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RESEARCH ARTICLE

CASE REPORT UROTHELIAL CARCINOMA OF BLADDER WITH SARCOMATOID FEATURES AND GIANT CELL COMPONENT

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Abstract

Around 0.3 percent of all primary tumors of the urinary bladder are sarcomatoid carcinomas, a rare aggressive tumor with a poor prognosis. Histological diagnosis for urothelialcarcinoma plays a significant role but is challenging in several ways. Making a foundational diagnosis relies heavily on immunohistochemistry. We present a case of high-grade urothelial cancer with sarcomatoid characteristics and having components of giant cells. The case discusses an 80-year-old male who had been referred because of painless intermittent hematuria. A 32 m mass at the posterior and lateral walls of the urinary bladder without perivesical fat infiltration was detected during a computed tomography urography. Histopathology results from the transurethral resection of the patient showed pTa high-grade malignant giant urothelial carcinoma with spindle cell tumor. Due to recurrence, the patient underwent Re-TURBT twice in our institution and had a BCG re-induction intravenously. Given that it contained mesenchymal markers such as EMA, IHC corroborated the final diagnosis of sarcomatoid cancer. It is crucial to recognize the unusual variations of urinary bladder urothelial tumors because they have an impact on prognosis and general care. The diagnosis is largely determined by immunohistochemistry. For aggressive variants, radical cystectomy is the standard treatment; however, intravenous BCG may be beneficial for patients who are not fit for surgery.

Introduction:-

Sarcomatoid bladder cancer is a very aggressive and uncommon tumor and it's challenging to treat patients with thesevariations due to their aggressive and late presentation [1]. Bladder urothelial cancer has a tendency for multiple differentiation. Various variations include lymphoepithelioma-like, glandular, squamous micropapillary, giant cells, plasmacytoid, and sarcomatoid [1]. These variations are uncommon and are frequently associated with a poor prognosis. Additionally, 0.3 percent of all primary urothelial tumors of the bladder are sarcomatoid carcinoma (also known as malignant mixed mesodermal carcinoma and spindle cell carcinoma) [1]. The Features of histochemistry, various modes of presentation, and potential management strategies have been discussed in the case [2].

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Case presentation

An 80 years old male known case of Type 2 diabetes mellitus, hypertension, bronchial asthma, ischemic heart disease, Chronic AF, and ex-smoker presented to a secondary care hospital with a history of intermittent painless gross hematuria for 2 weeks. The patient has no history of significant LUTS, weight loss, fever, or night sweats.The patient had a history of primary Percutaneous Coronary Intervention two years back and he is currently on aspirin and Apixaban. On examination, the patient was vitally stable, the abdomen was soft, lax, and non-tender with no palpable masses. His Genital exam revealed a mildly enlarged prostate, with normal texture. Furthermore, Lab investigations showed normal blood count, normal renal and liver function with high red blood cells on urinalysis, and no malignant cells on urine cytology. The patient underwent CT Urogramthat showed oval shape lesion in the urinary bladder measuring around 3×2 cm in size with hyperdense content likely representing blood clots as shown in Figure 5.

The patient underwent transurethral resection of bladder tumor (TURBT) in another hospital setting and the histopathology showed high-grade urothelial carcinoma with sarcomatoid features and giant cells component (See below). After referral to this hospital, the patient underwent re-TURBT for recurrence of 4 small multiple papillary lesions and the histopathology showed a low-gradeurothelial carcinoma. The case was discussed in the tumor board and the plan was to start him on intravesical Bacillus Calmette and Guérin (BCG) therapy. After 6 doses of BCG induction, the patient underwent a follow-up cystoscopy which showed a recurrence of a small papillary lesion. He underwent transurethral resection of bladder tumor and the histopathology showed non-invasive high-grade papillary Urothelial carcinoma.

