

## Management of Bladder Tumor in Pregnancy: Report a Case and Review of the Literature

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### Abstract

Bladder cancer is one of the most common cancers of men between the ages of 60 to 70 years, but its occurrence in a young pregnant female is unusual. Until now less than 40 cases have been reported. Herein we report our experience in the diagnosis and management of a pregnant female with urothelial neoplasm of low malignant potential who has been treated with transurethral resection during pregnancy. She has had an uneventful pregnancy outcome. The patient also had an episode of recurrence, successfully treated with transurethral resection and intravesical mitomycin.

**Keywords:** Pregnancy, Urothelial neoplasm, Transurethral resection

### Introduction

Bladder cancer is one of the most common malignancies in men, but its occurrence in women is less common with a male to female ratio of 3-4:1.<sup>1</sup> The usual age of presentation is in the 6<sup>th</sup> and 7<sup>th</sup> decades of life.<sup>2</sup> The occurrence of the bladder cancer in a young pregnant female is very unusual and less than 40 cases have been reported thus far. Pregnancy and cancer are two biologic conditions in which antigen tissue is tolerated by an intact immune system.<sup>2</sup>

Herein we report our experience with the diagnosis and treatment of a 33-year-old pregnant patient with bladder urothelial neoplasm of low malignancy.

### Case Report

A 33-year-old nonsmoker healthy pregnant woman presented with the chief complaint of several episodes of painless gross hematuria since two months prior to admission. It was her third pregnancy (gravida 3, para 2) and she was in the 24<sup>th</sup> week of

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gestation. The patient had no history of any tobacco use, occupational or chemical exposures, urinary tract infection or stones. There were no complaints of any dysuria, fever, nausea, vomiting or flank pain.

Physical examination was completely normal. Laboratory examination showed normal renal and liver function tests. Hematologic work ups also were normal, except for a gradual decrease in hemoglobin from 13.6 mg/dl prior to her hematuria to 10.4 mg/dl on admission. Urine analysis showed numerous RBCs with no casts or crystals. Urine culture was negative.

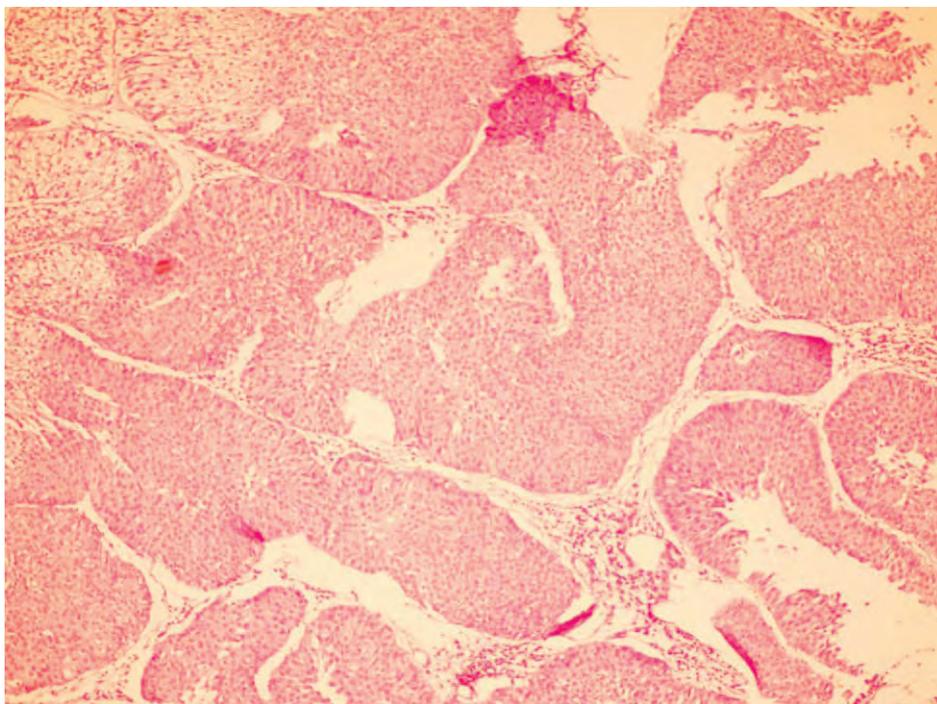
Ultrasonographic examination showed pregnancy-related mild bilateral hydronephrosis, but no stones, and the presence of multiple masses at the base and lateral walls of the urinary bladder, each which measured less than 1 cm.

The patient was admitted and intravenous fluids administered in conjunction with prophylactic antibiotics. Signed informed consent was obtained from the patient and her husband regarding the possibility of anesthesia and surgical complications. Under general anesthesia, she underwent a cystoscopy and transurethral resection (TUR) which confirmed the diagnosis of bladder

tumor. Ureteric orifices were normal, with no loss of blood. The patient was discharged the second day after surgery in good general condition. Pathology specimen was positive for aurothelial neoplasm of low malignant potential (WHO grade II/IV) (Figure 1).

