



(RESEARCH ARTICLE)



## Urological problems among women with major gynecological surgeries at a tertiary hospital in Port Harcourt, Nigeria.

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### Abstract

**Introduction:** Urological problems are common in women, especially those undergoing surgeries, due to the proximity of the urinary tract and the reproductive tract. This study aims to present the complications of major gynecological surgeries in our institution.

**Materials and Methods:** This study reviewed sixty-one case notes of patients who had gynecologic surgeries at Rivers State University Teaching Hospital, Port Harcourt. The data were analyzed using SPSS, and the results were presented in tables and charts.

**Results:** The mean age of the patients was 38.51 years. Forty-eight (78.7%) had myomectomy; 8.2% total had an abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH+BSO); and 4.9% had ovarian cystectomy. Those with pelvic tumors were 78.7%, and tumors with hypertension were 14.8%. Eight patients (13.1%) had urinary tract infections, while 7 (11.5%) had abnormal abdominal ultrasound findings, and 3.3% had abnormal renal function with serum creatinine above 120 micromoles per liter. Urinary tract infections were the most common urological problem among the women. Risk factors for urological problems were pelvic tumors (mostly uterine fibroids), hypertension, previous pelvic surgeries, and uterovaginal prolapse. Seven patients had lower urinary tract symptoms. Frequency of micturition and dysuria were the most common urinary tract symptoms.

**Conclusion:** The most common lesions were urinary tract infections. Findings made here differ from those of other studies in which findings were mostly of iatrogenic urological injuries. The most common risk factors were pelvic tumors which caused mechanical obstruction to the urine flow. Early detection and treatment of pelvic tumors and hypertension are advocated in this population.

**Keywords:** Urological problems in women; Risk factors; Major gynecological surgeries; Port Harcourt; Nigeria

### 1. Introduction

The female reproductive tract has proximity to the urinary tract. Therefore diseases or surgeries involving the female reproductive tract may be associated with concomitant urinary tract injuries or abnormalities. [1, 2] The complications may arise due to the direct effect of a primary pathology of the urinary tract, or as a complication of the treatment, which may be iatrogenic. The incidence of iatrogenic injury to the urinary tract is 0.3% to 1.8%, with an overall incidence of less than 1% following hysterectomies. [2] About 75% of urinary tract injuries occur during gynecological operations, with about 75% of surgeries being performed for benign indications [3]. Studies have shown that 25% to 95% of injuries

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may not be recognized immediately. In such cases, the diagnoses of urological injuries are made in the postoperative period.

The organs commonly injured are the urinary bladder, the ureters, and the urethra. Timely recognition of intra-operative injuries, investigation, and treatment is crucial for the reduction of the impact of injuries and their complications on patients as well as the surgeon.

Ureteric injuries commonly follow abdominopelvic procedures, and in 75% of cases, it is iatrogenic [4]. Late recognition may lead to the formation of urinoma, abscesses as well as ureteric loss, and delayed patient recovery. The common sites of ureteric injury include the point where it is close to the infundibulopelvic ligament, at the pelvic brim, and close to the uterine cervix level where it runs under the uterine artery to enter the renal pelvis. [5]

Injury to the urinary bladder is the most common urinary tract complication following gynecological surgeries, and this, if recognized intraoperatively, can be repaired immediately.

The major gynecological surgeries vary and include total abdominal hysterectomy with or without bilateral salpingo-oophorectomy. The latter may be simple or extended. Others include vaginal hysterectomy, ovariectomy, myomectomy, and vulvectomy. The anatomical parts of the urinary tract that are commonly injured, and the nature of the injuries usually depend on the type of surgical procedure being performed.

Some urological problems may also occur due to complications from the primary pathology, as seen in cases of substantial uterine fibroids causing obstructive uropathy with subsequent urinary tract infection and its sequelae. The clinical presentation depends on the primary pathology. Lower urinary tract symptoms such as urgency, frequency, urinary incontinence, and nocturia usually accompany pelvic tumors such as uterine fibroids. [6] The fibroid nodules can compress or become adherent to the urinary bladder and surrounding pelvic organs. They can also compress the lower ends of the ureters and the urethra resulting in lower urinary tract symptoms, and obstruction of the upper urinary tract [7]. The aim of this study is to present common urological lesions that require major gynecological operations and urological complications of gynecological practice in this tertiary hospital.

