic non functioning right kidney suggestive of ureteropelvic junction obstruction with multiple small papillary enhancing lesions in the renal pelvis	transitional cell carcinoma of renal pelvis	Right open radical nephroureter ectomy
5	39/m	abdominal lump, gross hematuria	grade IV hydronehrosis left,with thinned out renal parenchyma	normal.	negative for malignant cells	grossly hydronephrotic non functioning left kidney suggestive of ureteropelvic junction obstruction with multiple small papillary enhancing lesions in the renal pelvis	transitional cell carcinoma of renal pelvis	Left open radical nephroureter ectomy

DISCUSSION

Giant hydronephrosis defined by stirling as collection of more than 1000ml fluid in renal collecting system is not uncommon in cases UPJO(1). Cases of squamous metaplasia and calcified renal pelvis developing in giant hydronephrosis with primary UPJ obstruction have been sparsely reported in literatures(2-4). TCC and squamous cell carcinoma of renal pelvis presenting as UPJO is also well documented ,however, TCC developing in kidney with primary UPJO is very rare. Hoffmen et al found frequent association of dysplastic changes in collecting system of kidney in nephrectomy specimen of giant hydronephrosis(5). Chronic irritation and recurrent infection might be a possible mechanism of development of TCC .We are reporting this case because of rarity of its occurrence and to highlight the one of the rare complication of development of TCC in giant hydronephrosis in cases of UPJO .

Financial support and sponsorship Nil.
Conflicts of interest There are no conflicts of interest.

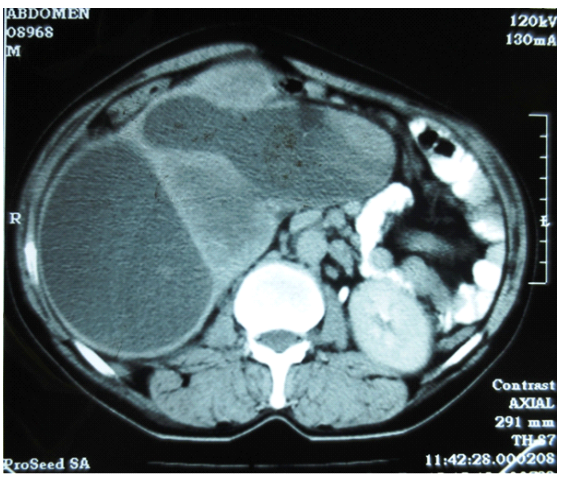

Figure1. Computerised tomography showing multiple contrast enhancing lesions in renal pelvis with giant hydonephrosis

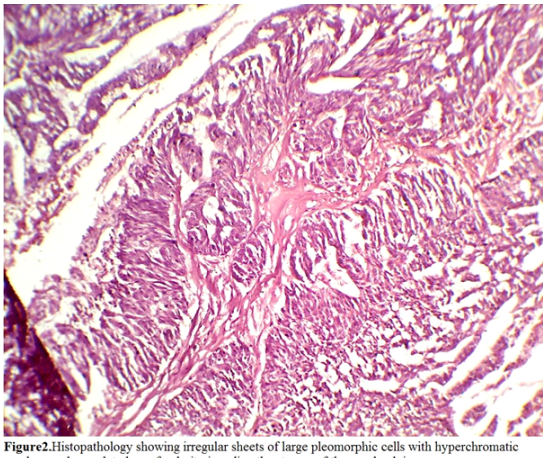

Figure2. Histopathology showing irregular sheets of large pleomorphic cells with hyperchromatic nucleus and complete loss of polarity invading the stroma of the renal pelvis

REFERENCES

1. Stirling WC. Massive hydronephrosis complicated by hydroureter. Report of 3 cases. J Urol. 1939;42:520–533.
2. Sangisetty KV, Randrup ER. Congenital giant hydronephrosis with unsuspected transitional cell carcinoma. Urology 1985;26:400-1.
3. Sakamoto A, T suchiyamah, HondaK, Taiwan I Hsuch Hui Tsachih Squamous cell carcinoma of the renal pelvis associated with giant hydronephrosis- Report of an autopsy case. Japanese journal of cancer clinics. 1986;321:901-07
4. Gold RP, Saitas V, Pellman C. Congenital ureteropelvic junction obstruction with calcified renal pelvis and superimposed spindle cell urothelial carcinoma. Urol Radiol 1990;12:15-7.
5. Mediavilla E, Ballestero R, Correas MA, Gutierrez JL. About a case report of giant hydronephrosis. Case Rep Urol 2013;2013:257969.