

URINARY TRACT CHANGES IN GENITAL PROLAPSE

by

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Prolapse of the uterus is a very common condition and frequently seen in gynaecological out patient department. The relationship between prolapse uterus and obstructive lesions of the upper urinary tract has been pointed out by Halban & Tandler 1923, Bretton and Rubin (1923) and more recently by Bhatt (1961), Parikh and Parikh (1966). Hence, this study was carried out to find out the incidence of urinary tract changes in genital prolapse and to see the reversibility of these changes after operative procedures for prolapse.

Material and Method

Seventy cases of genital prolapse of varying degrees admitted in the gynaecological department of Irwin Hospital for surgical treatment were selected. Detailed history was taken with special reference to the duration of prolapse and associated urinary symptoms. Thorough general physical, systemic and local examinations were carried out. The following investigations were done.

Blood: (a) Hb, TLC, DLC (b) Blood urea (c) P. P. Sugar.

Urine: Routine and culture.

Plain X-ray abdomen:

I.V.P. pre-operative and 3 months after operations.

Cystoscopy.

Observation

Thirty-six cases out of 70 (51.4%) showed various urinary tract changes which are tabulated later (Table V).

Age and Parity

No relationship has been found between urinary tract changes with age and parity of the patients as shown in Tables I & II.

TABLE I

Age

Age group	Total cases	No. of cases with urinary tract changes	%age
25-40	32	16	50
41-55	20	12	60
56-70	18	8	44.4

TABLE II

Parity

Parity	Total No. of cases	Cases with urinary tract changes	%age
Nullipara	2	1	50
Para I	8	3	37.5
Para II	12	8	66.6
Para III	6	2	33.3
Para IV	14	8	57.1
Para V	13	6	46.1
Para 6 or more	15	8	53.3

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Degree of Prolapse

It is clearly seen from Table III that urinary tract changes are proportional to the degree of uterine prolapse as shown by the gradual increase of urinary tract changes with the increase in the degree of prolapse. Associated cystocele influences the incidence of urinary tract changes. Cystocele was seen in 23 of 36 cases with positive urinary tract changes.

TABLE III
Degree of Prolapse and Urinary Tract Changes

Degree of prolapse	No. of cases	Cases with urinary tract changes	%age
1st degree	3	1	33.3
2nd degree	14	6	42.8
3rd degree	46	24	52.1
Procidentia	7	5	71.4

Duration of Prolapse

Duration of prolapse varied from 2 months to 40 years. As shown in Table IV it was found that the duration of prolapse definitely affected the urinary tract. Incidence of urinary tract changes was only 33.3% in cases with prolapse of less than 1 year duration, whereas it increased gradually with the increasing duration of prolapse.

TABLE IV
Duration of Prolapse and Urinary Tract Changes

Duration	No. of cases	Cases with positive changes	%age
Less than 1 year		3	33.3
1-5 year	43	21	48.8
6-10 years	10	6	60
About 10 years	8	6	75

Associated Urinary Infection

Urinary infection was found in 14 cases shown by positive cultures for proteus in 2, klebsiella in 2, both proteus and Klebsiella in 3, E. coli and mixed growth in 7 cases. Only 3 of these 14 positive culture cases were accompanied by urinary tract changes. Two had early hydroureteric changes, whereas one had bilateral hydronephrosis. These 14 cases were treated with suitable antibiotics and subsequent urinary culture showed disappearance of infection in all cases, showing that urinary infection was only an associated finding and cannot be blamed for the urinary tract changes.

Cystoscopy

Cystoscopy was done in 8 cases only. In 4 cases there was vesical neck congestion. Trabeculation of grade I was found in 1 case, grade II in 4 cases and grade IV in 1 case. Diverticuli were seen in one case and chronic cystitis in 2 cases. Both the cases had reduced bladder capacity.

Intravenous Pyelography

The changes in urinary tract on I.V.P. were seen in 36 out of 70 cases and these changes are shown in (Table V).

Associated congenital abnormalities were detected on I.V.P. in 3 cases. In one case there was duplex kidney with double ureter of the right side. In one case, right kidney was absent. On vaginal hysterectomy it was found that there was uterus unicornis unicollis with tube and ovary on the left side. One case showed bilateral polycystic kidneys. A solitary case (1.4%) of vesical stone was found in the present study.

Out of 70 cases, 65 were operated upon. Vaginal hysterectomy with repair in 45, Manchester repair in 17 and anterior and posterior colpo-perineorrhaphy in 3 were

TABLE V
Changes in Urinary Tract on I.V.P.

