ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 8, Issue – 3, June – 2023 , Page No. : 40 – 48

A Retrospective Study of Obstructive Uropathy in Higher Degrees of Uterine Prolapse.

[1]Dr. Nikitha V, PG Resident, Department of Obstetrics and Gynaecology, Jhalawar Medical College.

[2]Dr. Neelam Sharma, Professor, Department of Obstetrics and Gynaecology, Jhalawar Medical College.

[3]Dr. Nidhi Golecha, Principal Specialist, Department of Obstetrics and Gynaecology, Jhalawar Medical College

[4]Dr. Vignesh V, MBBS

Corresponding Author: Dr. Nikitha V, PG Resident, Department of Obstetrics and Gynaecology, Jhalawar Medical College.

Citation this Article: Dr. Nikitha V**,** Dr. Neelam Sharma, Dr. Nidhi Golecha, Dr. Vignesh V, "A Retrospective Study of Obstructive Uropathy in Higher Degrees of Uterine Prolapse", IJMSIR- June - 2023, Vol – 8, Issue - 3, P. No. 40– 48.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Background and methods: The aim of this study is to collect cases of higher degrees of uterine prolapse in elderly multiparous women and conduct retrospective case series study to identify the associated urinary symptoms and describe the diagnosis, treatment moda lities and outcome. We are reporting 10 cases of uterine prolapse (3rd degree and procidentia), all of them diag nosed clinically, confirmed by Ultrasonography and pap smear (nonmalignant nature). All cases were managed surgically and there was 100% relief in associated ob structive uropathy and Gastrointestinal symptoms post hysterectomy.

Keywords: Uterine prolapse, obstructive uropathy, hysterectomy.

Study design: Observational Retrospective Study

Introduction

Prolapse (from the Latin prolapsus, a slipping forth) refers to the falling or slipping out of place of a part or viscus. Pelvic organ prolapse is descent of the pelvic organs into the vagina, often accompanied by urinary, bowel, sexual, or local pelvic symptoms. The incidence of genital prolapse is difficult to determine, as many women do not seek medical advice. It has been estimated that a half of parous women lose pelvic floor support, resulting in some degree of prolapse, and that of these women 10-20% seek medical care.[1] In the United Kingdom genital prolapse accounts for 20% of women on the waiting list for major gynecological surgery. The incidence of prolapse requiring surgical correction in women who have had a hysterectomy is 3.6 per 1000 person years of risk; the cumulative risk is 1% at 3 years and 5% at 17 years after a hysterectomy. The chance of a woman having a prolapse increases with age.4 Therefore, the incidence of prolapse will rise as life expectancy increases[1] Symptoms and signs Prolapse is often asympto matic and an incidental finding, and clinical examination may not necessarily correlate with symptoms. [4] Prolapses can occur in the anterior, middle, or posterior com partment of the pelvis:

Anterior compartment

prolapse into the vagina of the urethra (urethrocele) or bladder(cystocele) or both (cysto urethrocele)

Middle compartment

uterine or vault descent and enterocele (herniation of the pouchof Douglas)

Posterior compartment

prolapse of the rectum into the vagina (rectocele). Entero celes may contain small bowel and omentum. Cysto urethrocele is the most common type of prolapse, followed by uterine descent and then rectocele. Urethroceles are rare. Traditionally uterine descent is graded as 1st degree (within the vagina), 2nd degree (descent to the introitus), or 3rd degree (descent outside the introitus). [4]Symptoms are often related to the site and type of prolapse. Symptoms common to all types of prolapse are a feeling of dragging, or a lump in the vagina, or something coming down. [14]

Pelvic organs prolapse or uterine prolapse (UP) can be associated with minor or major urologic complications, depending on its severity. These may include UTIs, [2] urinary incontinency, renal dysfunction and hydro nephrosis. [34] It may cause acute renal failure (ARF), [6]chronic renal failure (CRF), [23] and finally end stage renal disease (ESRD). [57] The incidence of obstructive uropathy in pelvic organ prolapse is between 4% and 13% or 80% in severe cases. One of the major complications of pelvic organ prolapse is disturbed drainage of ureters due to procidentia. The reported incidence of urinary tract obstruction is 5% for first-degree prolapse and about 40% for procidentia. Hydroureteronephrosis due to uterine prolapse was the major cause of acute renal failure in the case reported by Yanik et al.[6] It seems that any patient with moderate to severe pelvic organ prolapse is at risk of renal failure.