The duration of her pregnancy was without complication and she had an uneventful normal vaginal delivery at the expected date.

Although follow up cystoscopy after delivery was unremarkable, she continued to be followed by urine analysis and cytology. After six months she developed another episode of hematuria. Ultrasonographic study showed three small masses at the base of the bladder and a mass located at the left lateral wall of the bladder, each which measured less than one cm (Figure 2). Intravesical mitomycin injections were performed. Pathologic examination showed the same histopathology as the first episode. During and after the second episode she remained under strict follow up by urine cytology and ultrasonography. After 22 months, she has remained completely well and symptom-free to be followed again.



**Figure 1.** Papillary urothelial neoplasm of low malignant potential (H&E, 250×).

## Discussion

Bladder carcinoma is the eighth most common malignancy in women, encompassing 2% of female cancers.<sup>2</sup> The most common age of onset in female patients is the 6th to 7th decades of life, following menopause.<sup>3</sup> Diagnosis of bladder cancer during pregnancy is a rare event of which there are less than 40 cases that have been reported in the literature. It has also been reported in a twin pregnancy.<sup>3</sup> Most reported cases were non-muscle invasive bladder carcinomas and a few cases of muscle invasive tumors.<sup>4,5</sup>

The most common presenting symptom has been painless microscopic or gross hematuria in the reported cases; however other less common signs and symptoms have been dysuria, urgency, and abdominal pain.<sup>4</sup>

Cystitis is the most common cause of hematuria during pregnancy. Therefore, complete urologic examination should be performed if the patient is unresponsive to medical therapy.<sup>4</sup>

The most common method of diagnosis in the previous cases was pelvic ultrasonography, particularly since in some cases, hematuria was

initially mistaken as vaginal bleeding.<sup>5</sup> In the previous cases cystoscopy and intravenous urography have been also used as the primary methods of diagnosis.<sup>4</sup> Flexible cystoscopy under local anesthesia is a useful procedure for evaluation of hematuria during pregnancy.<sup>4</sup>

In all of the previous cases, the patients were initially treated by TUR.<sup>6,7</sup> In most previous experiences TUR has been successful during pregnancy with an uneventful outcome, however recurrences after pregnancy have been a common complication.<sup>2-4</sup>

There are rare reports of treatment with intravesical bacilli Calmette-Guerin (BCG) immunotherapy during the second trimester of pregnancy with safe results,<sup>2,7</sup> however we did not perform any therapy except for TUR, because BCG has been designated as pregnancy category C.<sup>2</sup>

According to previous reports, most of the positive outcomes of bladder cancer during pregnancy have been in superficial bladder cancers but prognosis of cases with superficial invasion and locally advanced urothelial carcinoma in pregnant women have been poor, necessitating



**Figure 2.** Sonography of the bladder lesion.

more radical treatments.<sup>5</sup>

Spahn and coworkers have concluded that treatment modalities for bladder cancer during pregnancy only differ in some details, as follows. Prognosis is good for low risk tumors (single, PTa, G1, <3cm) and the successful treatment option is TUR (four cases reported); in intermediate risk tumors (PTa-T1, G1-2, multifocal, >3 cm) the standard treatment is complete TUR followed by second look TUR 4-6 weeks later for elimination of any remaining tumor (more than 7 cases reported); and for high risk tumors (PT1, G3, CIS) the recommended standard treatment is complete TUR of all papillary lesions followed by second look TUR after 4-6 weeks later to check for any residual or progressive tumor. Use of intravesical BCG is in doubt. Some authors recommend the use of BCG during the first and second trimesters and induction of delivery during late second and third trimesters, followed by administration of BCG after delivery.<sup>8</sup>

The current recommendations for non-muscle invasive bladder tumors (Ta, T1 and Tis) include the diagnosis which mainly depends on cystoscopic examination, biopsy and urine cytology. To date, molecular urinary markers have not improved the combination of cystoscopy and cytology. The standard initial therapy for Ta and T1 papillary tumors is complete macroscopic TUR that includes a part of the underlying muscle, followed by a second TUR if there is a suspicion that the initial one was incomplete. Tis tumors cannot be eradicated by TUR and further treatment is mandatory.<sup>11</sup>

Our case initially presented with painless gross hematuria and was treated safely by TUR, with an uneventful pregnancy outcome. However we added intravesical mitomycin for the recurrent tumor after delivery, with a positive result, even after 22 months of follow up.

In conclusion, bladder cancer in pregnancy should be suspected in those patients with hematuria, because it can mimic other more common complications of pregnancy.

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