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## 2. Material and methods

This study was conducted at Rivers State University Teaching Hospital (RSUTH), Port Harcourt. It involved a cross-sectional study of case files of patients who had major gynecological surgical procedures in the hospital from January 1 to December 31, 2021. One hundred and eleven major gynecological surgeries were performed during the study period. Out of these, sixty-one case records were retrieved from the medical records with the aid of the case files and numbers obtained from the Gynecological Ward registers. Socio-demographic data and other relevant information were obtained using a semi-structured proforma. The data were entered into an excel sheet and exported to SPSS version 20, which was used for the analysis. The outcome was expressed in frequency tables and charts.

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## 3. Results

Out of the one hundred and eighteen women who had major gynecological surgeries, access it was possible to get access to only sixty-one (52%) of their case files. The mean age of the patients was 38.51 years. The majority of them were married and had at least secondary education. About 91.8% of the subjects were pre-menopausal, while 67.2% were nulliparous. The other socio-demographic characteristics are shown in Table 1 below.

The distribution of the major gynecological surgeries as well as those with relevance to the urinary tract are shown in Table 2 below, with myomectomy being the most common (78.7%).

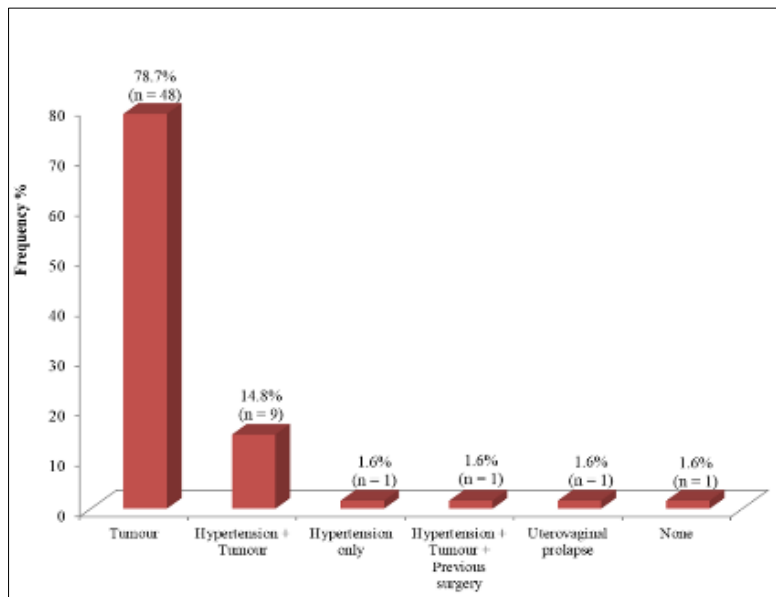
The risk factors for urological problems identified among these patients were; pelvic tumors (mostly uterine fibroid), hypertension, previous pelvic surgeries, and uterovaginal prolapse with some of the patients having multiple risk factors. Majority (78.7%) of the patients had tumors as the only risk factors. The other combination of risk factors and their frequencies are shown on figure 1 below.

**Table 1** Socio-demographic and obstetric characteristics of women that underwent gynecological surgeries at RSUTH, Port Harcourt, Nigeria

Variables (N = 61)	Frequency	Percentage
<b>Age category</b>		
25 – 29 years	6	9.8
30 – 34 years	18	29.5
35 – 39 years	13	21.3
40 – 44 years	12	19.7
≥45 years	12	19.7
<i>Mean ± SD = 38.51±9.37years; Median = 38years; Range = 25 – 66 years</i>		
<b>Marital status</b>		
Single	19	31.1
Married	41	67.2
Widowed	1	1.6
<b>Educational level</b>		
Primary	3	4.9
Secondary	23	37.7
Tertiary	35	57.4
<b>Employment status</b>		
Unemployed/Retiree	5	8.2
Student	4	6.6
Employee	14	23.0
Self-employed	38	62.3
<b>Ethnic Group</b>		
Igbo	14	23.0
Ikwerre	8	13.1
Ogoni	7	11.5
Ijaw	11	18.0
Others	21	34.4
<b>Parity</b>		
Para 0	41	67.2
Para 1 – 2	9	14.8
Para 3 – 4	3	4.9
Para ≥5	8	13.1
<i>Median = Para 0; Range = Para 0 – 12</i>		
<b>Menopausal status</b>		
Pre-menopausal	56	91.8
Post-menopausal	5	8.2

**Table 2** Major gynecological surgeries performed at RSUTH, Port Harcourt, from January to December, 2021

Type of surgery done	Frequency	Percentage
Myomectomy	48	78.7
TAH + BSO	5	8.2
Cystectomy (ovarian)	3	4.9
Adenomyosis/resection	1	1.6
Excision of clitoral cyst	1	1.6
Exploratory laparotomy for ovarian cancer	1	1.6
Vaginal hysterectomy	1	1.6
Vulva carcinoma (wide local excision)	1	1.6