A possible mechanism of renal failure in the presence of pelvic organ prolapse may be compression of the ureters by the uterine blood vessels, and pelvic organ prolapse might cause obstruction of the lower ureters, in addition to disturbing the bladder drainage due to bladder outlet obstruction. [6] In the presented first case, complete prolapse of both ureters and bladder caused the bilateral hydroureteronephrosis and creatinine rise by obstructive uropathy. In our patients it seems that complete synchronous prolapse of the bladder trigone with the uterus occurred. Also, fixing the pelvic prolapse by means of vaginal pessary or a type of surgery (Colposuspention or hysterectomy) may correct the elongation that has happened in both ureters by pushing of prolapsed organs. Sometimes and in chronic obstructed cases, even repair of prolapsed uterus cannot improve the renal function and patients needs renal replacement therapy (hemodialysis). [7]

Investigations

When urinary symptoms are present, a mid-stream specimen of urine must be sent for culture and sensitivity analysis before any investigations.

Urodynamic studies

Cystometry and uroflowmetry are recommended in women with genital prolapse to evaluate potential stress incontinence, other overt urinary incontinence, and emptying phase dysfunction.

Potential stress in continence may be masked by prolapse, so urodynamic studies should occur before any surgery. If the studies show stress incontinence, a continence procedure can be combined with pelvic floor reconstruction. However, opinions vary—some doctors counsel women before the operation for prolapse and perform a continence procedure later.

Imaging

When the symptoms and signs of prolapse do not correlate—for example, when the patient complains of sensation of prolapse but a prolapse is not discernible on examination—pelvic fluoroscopy with barium contrast in the vagina, bladder, small bowel, and rectum may help. [1]

Treatment

Conservative treatment Conservative treatment should always be offered before referral to hospital.

Pelvic floor exercises

Pelvic floor exercises may limit the progression of mild prolapse and alleviate mild prolapse symptoms such as low back ache and pelvic pressure.8However, they are not useful if the prolapse extends to or beyond the vaginal introitus.9

Pessaries

For many years pessaries have been used to treat prolapse, although their use has decreased with advances in anaesthesia and surgical techniques.

The main indications are.

- Patients unfit for, awaiting, or who have declined surgery.
- Women who may yet bear children.
- In the management of prolapse in neonates, which can occur in conjunction with neural tube defects.

Pessaries are available in a variety of sizes and shapes to suit different patients and are of two main types: support pessaries, which rest under the symphysis and sacrum and elevate the vagina, and space occupying pessaries. Fitting and managing pessaries: Patients must be evaluated carefully before pessary placement. All treatment options should be discussed, and the patient should be an active participant in the treatment decision. Women must be capable of managing use of the pessary, either alone or with the help of a career. Women with compromised eyesight or motor abilities may not be able to manage a pessary that requires self-insertion and care. Doctors do a bimanual examination and use the forefinger to estimate the size of the vagina. Sometimes trial and error may be the only way to determine which size of pessary should be used, and doctors should maintain a variety of sizes and styles. The pessary is placed in the vagina and the woman encouraged to walk around. If the woman reports pain or discomfort the pessary is likely to be too big, and a smaller one should be tried. She should be advised to return in a month's time for a check, but cautioned that if she experiences pain or difficulty in voiding she should return earlier. If there are no adverse symptoms such as discharge, pain, or bleeding, the pessary can be changed every 9-12 months.