The case was discussed with the patient and his family regarding the management plan because the patient was unfit for major procedures like radical cystectomy. On further consultation, the patient underwent another cycle of intravesical BCG, including 6 doses of BCG. After completion of the session, cystoscopy showed no recurrence and cytology was negative for malignancy as well. Currently, the patient is ongoing maintenance therapy with BCG.

Discussion:-

Urothelial bladder carcinoma (UBC) is one of the most common malignancies of the genitourinary tract. It is well known for its various histological variants [1, 4].

About 80% of the UBC present as conventional urothelial carcinoma (UC), while the remaining 20% are represented by a divergent histological differentiation [4]. Identifying those variants is crucial due to their therapeutic and prognostic implications. We report a case of urothelial carcinoma with sarcomatoid and giant cell feature of 80 years male who presented to our hospital. Like conventional urothelial cells, a giant and a sarcomatoid variant of urothelial carcinoma occur more commonly in older male patients between the ages of 53 to 92 years. Unlike most tumor classifications that consider the giant cell variant to be a subtype of sarcomatoid variant, the classification of urothelial carcinoma considers the giant cell urothelial carcinoma variant to be distinct from the sarcomatoid variant. Sarcomatoid carcinoma has a significant spindle cell component while giant cell urothelial carcinoma presents as a sheet of pleomorphic multinucleated giant cells with abundant cytoplasm arranged in sheets that lacks the malignant spindle cell component. Both sarcomatoid and giant cell variants are well-recognized variants by the (WHO) cap system and are associated with poor prognosis.

The sarcomatoid variant accounts for less than 1% of all cases of urothelial carcinoma[6]. It is characterized by a highly pleomorphic spindle and mesenchymal differentiation [6]. Microscopic examination of our case revealed conventional high-grade papillary urothelial carcinoma with a component of sarcomatoid and giant cell dedifferentiation. The tumor exhibited a traditional epithelial component with an area composed of bizarre multinucleated giant pleomorphic cells arranged in sheets and nests, and areas of spindle cell differentiation as shown in fig. 1.