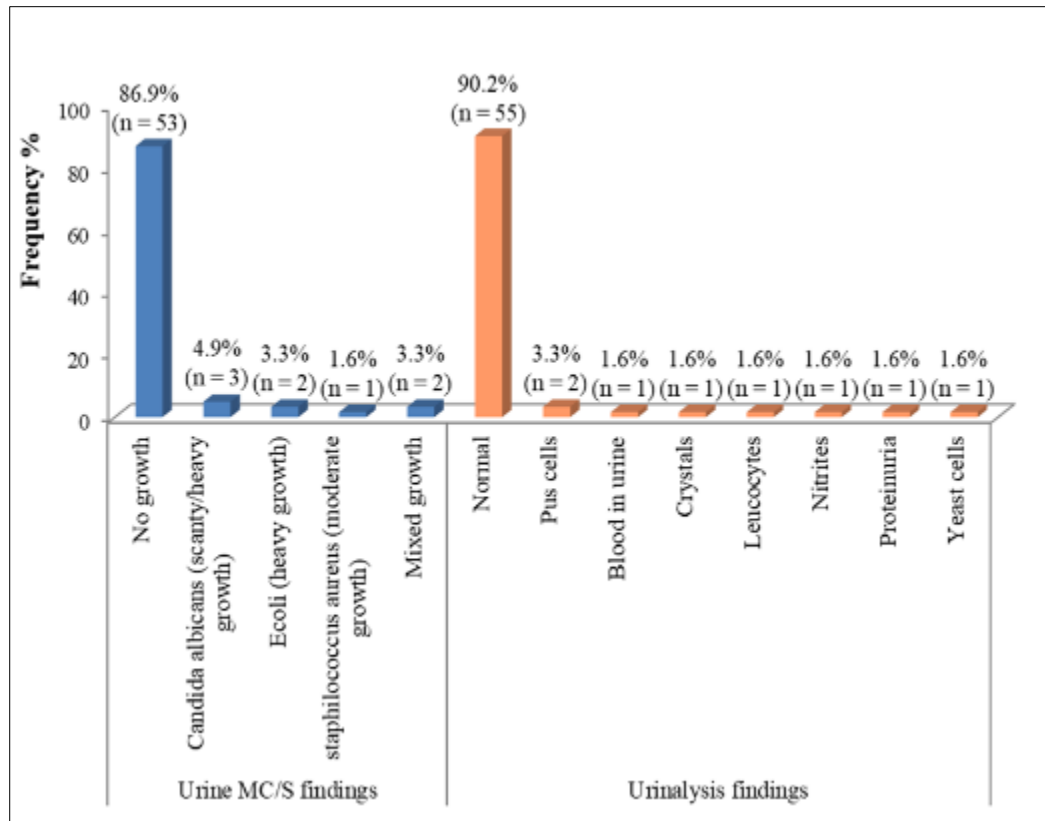
**Figure 1** Risk factors for urological problems among women who had major gynaecological surgeries.

Lower urinary tract symptoms were present in seven, out of the sixty-one subjects (11.4%). Five out of the seven patients who had lower urinary tract symptoms had urinary frequency (71.4%) while two (28.6%) had dysuria. The other symptoms were; polyuria, urgency, urinary retention and urinary incontinence, with some symptoms coexisting with others. These are shown on table 3 below.

**Table 3** Lower urinary tract symptoms among women who had major gynaecological surgeries

Lower urinary tract symptom	Frequency	Percentage (%)
1. Dysuria	2	28.6%
2. Urinary frequency	5	71.4%
3. Urgency	1	14.2%
4. Urinary retention	1	14.2%
5. Urinary incontinence	1	14.2%
6. Polyuria	1	14.2%

Further evaluation of the subjects using urinalysis and urine microscopy, culture and sensitivity showed that 90.2% of the subjects had normal findings on urinalysis while 13.1% of them had urinary tract infections diagnosed from urine culture. These are shown on figure 2 below.