If atrophy occurs, topical oestrogen cream should be applied twice a week and the pessary changed more often. Though uncommon, erosion or ulceration can occur with atrophic change in the vagina. The pessary should be removed and oestrogen cream applied until the ulcer has healed, when the pessary may be replaced. If the ulcer looks suspicious or does not heal, a biopsy may be indicated. Patients with a decubitus ulcer and a complete procidentia may need hospitalisation and vaginal packing with oestrogen cream. When adequate follow up cannot be assured a pessary should not be used, as neglected pessaries can become impacted within the vagina and, rarely, ulcerate into the bladder or bowel. All patients should have a regular cervical smear test, according to the national programme. There is a lack of good data on the indications for different types of pessary, who should change the pessary, how often pessaries should be changed, and whether pessaries should be used concurrently with hormone replacement therapy or pelvic floor exercises.12

Some women, particularly elderly women, find it less embarrassing and stressful to visit their general practitioner or practice nurse to change a pessary than return to the specialist. No data have been published on the effect of pessaries on sexual function. However, we would expect a space occupying pessary to produce some barrier to coitus.

Surgical treatment

Hysterectomy.

Case reports

Case 1

A 66 year old female, para 4,living 4 all four normal vaginal delivery ,attained menopause 15 years back presented with history of mass coming out of vagina since 2 years, patient also gives history of increased urinary frequency, incomplete voiding during micturit ion, recurrent urinary infections, there is no history of difficulty in defecation or bleeding per vaginum or white discharge. Patient has no other comorbidities. There is no past history of chronic cough, constipation or other aggravating factors. On physical examination patient was conscious and oriented, vitals stable, per abdominal examination: soft, per speculum examination 3rd degree uterovaginal prolapse with cystocele and minimal rectocele, uterus senile size with no ulceration. Pap smear was done and was reported negative for intraepithelial malignancy ,usg showed complete uterine prolapse, all pre operative work up was done and patient was taken up for elective vaginal hysterectomy with pelvic floor repair (anterior and posterior colpo perineoraphy),surgery was uneventful, patient was given good postoperative care (anti biotics, analgesics, daily betadine vaginal cleaning) , foleys urinary catheter was removed on 3rd post operative day, patient was fully recovered of urinary complaints like patients did not have any more complaints of incomplete voiding or increased frequency of micturition patient was discharge on postoperative day 7.

Case 2

A 78 year old female, para 7, living 7, all normal vaginal delivery, attained menopause 30 years back presented with history of mass coming out of vagina since 1.5 years, patient also gives history of increased urinary frequency, incomplete voiding during micturition, recurrent urinary infections, there was also history of difficulty in defecation. There is no history of bleeding per vaginum or white discharge. Patient is a known case of hypertension on T. amlodipine 5mg od since 15yrs, there are no other comorbidities. There is no past history of chronic cough, constipation or other aggravating factors. On physical examination patient was conscious and oriented, vitals stable, per abdominal examination: soft, per speculum examination 4th degree uterovaginal prolapse(procidentia) with cystocele and minimal rectocele, uterus senile size with minimal ulceration ot bleeding on touch at 2'oclock position. Pap smear was done and was reported negative for intraepithelial malignancy ,usg showed complete uterine prolapse, minimal hydroureteronephrosis right side, all pre operative work up was done and patient was taken up for elective vaginal hysterectomy with pelvic floor repair (anterior and posterior colpoper ineorrhaphy),surgery was uneventful, patient was given good postoperative care (antibiotics, analgesics, daily betadine vaginal cleaning),foleys urinary catheter was removed on 3rd postoperative 0day,patient was fully recovered of urinary complaints like patients did not have any more complaints of incomplete voiding or increased frequency of micturition patient was discharge on postoperative day 7.

