

Primary Presentation of Ovarian Cancer with Bladder Outlet Obstruction/Chronic Urinary Retention in a 12-Year Old Female

Charles Azuwiki Odoemene^{1*}, Ijeoma Ezeome², Okechukwu Charles Okafor³

¹Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Nigeria

²University of Nigeria Teaching Hospital, Enugu, Nigeria

³Department of Morbid Anatomy, University of Nigeria Teaching Hospital, Enugu, Nigeria

Email: *odoemenec@yahoo.com, ezeomeij@gmail.com, okechukwu.okafor@gmail.com

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Abstract

Urinary retention in women is rare and is more frequently described as case reports or small case series. The female/male ratio is 1:13 with about 3 cases per 100,000 women every year. We report a case of a 12-year old female student. She presented with progressive weight loss, worsening lower urinary tract symptoms with distended lower abdomen of 10 weeks duration. Physical examination revealed a mobile tender firm pelvic mass, 18 centimeters (cm) × 16 cm in size. Laboratory and imaging studies showed obstructive nephropathy and uropathy respectively. She was worked up and had uneventful exploratory laparotomy with right salpingo-oophorectomy, urinary bladder diverticulectomy and pelvic lymphadenectomy. Histopathology of the pelvic mass showed ovarian dysgerminoma with lymph node metastasis. She responded very well to chemotherapy and resumed her school activities. Bladder outlet obstruction is relatively rare in females and in the index patient, ovarian dysgerminoma is the cause leading to obstructive nephropathy and uropathy.

Keywords

Bladder Outlet Obstruction, Chronic Urinary Retention, Pelvic Mass, Ovarian Dysgerminoma, Chemotherapy

1. Introduction

Urinary retention implies a difficulty in passing urine or completely emptying the urinary bladder and it can be acute or chronic. Urinary retention in women is rare with about 3 cases per 100,000 women every year [1]. The female/male ratio is 1:13 [1] [2]. In short, urinary retention in females is more frequently de-

scribed as case reports or small case series with unusual causes [2]. Two common causes of chronic urinary retention in women are detrusor dysfunction and obstruction [1]. Urinary symptoms such as hesitancy, straining, poor urinary stream and feeling of incomplete emptying of the urinary bladder are clearly suggestive of bladder outlet obstruction in women [3] [4] [5].

Anatomical non-iatrogenic causes of bladder outlet obstruction in females include pelvic organ prolapse, vaginal masses like cysts, urethral pathology like diverticulum, carcinoma, gynaecological lesions like large ovarian cysts, tumors, cervical, uterine tumors and pregnancy due to uterine displacement [4].

We present the case of a 12-year old female student with ovarian cancer who presented with lower urinary tract symptoms and chronic urinary retention with urinary tract infection (UTI) and overflow incontinence to the urologist and her successful management.

2. Case Report

Miss A, a 12-year old Nigerian student presented at the accident and emergency department with about 3 months worsening symptoms of progressive weight loss, daytime frequency, nocturia, overflow incontinence, feeling of incomplete emptying of the bladder and lower abdominal pain. There was no haematuria.

She was cachectic, clinically pale, anicteric. The chest was unremarkable. There was lower abdominal distension. A tender mobile mass 18 cm × 16 cm which was firm in consistency was palpated. A working diagnosis of bladder outlet obstruction secondary to a pelvic mass was made. She was aseptically catheterized with a size 12F (all silicone) two-way Foley catheter and 350 milliliters (mLs) of turbid offensive urine drained.

Haematological investigations, serum electrolytes, urea and creatinine, etc. are as shown in **Table 1**.

Abdominopelvic ultrasonography showed a solid pelvic mass posterior to and compressing the urinary bladder with hypoechoic and highly echogenic areas measuring 18.94 × 11.24 cm, there was also bilateral hydronephrosis with hydroureter.

Intravenous urography after normalization of serum electrolyte, urea and creatinine showed bilateral hydronephrosis and hydroureter, bladder diverticulum in keeping with bladder outlet obstruction (**Figure 1**).

The anemia was corrected by blood transfusion, the UTI treated with ceftriaxone. The patient was worked up and prepared for laparotomy. Via a mid-line abdominal incision, the peritoneum and pelvis were explored. The mass was mobilized off the posterior wall of the urinary bladder. Within the mass were embedded the right ovary and the right fallopian tube. There was pelvic and iliac lymphadenopathy. A urinary bladder diverticulum was noted. The mass with the right ovary and right fallopian tube within was resected. Pelvic and iliac lymphadenectomy was done. She had an uneventful post-operative recovery. The indwelling urethral catheter was removed on the seventh-day post-operatively. The

Table 1. Haematological and other laboratory investigations.