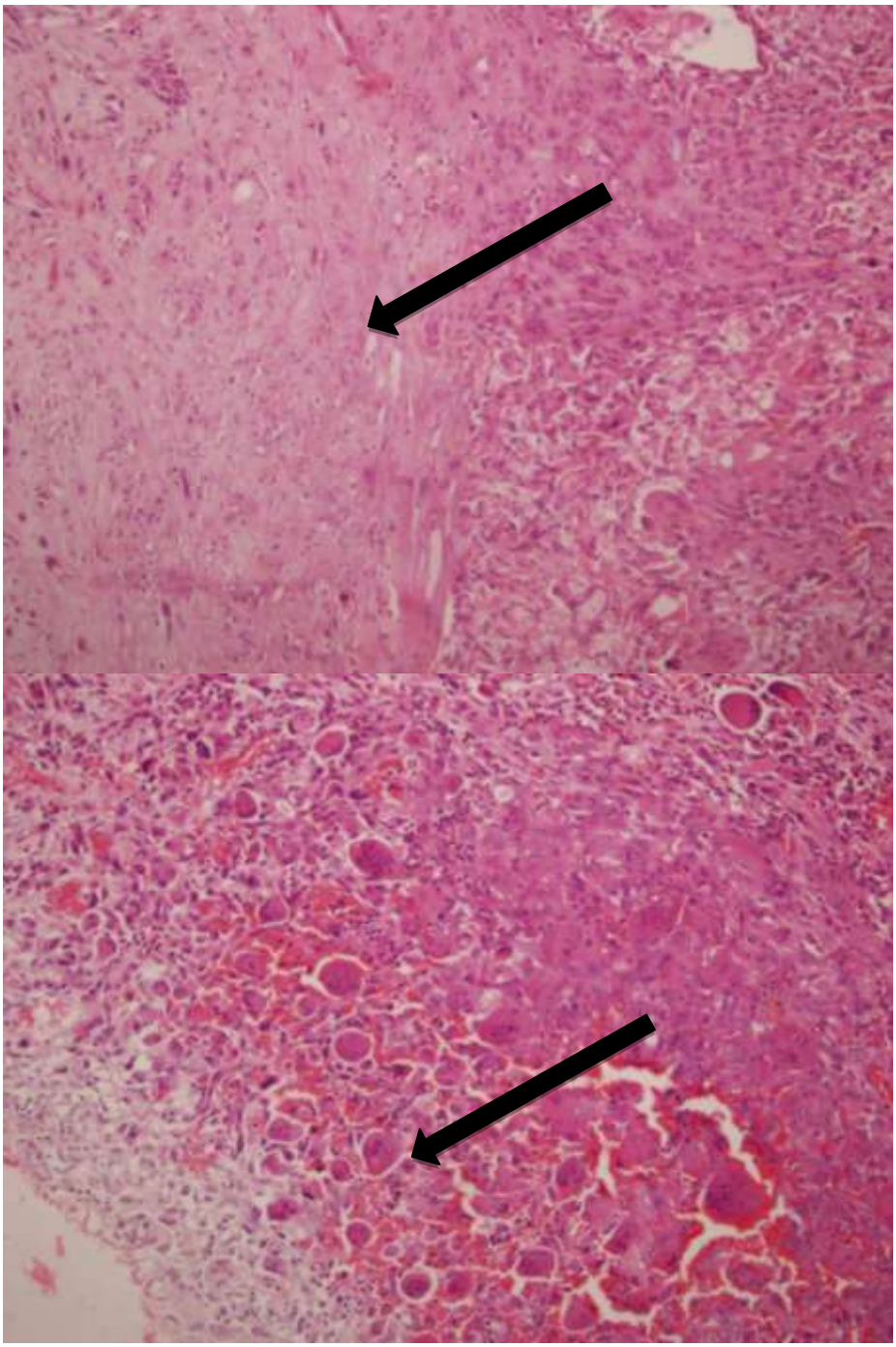

Figure 1.1:- Histopathology of lesion ShowingSarcomatoid and Giant Cell Differentiation.

The cells were hyperchromatic, pleomorphic, and showed frequent mitosis. The Primary Giant cell variant of urothelial carcinoma has to be differentiated from other metastatic malignancies such as melanoma, giant cell carcinoma, or sarcoma. The presence of coexisting conventional urothelial carcinoma as shown in Fig. 2 helps in excluding metastatic malignancy as a differential diagnosis as it was in our reported case. In cases where conventional urothelial carcinoma was not identified due to a small biopsy, other methods are used to correctly diagnose the tumor-like utilization of immunohistochemical (IHC) studies to identify the cell of origins such as cytokeratin stains (CK7, CK20), melanocytic markers, GATA3, and uroplakin III. While the conventional epithelial elements of the tumor were positive for cytokeratin, the sarcomatoid elements were negative for those markers while positive for mesenchymal markers as shown in figure 2. Ki 67 showed a high percentage of positivity which

illustrates the high proliferation rate. EMA was negative for the giant cell component while it showed weak positivity for the sarcomatoid component. P53 strong positivity illustrates the high-grade nature of the tumor.

To ensure accurate staging and histopathological subtyping, the current guidelines recommend that all tumor tissue be submitted for histopathological assessment. If the specimen is large, it is recommended to submit 20 g of tissue and a cassette for every additional 5 g [5]. Tumors with those variants usually present with lymphovascular invasion and lamina propria invasion which were identified in our case as shown in fig. 4. Due to the high proliferative rate as shown in fig. 5 and the aggressive nature of these subtypes, it is associated with very poor prognosis compared with other subtypes of urothelial carcinoma [5]. The molecular characteristics of Giant cell components are yet to be known. Patients often present at an advanced stage of cancer. Therefore, additional studiesneed to be conducted to better understand the nature of these tumors and their molecular basis to improve the management plan for future patients.