Case 3

A 56-year-old female, para 2, living 2, both normal vaginal delivery, attained menopause 2 years back presented with history of mass coming out of vagina since 6 month, patient also gives history of increased urinary frequency, incomplete voiding during micturiti on, recurrent urinary infections, there is no history of difficulty in defecation or bleeding per vaginum or white discharge. Patient has no other comorbidities. There is no

past history of chronic cough, constipation or other aggravating factors. On physical examination patient was conscious and oriented, vitals stable, per abdominal examination: soft, per speculum examination 3rd degree uterovaginal prolapse with cystocele, uterus senile size with no ulceration. Pap smear was done and was reported negative for intraepithelial malignancy ,usg showed complete uterine prolapse, all pre operative work up was done and patient was taken up for elective vaginal hysterectomy with pelvic floor repair (anterior and posterior colpoperineorrhaphy),surgery was uneventful, patient was given good postoperative care (antibiotics, analgesics, daily betadine vaginal cleaning),foleys urinary catheter was removed on 3rd postoperative day, patient was fully recovered of urinary complaints like patients did not have any more complaints of incomplete voiding or increased frequency of micturition patient was discharge on postoperative day 7.

Case 4

A 60-year-old female, para 5, living 4 all five normal vaginal delivery, attained menopause 12 years back presented with history of mass coming out of vagina since 2 years, patient also gives history of increased urinary frequency, incomplete voiding during micturition, recurrent urinary infections, there is no history of difficulty in defecation or bleeding per vaginum or white discharge. Patient has no other comorbidities. There is no past history of chronic cough, constipation or other aggravating factors. On physical examination patient was conscious and oriented, vitals stable, per abdominal examination: soft, per speculum examination 3rd degree uterovaginal prolapse with cystocele and no rectocele, uterus senile size with no ulceration. Pap smear was done and was reported negative for intraepithelial malignancy ,inflammatory smear, usg showed complete uterine prolapse, all pre operative work up was done and patient was taken up for elective vaginal hysterectomy with pelvic floor repair (anterior and posterior colpoperineorrhaphy),surgery was uneventful, patient was given good postoperative care (anti biotics, analgesics, daily betadine vaginal cleaning) , foleys urinary catheter was removed on 3rd post operative day, patient was fully recovered of urinary complaints like patients did not have any more complaints of incomplete voiding or increased frequency of micturition patient was discharge on postoperative day 7.

Case 5

A 69 year old female, para 7, living 5, all normal vaginal delivery, attained menopause 20 years back presented with history of mass coming out of vagina since 4 years, patient also gives history of increased urinary frequency, incomplete voiding during micturition, recurrent urinary infections, there was also history of difficulty in defecation. There is no history of bleeding per vaginum or white discharge. Patient is a known case of hypertension on T. amlodipine 5mg od since 15yrs, there are no other comorbidities. There is no past history of chronic cough, constipation or other aggravating factors. On physical examination patient was conscious and oriented, vitals stable, per abdominal examination: soft, per speculum examination 4th degree uterovaginal prolapse (procidentia) with cystocele and minimal rectocele, uterus senile size with minimal ulceration to bleeding on touch at 2'oclock position. Pap smear was done and was reported negative for intraepithelial malignancy ,usg showed complete uterine prolapse, bilateral hydroureteronephrosis ,renal function test- elevated serum urea (56mg%) and creatinine (1.8)all pre operative work up was done physician reference was done in view of elevated renal parameters, patient was going in for renal failure due to chronic obstructive

uropathy and patient was taken up for elective vaginal hysterectomy with pelvic floor repair (anterior and posterior colpo perineoraphy),surgery was uneventful, patient was given good postoperative care (antibiotics, analgesics, daily betadine vaginal cleaning), foleys urinary catheter was removed on 3rd postoperative 0day, patient was fully recovered of urinary complaints like patients did not have any more complaints of incomplete voiding or increased frequency of micturition patient was discharge on postoperative day 7.Patients renal function tests was done monthly for follow up of raised parameters ,which showed a decreasing trends,1month post hysterectomy serum urea creatinine value were found to be 46 and 1.3 respectively, which indicates im provement in renal functions following hysterectomy which relieved the chronic obstructive uropathy.