Parameters	Results	Range
Haemoglobin (HB)	7.2 gm/dL	11.0 - 16.0 gm/dL
Platelet count	165,000/mm ³	150,000 - 400,000/mm ³
Erythrocyte sedimentation rate	104 mm/hr.	0 - 29 mm/hr (women)
Total White Blood Cell (WBC) Count	11,800/mm ³	4000 - 10,000/mm ³
Differential	<ul style="list-style-type: none"> ▪ Neutrophil—80% ▪ Lymphocyte—19% ▪ Eosinophil—01% ▪ Basophil—0 ▪ Monocytes—0 	
1) Serum Electrolytes, Urea and creatinine (Pre-catheterization)	<ul style="list-style-type: none"> ▪ Na⁺—137 mmol/L ▪ K⁺—5.6 mmol/L ▪ Cl⁻—98 mmol/L ▪ HCO₃⁻—24 mmol/L ▪ Urea—168 mmol/L ▪ Creatinine—3.2 mmol/L 	(135 - 145) (3.5 - 5) (96 - 110) (22 - 30) (10 - 40) (0.4 - 1.6)
2) Serum Electrolytes 1 week post catheterization	<ul style="list-style-type: none"> ▪ Na⁺—140 mmol/L ▪ K⁺—3.2 mmol/L ▪ Cl⁻—100 mmol/L ▪ HCO₃⁻—26 mmol/L ▪ Urea—35 mg/dL ▪ Creatinine—1.0 mg/dL 	(135 - 145) (3.5 - 5) (96 - 110) (22 - 30) (10 - 40) (0.4 - 1.6)
3) LIVER FUNCTION TEST	<ul style="list-style-type: none"> ▪ Billirubin total 0.5 mg/dl ▪ AST 20.3 IU/L ▪ ALT 6.5 IU/L ▪ Alk Phosphatase 94 IU/L 	(<1) (<50) (<50) (<129)
Gamma Glutaryl Tranaminase	19 iu/L	(<40)
Lactate dehydrogenase	190 iu/L	(120 - 240)
HIV	Negative	
HBsAg	Negative	
HCV	Negative	
b-chorionic Gonadotrophin	Negative	
URINE CULTURE	Yielded heavy growth of <i>E. coli</i> sensitive to ceftriaxone	

**Figure 1.** Intravenous urography showing hydronephrosis with hydroureter.

patient was discharged on the tenth-day post-operatively to the outpatient department. Histology report showed ovarian dysgerminoma. The sections from the ovary and retroperitoneal lymph nodes are similar and show a malignant germ cell tumour made up of broad and thin trabeculae of pleomorphic malignant cells. These cells have abundant amphophilic cytoplasm and large vesicular nuclei with a prominent eosinophilic nucleolus. Between the tumour trabeculae, there are fibrous connective tissue columns that contain many lymphocytes. Within the tumour masses, there are multinucleated giant tumour cells of trophoblastic type. Some of the blood vessels within the tumour show intravascular tumour dissemination (**Figure 2, Figure 3**).

Patient was referred to the oncologist for chemotherapy and she did well after the course of chemotherapy and resumed her academic activities. She was lost to follow up after 10 months.

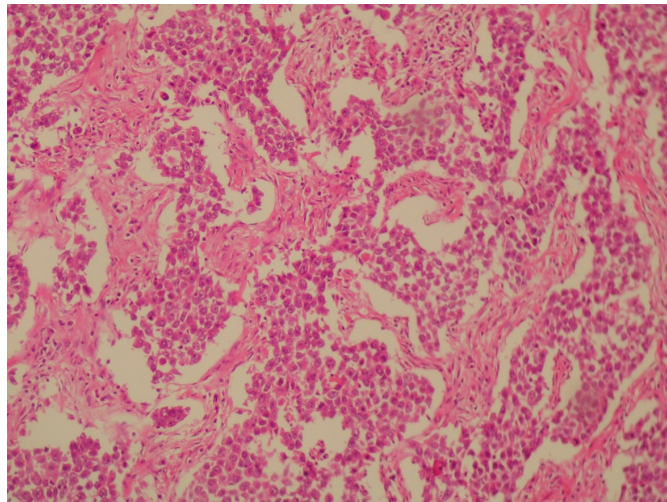


Figure 2. H&E \times 150 magnification ovarian dysgerminoma. There are anastomosing trabeculas of tumor cells separated by fibrous bands that contain lymphocytes.

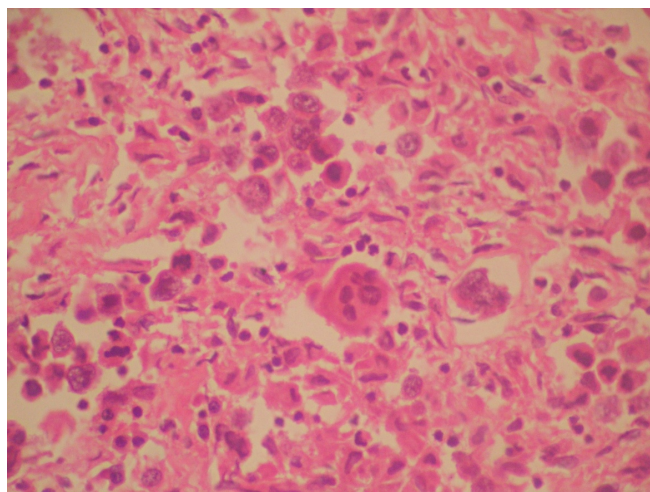


Figure 3. H&E \times 300 magnification ovarian dysgerminoma. Note the frequent multinucleated tumor giant cells among the other tumor cells.

