HYDROURETERS AND HYDRONEPHROSIS IN LONGSTANDING UTEROVAGINAL PROLAPSE

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SUMMARY

Fifty cases of uterovaginal prolapse were assessed for changes in the urinary tract by Intravenous Urography and Ultrasonography.

More than 50% patients with longstanding (> 5 years) prolapse had structural or functional changes in the urological system. 15% had increased residual urine while 20% had positive urine culture. The IVU changes were directly related to the degree and duration of prolapse. All the changes reverted back to normal after surgery.

INTRODUCTION

A long standing utero vaginal prolapse can affect not only the urethra and the bladder but also the ureters and the kidneys. As the urinary and genital tracts are closely related to each other anatomically and embryologically it is important to look for abnormalities in the urinary tract specially in certain gynaecological pathologies including long standing prolapse.

Our interest in this problem began with a case of an elderly female who was admitted with severe urinary tract infection and was treated by a physician. He did all the necessary investigations including Intra Venous Urography (IVU). The case was also referred to a general surgeon who did not consider utero vaginal prolapse as a possible cause of hydronephrosis and thus missed it. Three weeks later a gynec checkup revealed a very long standing prolapse of 12 years duration which the shy and embarassed patient did not even mention to the previous two doctors. This created an interest in specifically looking for pathology of the bladder, ureters and kidneys in cases of longstanding uterovaginal prolapse.

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MATERIALS AND METHODS

Fifty cases of prolapse admitted for surgery in private practice and at KEM Hospital were studied for the urinary tract pathology and its relation to the duration and the degree of prolapse. A thorough systemic and local examination was carried out and the degree of prolapse, presence of cystocele, urethrocele,

enterocele was noted. The amount of residual urine was also noted. Apart from the usual preoperative investigations for surgery and anaesthesia, urine culture and sensitivity test were done whenever urine showed presence of significant number of pus cells. Assessment of the urinary tract was done by IVU or ultrasonography. The presence and extent of hydroureter, hydrohephrosis, kinking and elongation of the ureter was noted. Special care was taken during surgery of pushing up the bladder pillars and avoiding injury to the ureters. None of the patients in our series had any intraoperative trauma to the bladder or ureters. The details of preoperative, intraoperative and postoperative course was recorded. A repeat IVU or USG was carried out 6-12 months later in 35 cases.

Fig. 1 : Uterus with bilateral hydroureters transverse section.

Fig. 2 : Logitudinal section - hydroureter.

RESULTS

Twenty-six of our cases had prolapse of more than five years duration. More than 50% who presented with third degree prolapse or procidentia had changes of hydroureter or hydronephrosis as seen in Table I.

60% of the patients had symptoms related to urinary infections such as dysuria, urgency and frequency. As seen in the first case, anatomical and functional changes in the urinary tract could be so severe that at times the patient would present for the urological problem rather than for the prolapse. When examined for residual urine, 15% had significant amount of residual urine. 20% of the patients had urinary tract infection of a considerable degree. All who had IVU or postoperative sonography showed reversal of the abnormalities in kidney and ureters 6-12 months after the operation.

DISCUSSION

Virchow in 1846 described hydroureter and hydronephrosis in cases of long standing genital prolapse. The effect of prolapse on the urological system extends throughout the urinary tract. It causes displacement, hypertrophy and trabeculation of the bladder. The amount of residual urine increases leading to increased changes of cystitis and stone formation. Sholapurkar (1986) had a 6.6% incidence of abnormal residual urine. 11.9% cases in Bhatt (1961) series showed high residual urine. In our series the incidence was 15%.

Incidence of UTI varied from 18% (present

Table I

Assessment of changes in the urinary tract

Degree of Prolapse	No. of Patients	Study IUV	Done USG	Positive UT Changes	Percentage %
1st	6	—	6	0	0
2nd	18	—	18	0	0
3rd & Procidentia	26	15	11	14	53 - 84

Table II

Various studies on changes of urinary tract in long standing prolapse

Year	Study	Percentage with IVU changes
1929	Schmitz and Haibe	60
1938	Young	50
1939	Wallingford	66.6
1966	Parikh & Parikh	51.3
1972	Behlo	42.8
1986	Malati S.	48.3
1991	Present Series	53.84

From : Parikh & Parikh : J. of Obstet. Gynec. of India, 16 : 567, 1966.

study) to 30%. Alteration in position and constriction of ureteric canals, hydroureters, elongation of the ureter and reflux of urine into the ureters can occur. The ultimate effect on the kidneys can range from hydronephrosis, pyelitis and pyelonephritis to renal failure. The possible causes of hydroureters and hydronephrosis in chronic prolapse are as follows.

(1) Narrowing of the ureteral lumen due to dragging and stretching of the ureters.

(2) Compression effect of the uterine arteries on the ureters.

(3) Constricting effect of the pelvic diaphragm on the ureters with kinking and narrowing of the lumen.

(4) Constricting effect of the introitus in case of procidentia.

All changes are found to be more amongst postmenopausal patients as the hormonal status may be contributory to ureteric tone. The development of excretory urography by Von Lichtenberg in 1921 added precision to the diagnosis of the urological status in chronic prolapse. Various studies have been performed since then and the results are comparable to ours as shown in Table II. In our series we have also used USG for assessment of kidneys and ureters. The degree of postoperative improvement observed varies from a minimal improvement to 100% reversal as shown in Table IV.

IVU although a simple procedure, is invasive and not without risks. Ultrasonography is a practical non-invasive and quick alternative in cases of chronic prolapse to study hydroureter and hydronephrosis. When done by a competent sonologist, it can accurately delineate the dilated ureter and hydronephrosis.

Injury to the ureter can have devastating effects. Prevention of ureteric injury is there-

fore a matter of serious concern. In vaginal hysterectomy a downwards traction is applied all through the operation. As the uterus descends the ureters are pulled down by the uterine vessels and the so called 'knee' of the ureter gets exaggerated. The ureters are at risk at the sides of the cervix where they are crossed by the uterine arteries. The avoidance of ureteral injuries mainly depends on an adequate mobilisation of the bladder from the supravaginal cervix and particularly from its sides by dividing the bladder pillars. A right angle refractor keeps the bladder along with ureters away thus preventing inadvertent injury to the ureter. The clamps used to secure paracervical tissues and vessels should be quite close to and parallel to the sides of the uterus.

CONCLUSION

Fifty cases of uterovaginal prolapse were evaluated by intravenous pyelography / ultrasonography in order to assess the ureters and the kidneys. 53% of those with prolapse of more than five years duration (14 / 26) had hydroureters and hydronephrosis. Ultrasonography by a competent sonologist proved to be a practical, less expensive noninvasive and quick method of assessment of the ureters and the kidneys. However, in case of doubt, IVU may be confirmatory.

A third degree uterine prolapse may cause back pressure changes on the ureters and the kidneys and therefore is an indication for surgery. Changes in the ureters and kidneys get reverted back to normal postoperatively. With a long standing prolapse, the changes of ureteric and kidney involvement is more than 50%. Thus the surgery for prolapse is not only important for the genital organs but also in order to prevent and treat the changes in the urinary system.

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REFERENCES

1. *Bhatt R. V. : J. of Obstet. & Gynec. of India : 12, 278, 1961.*
2. *Sholapurkar M. : J. of Obstet & Gynec. of India : 37, 178, 1986.*
3. *Parikh & Parikh : J. Obstet. & Gynec. of India : 16, 567, 1966; 15, 407, 1965.*