Case 6

A 63-year-old female, para 3, living 3, all normal vaginal delivery, attained menopause 12 years back presented with history of mass coming out of vagina since 3 years, patient also gives history of increased urinary frequency, incomplete voiding during micturition, there is no history of difficulty in defecation or bleeding per vaginum or white discharge.

Patient has no other comorbidities. There is no past history of chronic cough, constipation or other aggravating factors. On physical examination patient was conscious and oriented, vitals stable, per abdominal examination: soft, per speculum examination 3rd degree uterovaginal prolapse with cystocele and no rectocele, uterus senile size with minimal ulceration. Pap smear was done and was reported negative for intraepithelial malignancy ,usg showed complete uterine prolapse, all pre operative work up was done and patient was taken up for elective vaginal hysterectomy with pelvic floor repair (anterior and posterior colpo perineoraphy),surgery was uneventful, patient was given good postoperative care (antibiotics, analgesics, daily betadine vaginal cleaning) , foleys urinary catheter was removed on 3rd postoperative day, patient was fully recovered of urinary complaints like patients did not have any more complaints of incomplete voiding or increased frequency of micturition patient was discharge on postoperative day 8.

Case 7

A 45-year-old female, para 2, living 2, both normal vaginal delivery, attained Meno pause 1 years back presented with history of mass coming out of vagina since 2 years, patient also gives history of increased urinary frequency, incomplete voiding during micturition, recurrent urinary infections, there is no history of difficulty in defecation or bleeding per vaginum or white discharge.

Patient has no other comorbidities. There is past history of chronic cough, patient is a known case of copd on medical treatment, there is no history of constipation or other aggravating factors. On physical examination patient was conscious and oriented, vitals stable, per abdominal examination: soft, per speculum examination 3rd degree uterovaginal prolapse with cystocele and no rectocele, uterus senile size with no ulceration. Pap smear was done and was reported negative for intraepithelial malignancy ,inflammatory smear, dilatation and curettage was done and was reported to be normal, usg showed complete uterine prolapse, all pre operative work up was done and patient was taken up for elective vaginal hysterectomy with pelvic floor repair (anterior and posterior colpo peri neo raphy),surgery was uneventful, patient was given good postoperative care (antibiotics, analgesics, daily betadine vaginal cleaning),foleys urinary catheter was removed on 3rd postoperative day, patient was fully recovered of urinary complaints like patients did not have any more complaints of incomplete

voiding or increased frequency of micturition patient was discharge on postoperative day 7.

Case 8

A 50-year-old female, para 4, living 4, both normal vaginal delivery, attained menopause 2 years back presented with history of mass coming out of vagina since 11 months, patient also gives history of increased urinary frequency, incomplete voiding during micturiti on, recurrent urinary infections, there is no history of difficulty in defecation or bleeding per vaginum or white discharge. Patient is a known case of type 2 DM on tablet metformin 500mg bd since 2 years, there are no other comorbidities. There is no past history of chronic cough, constipation or other aggravating factors. On physical examination patient was conscious and oriented, vitals stable, per abdominal examination: soft, per speculum examination 3rd degree uterovaginal prolapse with cystocele, uterus senile size with no ulceration. Pap smear was done and was reported negative for intraepithelial malignancy ,usg showed complete uterine prolapse, all pre operative work up was done and patient was taken up for elective vaginal hysterectomy with pelvic floor repair (anterior and posterior colpo perine ora phy),surgery was uneventful, patient was given good postoperative care (antibiotics, analgesics, daily betadine vaginal cleaning),foleys urinary catheter was removed on 3rd postoperative day, patient was fully recovered of urinary complaints like patients did not have any more complaints of incomplete voiding or increased frequency of micturition patient was discharge on postoperative day 7.