In addition, Radical Cystectomy is the preferred option for sarcomatoid bladder mass but as a result of the patient being unfit for surgery and family preference for non-surgical treatment, BCG therapy was opted for. In a study of 100 patients, 41 patients with the non-muscle invasive disease with variants pathology confirmed by second look biopsies were treated with intravesical BCG [3]. So, we started him on intravesical BCG and he had a one-time recurrence and now he has completed a re-induction dose of BCG with recent check cystoscopy showing no recurrence. The patient is currently on 1st maintenance intravesical BCG.

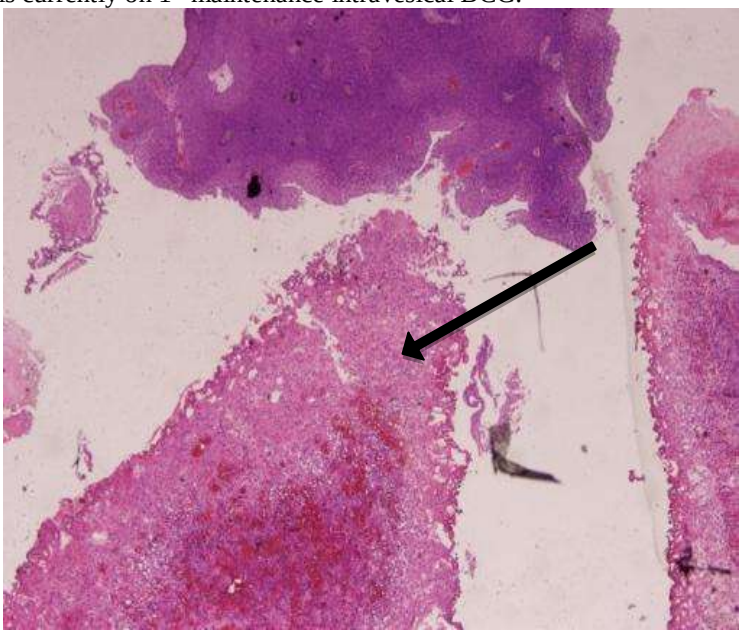

Figure 1.2:- Histopathology of lesion Showing Conventional Urothelial Carcinoma with Areas of Sacarmatoid Differentiation.

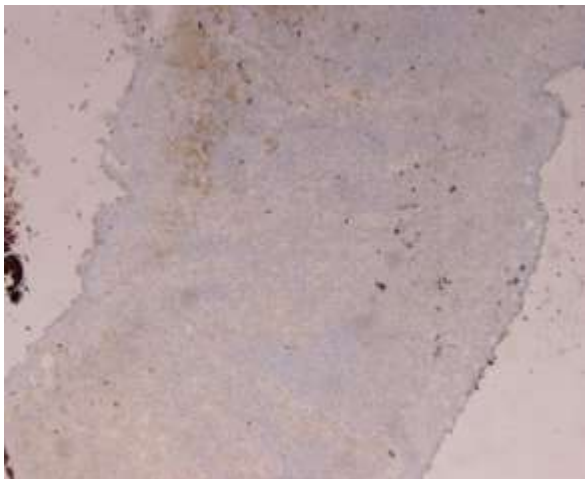

Figure 2.1:- CKstain Negative for Sarcamatoid Areas while showing Focal Positivity of Giant Cell Areas.

Figure 2.2:- EMA Stain Showing Focal Positivity of the Saracamoid Areas while Negative for the Giant Cell Areas.

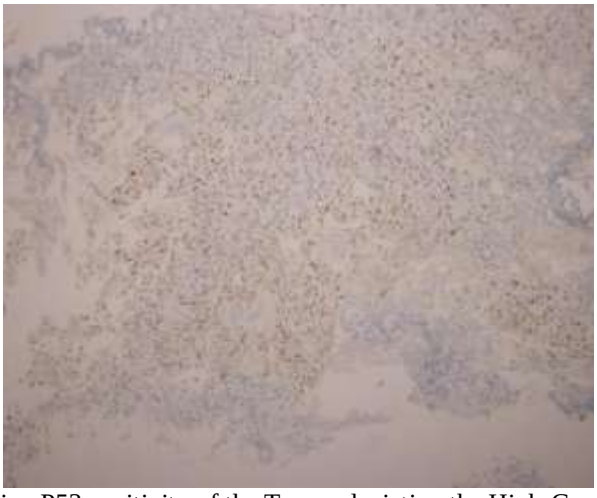

Figure 2.3:- Stain showing P53 positivity of the Tumor depicting the High-Grade Nature of the Tumor.