3. Discussion

Although relatively common in men, bladder outlet obstruction is relatively uncommon in women in clinical practice and the etiological factors more diverse in females than in males [3]. The mechanism of obstruction could be urethral compression, bladder neck distortion or luminal occlusion [2]. In the index patient, the ovarian tumor compressed and distorted the bladder neck causing lower urinary tract symptoms, impaired detrusor emptying with increasing residual urine volume. Furthermore, there was associated daytime urinary frequency, nocturia, urgency, poor urinary stream, intermittency, terminal dribbling and feeling of incomplete emptying of the urinary bladder. Storage and voiding symptoms can coexist in bladder outlet obstruction in females making it a challenge in clinical practice to make an accurate diagnosis and offering the best form of treatment [6]. Both urgency urinary incontinence and overflow incontinence coexisted in this patient. Urinary incontinence adversely impacts the patient, family members and the health care system with abstinence from routine activities, increased rate of depression and reduced quality of life [7]. The index patient experienced all these and dropped out of school with depression. In addition, the patient with overflow urinary incontinence has high residual urine volume with associated high pressure within the bladder which at this stage is considered as high-pressure chronic retention and can cause renal impairment [7]. The index patient at presentation, laboratory and ultrasound studies showed obstructive nephropathy and uropathy respectively. A total of 350 mL turbid offensive urine was drained from the urinary bladder on aseptic urethral catheterization and the patient was admitted and monitored for complications. The patient in the first 72 hours following catheter insertion made a daily average of 3 liters of urine which was promptly replaced with intravenous fluids to avoid dehydration and shock. Drainage of more than 300 mL of urine from the bladder after voiding suggests urinary retention [1], and the condition is best managed in a hospital setting with the patient monitored for post obstructive diuresis [7]. Imaging studies like abdominopelvic ultrasound, CT imaging have been advocated in the investigation of these patients [1] [3] [5] [6] [8] [9]. Abdominopelvic ultrasonography was utilized to unravel the etiology of this condition. Furthermore, ultrasonography could be useful in estimating the residual urine volume [3] [5] and detection of greater than 200 mL of urine in the bladder after voiding is suggestive of overflow urinary incontinence [10]. This patient did not experience acute urinary retention. Acute urinary retention in females is due to impacted pelvic masses that displace the cervix superiorly and anteriorly compressing the lower bladder leading to obstruction of the internal urethral orifice [11]. The pelvic mass was mobile in the index patient and not impacted with the internal urethral orifice partially obstructed. The lower abdominal pain the patient had was due to pressure from the mass and urinary tract infection caused by *E. coli*.

While lactate dehydrogenase (LDH) levels are known to be elevated in some patients with dysgerminoma, our patient had normal values of LDH and β -cho-

rionic gonadotrophin (β HCG). She had complete resection of the mass with right salpingo-oophorectomy followed by chemotherapy with bleomycin, etoposide and cisplatin (BEP). Even patients with incompletely resected dysgerminoma can be rendered disease-free with a combination of cisplatin, vinblastin, and bleomycin (PVB) [12]. A number of patients had one or more successful pregnancies following unilateral salpingo-oophorectomy [13]. However, our patient was lost to follow up after 10 months of having resumed her academic activities and in excellent health.

4. Conclusion

Although relatively common in men with voiding dysfunction, bladder outlet obstruction is relatively rare in women. In this patient right ovarian cancer was the cause of complications of obstructive uropathy and nephropathy, the patient and her relative concern was the disabling lower urinary tract symptoms oblivious of the underlying pathology. The onus thus lies on the attending clinician to evaluate the patient diligently and unravel the pathology and in this case, a right ovarian dysgerminoma which responded excellently to chemotherapy with the patient resuming her academic activities.

Author Contributions

Study design: Dr. Charles A. Odoemene, Dr. Mrs. Ijeoma Ezeome, Dr. Okechukwu Charles Okafor.

Data acquisition: Charles A. Odoemene, Dr. Mrs. Ijeoma Ezeome, Dr. Okechukwu Charles Okafor.

Data analysis: Charles A. Odoemene, Dr. Mrs. Ijeoma Ezeome.

Drafting of the manuscript: Charles A. Odoemene, Dr. Mrs. Ijeoma Ezeome, Dr. Okechukwu Charles Okafor.

Critical revision of the manuscript: Charles A. Odoemene, Dr. Mrs. Ijeoma Ezeome, Dr. Okechukwu Charles Okafor.

Parents Informed Consent

We attest that the patient's parents gave consent for the publication of this case.

Conflicts of Interest

The authors have no conflicts of interest.

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