Case 9

A 68 year old female, para 5, living 4 all five normal vaginal delivery, attained menopause 15 years back presented with history of mass coming out of vagina since 3 years, patient also gives history of increased urinary frequency, incomplete voiding during micturiti on, recurrent urinary infections, there is no history of difficulty in defecation or bleeding per vaginum or white discharge. Patient is a known case of hypothyroid on thyroxine 25mcg since 13 years, there are no other com orbidities. There is no past history of chronic cough, constipation or other aggravating factors. On physical examination patient was conscious and oriented, vitals stable, per abdominal examination: soft, per speculum examination 3rd degree uterovaginal prolapse with cystocele and no rectocele, uterus senile size with no ulceration. Pap smear was done and was reported negative for intraepithelial malignancy ,inflammatory smear, usg showed complete uterine prolapse, all pre operative work up was done and patient was taken up for elective vaginal hysterectomy with pelvic floor repair (anterior and posterior colpo perineoraphy),surgery was uneventful, patient was given good postoperative care (anti biotics, analgesics, daily betadine vaginal cleaning) ,foleys urinary catheter was removed on 3rd postoperative day, patient was fully recovered of urinary complaints like patients did not have any more complaints of incomplete voiding or increased frequency of micturition patient was discharge on postoperative day 7.

Case 10

A 59-year-old female, para 5, living 4 all five normal vaginal delivery, attained menopause 12 years back presented with history of mass coming out of vagina since 2 years, patient also gives history of increased urinary frequency, incomplete voiding during micturition, recurrent urinary infections, there is no history of difficulty in defecation or bleeding per vaginum or white discharge. Patient has no other comorbidities. There is no past history of chronic cough, constipation or other aggravating factors. On physical

examination patient was conscious and oriented, vitals stable, per abdominal examination: soft, per speculum examination 3rd degree uterovaginal prolapse with cystocele and no rectocele, uterus senile size with no ulceration. Pap smear was done and was reported negative for intraepithelial malignancy, inflammatory smear, usg showed complete uterine prolapse, left sided renal agenesis, normal right kidney and ureters, renal function tests were found to be normal, all pre operative work up was done and patient was taken up for elective vaginal.

hysterectomy with pelvic floor repair (anterior and posterior colpo perineoraphy), surgery was uneventful, patient was given good post operative care (antibiotics, analgesics, daily betadine vaginal cleaning), foleys urinary catheter was removed on 3rd postoperative day, patient was fully recovered of urinary complaints like patients did not have any more complaints of incomplete voiding or increased frequency of micturition patient was discharge on postoperative day 7.

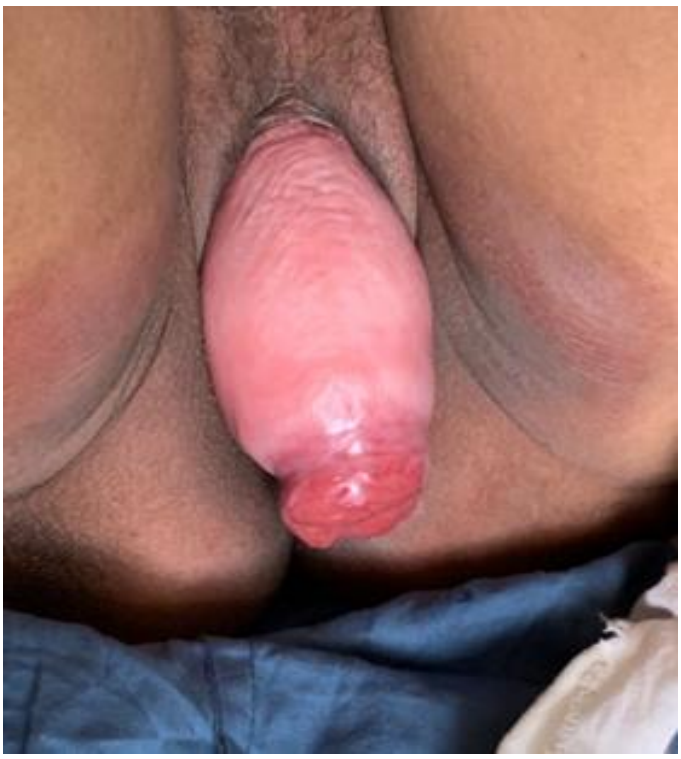

Figure 1:

Discussion

During the study a total no. of 10 cases, elderly multiparous women with higher degrees of uterine prolapse who were admitted from opd who were willing for hysterectomy. 90% of them were menopausal,10% was perimenopausal all of them had third degree uterine prolapse with features of obstructive uropathy, with one patient with deranged renal function tests, in early stage of AKI, who had the longest history of obstructive uropathy.

All the patients were worked up preoperatively and underwent vaginal hysterectomy. In 90% patients there was significant relief of obstructive symptoms post hysterectomy,10% patient (with deranged rft) however complained of persistence of increased urinary frequency, incomplete voiding even after hysterectomy day 4. However on postoperative day 14, patients symptoms significantly reduced. There was 100% improvement in rft post hysterectomy, elevated serum urea/creatinine levels showed decreasing trend on postoperative day 14.

Conclusion

Uterine prolapse is a common condition among elderly multiparous women (both premenopausal and post-menopausal) with obstructive urinary and Gastro intestinal symptoms that causes serious impairment in the day-to-day life.

Early accurate diagnosis and treatment will help in improving the symptoms and prevent the patient from going into renal failure due to chronic hydro uretero nephrosis following long term obstruction to kidneys and ureters. Surgical treatment- hysterectomy the success rate of which is dependent on other com orbidities, age, stage of prolapse, presence of ulcer etc and has proven to relieve the symptoms thereby bringing back the patients to a new life.

References

1. Thakar, Ranee, and Stuart Stanton. "Management of genital prolapse." BMJ (Clinical research ed.) vol. 324,7348 (2002): 1258-62. doi: 10.1136/ bmj. 324. 7348 .1258

2. Sudhakar A.S., Reddi V.G., Schein M., Gerst P.H. Bilateral hydroureter and hydronephrosis causing renal failure due to a procidentia uteri: a case report. International Surgery. 2001;86(3):173–175. [PubMed] [Google Scholar] [Ref list]

3. Chuang F.R., Lee C.H., Chen C.S., Weng H.H., Wang I.K. Bilateral moderate hydroureteronephrosis due to uterine prolapse: two case reports and review of the literature. Renal Failure. 2003;25(5):879–884.

4. Digesu AG, Khullar V, Cardozo L, Robinson D, Salvatore S. P-QOL: a validated questionnaire to assess the symptoms and quality of life of women with urogenital prolapse. Int Uro Gynecol J. 2005; 16:176–81.

5. Melser M., Shetty P.C., Miles B.J., Shetty P.C., Anderson W. Chronic renal failure secondary to post-hysterectomy vaginal prolapse. Urology. 1991; 38:361–363.

6. Yanik F.F., Akpolat T., Kocak I. Acute renal failure—an unusual consequence of uterine prolapse. Nephrology, Dialysis, Transplantation. 1998; 13:2648–2650

7. Sanai T., Yamashiro Y., Nakayama M., Uesugi N., Kubo N., Iguchi A. End stage renal failure due to total uterine prolapse. Urology. 2006;67(3): 622.e5–622.e7. [PubMed]

8. Moslemi, Mohammad Kazem et al. "Obstructive uropathy due to prolapsed lower ureters and bladder in patients with severe procidentia: A report of two cases." International journal of surgery case reports vol. 4,3 (2013): 348-50. doi: 10.1016/j.ijscr.2012.11.

9. Shrestha, Binjwala et al. "Uterine prolapse and its impact on quality of life in the Jhaukhel-Duwakot Health Demographic Surveillance Site, Bhaktapur, Nepal." Global health action vol. 8 28771. 10 Aug. 2015.