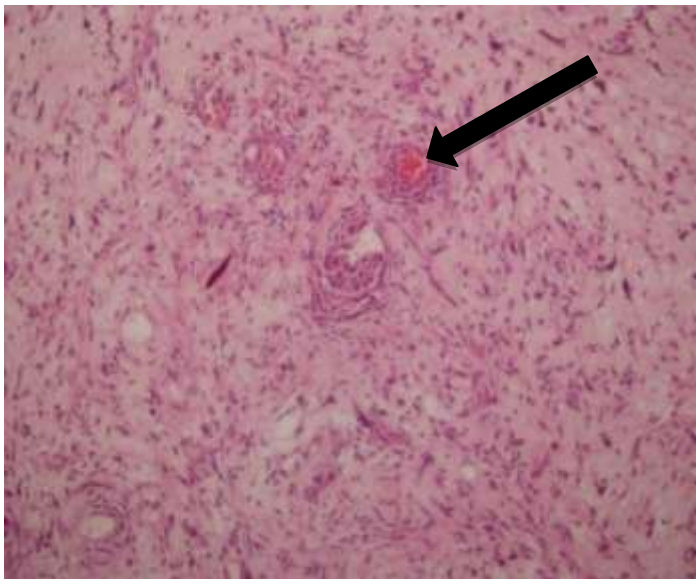

Figure 3:- 20x High Power Fields showing the Lamina Propria and Lymphovascular Invasion.

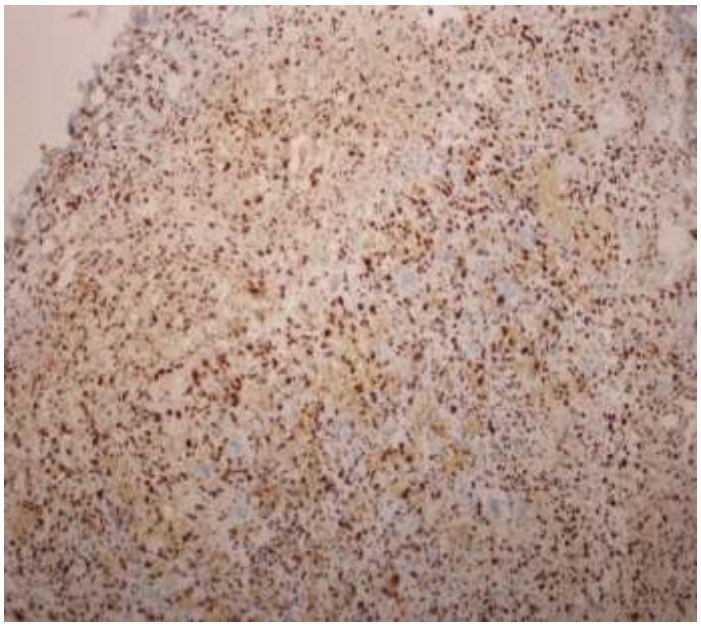

Figure 4:- 10x High Power Field of Ki 67 Stain shows the High Proliferative Rate of the Tumor.