MCS, microscopy. Culture and sensitivity testing; n, total number

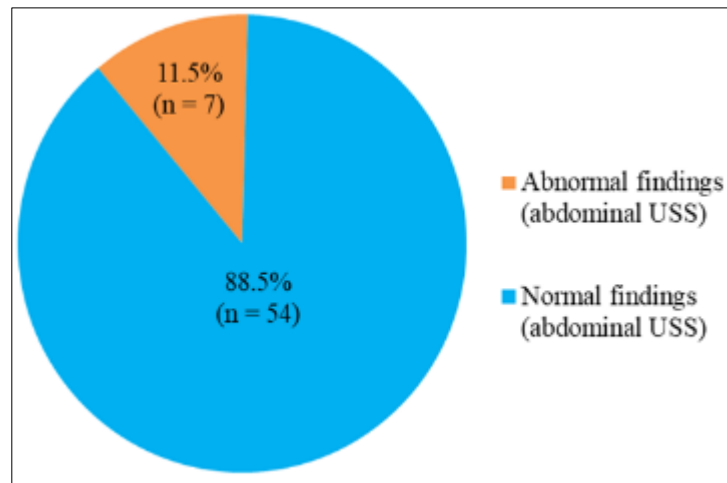
**Figure 2** Findings on urinalysis and urine microscopy, culture, and sensitivity among women who had major gynecological surgeries

Only one of the patients had elevated urea (1.6%), with two having elevated creatinine (3.3%). The majority of the patients had normal renal functions. The results are shown in table 4 below.

**Table 4** Distribution of urea and creatinine for the assessment of renal function among women who had gynecological surgeries at a Tertiary Health Centre in South-South Nigeria

Variables	Frequency	Percentage
<b>Urea</b>		
<1.5	7	11.5
1.5 – 6.6	53	86.9
>6.6	1	1.6
<b>Creatinine</b>		
<60	28	45.9
60 – 120	31	50.8
>120	2	3.3

Most of the patients (88.5%) had normal findings on abdominal ultrasound scans, while 11.5% had abnormal findings such as hydronephrosis, hydroureters, and nephrolithiasis.



**Figure 3** Distribution of abnormal findings (abdominal USS) among women that underwent gynecological surgeries at RSUTH, Port Harcourt, Nigeria. USS, Ultrasound scan.

#### 4. Discussion

Urinary tract infection was the predominant urological problem among the patients in this study, and the prevalence was 13.1%. This was probably due to the fact that the majority of the patients had myomectomy for huge uterine fibroids, and these being pelvic masses are usually accompanied by symptoms of obstructive uropathy with urinary stasis and subsequent urinary tract infection. [7] Lower urinary tract symptoms were reported in 11.4% of the patients, and they were present even before surgical interventions. This suggests that the symptoms may have resulted from the primary pathology. Of the lower urinary tract symptoms, urinary frequency was the most common, accounting for 71.4%. No iatrogenic complications were reported intra-operatively and postoperatively up to one month of follow-up. This is different from the findings of some other studies in which the commonest urological problems were those arising from surgical procedures such as bladder and ureteric (ranging from organ ligation to trans-section) injuries. [8, 9]

Pelvic tumors accounted for the most common risk factor for the urological problems found among the patients studied. This might have been aided by the proximity of the urinary tract to the uterus and its appendages. Therefore, tumors causing enlargement of these organs may result in compression and obstruction of the urinary tract. Compression of the lower urinary tract, such as the urinary bladder and urethra, results in lower urinary tract symptoms [7, 10], as seen in some of the patients in this study. However, compression of the upper urinary tract, such as the ureters, will result in urinary stasis, hydronephrosis, hydronephrosis with dilatation of the renal pelvicalyceal systems, with possible calculi formation as well as eventual renal parenchymal damage if treatment is not early. These findings were seen on abdominal ultrasound in 11.5% of those studied, with 3.3% developing abnormal renal function (acute kidney injury) diagnosed biochemically. The other risk factor identified from this study were; hypertension, previous pelvic surgeries, and uterovaginal prolapse, as shown in figure 1, and these have also been shown to increase the risk of urologic problems among women.

#### 5. Conclusion

The common urological problems found among the women who had gynecological surgeries in this study were urinary tract infections, with few cases of acute renal injury due to obstructive uropathy, predominantly from huge pelvic tumors. There was, however, no reported case of iatrogenic bladder or ureteric injury.

Early detection and removal of pelvic tumors will significantly reduce the associated urologic problems. It will also be necessary to conduct a prospective study on the same subject with a larger sample size.

## **Compliance with ethical standards**

### *Acknowledgments*

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### *Disclosure of conflict of interest*

There is no conflict of interest.

### *Statement of ethical approval*

Ethical approval of the study was obtained from the University of Port Harcourt Teaching Hospital Ethics Committee.

### *Statement of informed consent*

Informed consent was obtained from all individual patients whose case files were included in the study, during their treatment in the hospital. The study did not involve animal/human experimentation by any of the authors.

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