Changes	No.	%age	Bilateral		Unilateral			
			No.	%age	Right		Left	
					No.	%age	No.	%age
Hydronephrosis	20	28.5	9	45.0	6	30.0	5	25
Hydroureter	16	22.8	8	50	5	31.2	3	18.7
Elongation of ureter	30	42.8	30	100				
Dilatation of pelvis alone	2	2.8	—	—	1	50	1	50
Dilatation of calyces alone	2	2.8	—	—	1	50	1	50
Impaired renal excretion	1	1.4	—	—	1	100		
Ptosis of kidney	3	4.2	—	—	2	66.6	1	33.3
Double ureter	1	1.4	—	—	1	100	—	—
Renal calculi	1	1.4						
Cystocele	36	51.4						
Vesical calculi	1	1.4						

carried out. Five cases were medically unfit for surgery.

Postoperative I.V.P. was done in 10 cases 3 months after surgery. Complete regression of hydronephrosis and hydroureter was seen in 6 cases, whereas other 4 cases showed little regression of hydronephrosis.

Discussion

Anatomically and embryologically the urinary tract and the genital tract are so closely related that the derangement of one system affects the other. In genital prolapse the lower part of the urinary tract i.e. the urethra and the bladder are involved primarily, the ureters and kidneys are affected secondarily. By the time urinary tract changes are able to produce symptoms, prolapse itself brings the patient to the hospital.

The incidence of urinary tract changes in our study was 51.4%. These changes were directly proportional to the degree of prolapse. Halban and Tandler found 40% in the partial and 50% in procidentia and Everette (1947) also confirmed the

same. These changes were also related to the duration of prolapse which was also reported by Everette and Sturgis (1940), Bhatt (1961) and Parikh and Parikh (1966).

In our series, hydronephrosis and hydroureter (Figs. 1, 2) were found in 28.5% and 22.8% respectively. The right kidney and ureter were involved more frequently than the left side. In nearly half of the cases there was bilateral hydronephrosis and hydroureter. Table VI shows the incidence of urinary tract changes with prolapse reported by various workers.

Various views have been put forward by different authors regarding the causation of hydronephrosis, (Bretton and Rubin 1923; Schmitz and Laibe 1929; Parikh and Parikh 1966).

Parikh and Parikh suggested that these may be due to one or the other of the following.

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

TABLE VI

Year	Name of the Authors	No. of cases	%age	Method of study
1952	Racker	4	30.9	I.V.P.
1952	Mukherjee	4	28.0	"
1961	Bhatt	15	17.2	"
1966	Parikh and Parikh	29	32.0	"
	Present study	70	28.5	"

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 cases of procidentia.

Elongation of the ureter was found in 42.8%. It is always associated with cystocele of varying degree and is always bilateral. Rubin observed elongation of ureters in 50% of his cases. Table VII shows various incidences reported.

found in 1 case amongst 15 cases. The constant dragging of the ureters due to prolapse could be a causative factor for renal ptosis. In the present study, only one case of vesical calculus was found. Bladder stone in females is a rarity. (Everett 1937; Bhatt 1959; Parikh and Parikh 1965). Parikh and Parikh (1965) explained the rarity of bladder stones in females because of short urethra which expels the nucleus in very early stages of development. Cases of vesical calculus have been reported off and on (Bhatt

TABLE VII

Year	Name of Authors	No. of cases studies	Percentage of changes
1929	Schmitz and Laibe	4	60.0
1938	Young	4	50.0
1939	Wallingford	4	66.6
1966	Parikh and Parikh	39	51.3
	Present study	70	42.8

Dilatation of the pelvis and the calyces is a rare finding and has not been observed by other workers. In the present study it was found only in 2.8% of the cases. This could be due to kinking at the pelvis ureteric junction and could represent the early development of hydronephrosis. Ptosis (Fig. 6) of the kidney was observed in 3 cases, i.e. 4.2%. In two of these cases it was bilateral and accompanied bilateral hydronephrosis. Parikh and Parikh (1966) reported 1 case of ptosis out of 39 cases, whereas Bhatt (1961)

1959), Parikh and Parikh (1965).

Trabeculation of the bladder is a very frequent finding in cases of cystocele. Of the 8 cases of cystoscopy, 6 showed trabeculation. The obvious explanation is obstruction due to cystocele and kinking of the urethra. Diverticulum was seen in one case and it was associated with marked cystocele which might explain the formation of diverticulum by giving rise to obstruction and stasis.

After surgery only 10 cases could be followed up by I.V.P. after 3 months. Six

cases had complete regression of these changes to normal, while in the other 4 cases no substantial changes were seen. Kietschmer and Kantar 1937 observed regression of these changes after surgery in 72.5% of the cases 2-3 months after, whereas Klempner (1952) observed regression of hydroureteronephrosis in 75% of cases. Bhatt, 1961 noted only slight improvement in hydroureteronephrosis after Mayo-Ward operation. Parikh and Parikh (1966) stated that if prolapsed uterus is treated in time by proper surgery, reversion occurs in most of cases and function of urinary tract returns to normal.

Though our cases are few, still it could be said that in women with genital prolapse the operation is not only of importance for genital organs but also exerts a therapeutic influence on the lesion of the upper urinary tract already present.

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See Figs. on Art Paper XI