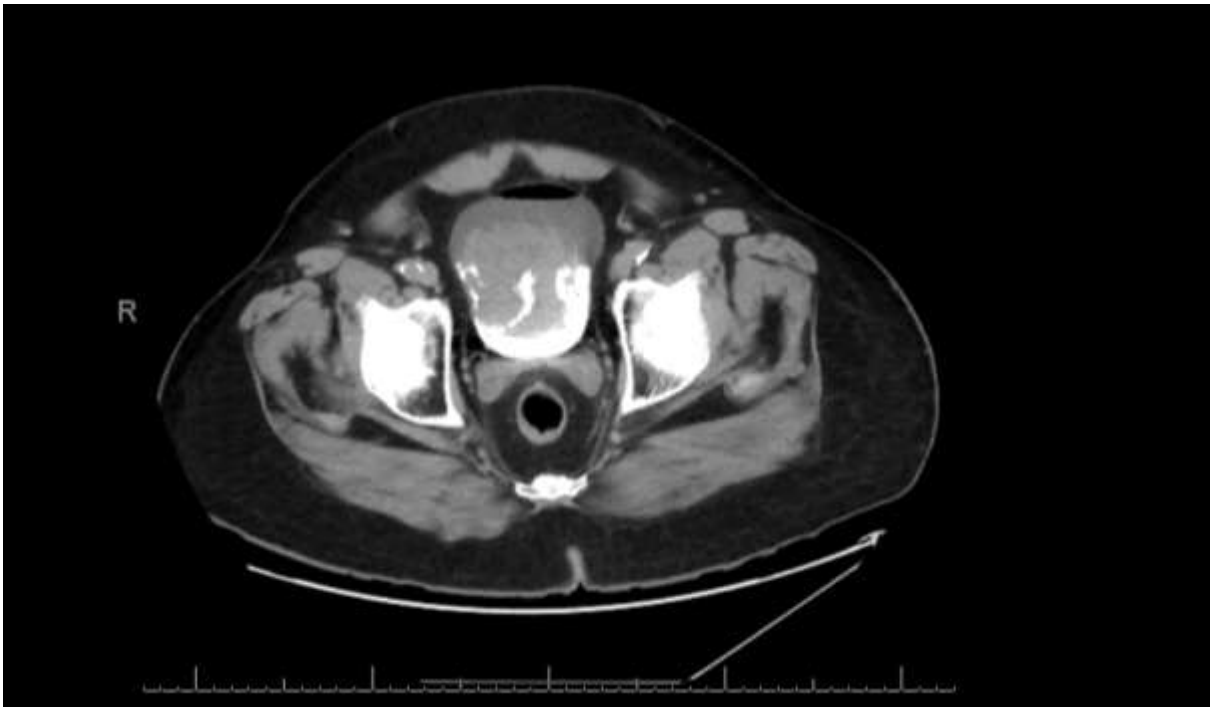

Figure 5.1:- CT Urogram axial view showing lesion in the urinary Bladder.

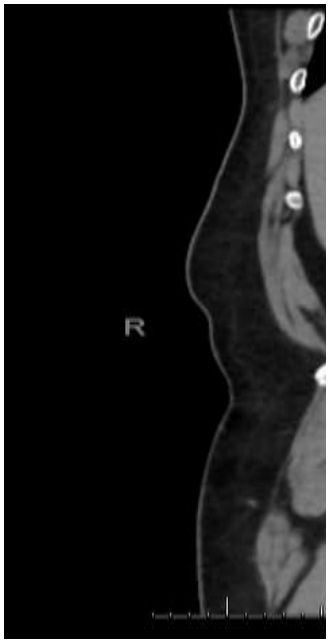

Figure 5.2:- CT Urogram coronal view showing lesion in the urinary Bladder.

Figure 5. CT Urogram

Conclusion:-

Immunohistochemistry and histopathology understanding is important for diagnosing different varieties of bladder cancer and to guide a management plan. Total Cystectomy is the preferredsurgery for Sarcomatoid carcinoma. Patient comorbidities should be considered before surgery and post-surgery quality of life must be taken into consideration as well. Intravesical BCG is not well known for its efficacy for sarcomatoid bladder tumors but can be consideredfor patients unfit for major surgery. We recommend further study and cases that might provide valuable information clinically and pathologically and further research into the subject to evaluate the prognosis.

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