

UROLOGICAL INJURIES DURING GYNAECOLOGICAL SURGERY (A RETROSPECTIVE STUDY)

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SUMMARY

A ten year retrospective study was performed to analyse urological injuries during gynaecological surgery. During this time 8481 major surgical procedures were done and 15 (0.18%) patients had such injury during the operation. Incidence was a little higher in abdominal operations (0.19%) as compared to vaginal operations (0.14%). Bladder injuries were more frequent than the ureteric injuries. In less than 30% of cases any predisposing factor such as adhesions, large masses, etc. was found.

INTRODUCTION

Iatrogenic urinary tract injuries are not uncommon during surgical procedures and the Gynaecologists are often considered responsible for these. This may be true to some extent. It is because the ureters, bladder and urethra are always at risk during pelvic surgery due to their anatomical proximity to the genital tract and their common involvement by gynaecological diseases. The incidence is variably reported to be between 0.16% and 1% of all pelvic operations¹ depending upon the type of operation. These injuries are usually in the form of ureteric ligation or transection and inadvertant opening of the urinary bladder. Urethra is rarely injured in the operations like vaginal repairs, urethral diverticulectomies and in operations for stress incontinence.

The aim of this retrospective study was to find the incidences of such injuries in our department in the last ten years. In addition the indication for surgery in these cases, type of injury and the predisposing factors were also analysed.

MATERIAL AND METHODS

The record of all the patients sustaining urological injuries during gynaecological surgery performed in Gynae. "A" Unit between 1st January, 1985 and 31st December, 1994 was reviewed. All the patients with either emergency or routine admission were included.

A total of 8481 major surgical procedures were performed during this period. Out of these 5660 were done abdominally and 2821 by vaginal approach. Age of the patients varied between 13-72 years. Both married and unmarried, nulli and multiparous were included.

According to the routine of the unit, patients had abdominal and vaginal assessment by registrar or consultant after their initial examination by the house surgeons. Pre-operative routine investigations were performed in all the cases except a few admitted in emergency such as ectopic pregnancy necessitating urgent surgery.

Special investigations like ultra-sonography, Intravenous urogram and biochemical tests had been done where indicated.

RESULTS

There were 15 (0.18%) urological injuries in a total of 8481 operations performed over the past 10 years.

During these ten years 5660 (66.7%) of the total patients underwent abdominal surgery and out of these 11 (0.19%) had urological injuries. Out of 2821 vaginal procedures (33.3% of total), there were only 4 (0.14%) urological injuries.

As is obvious from the detailed description given in the Tables the maximum number of the urological injuries occurred during laparotomies, nearly half were uncomplicated cases. These were to the fundus of bladder in four cases. Three of these occurred while opening the parietal peritonium while in one the bladder was adherent to the pelvic mass and got opened during the separation. The mass was found to be a Hydatid cyst. All the injuries were repaired by the surgeon responsible for them. The two cases who had ureteric transections were nearly unavoidable as

they were virtually passing through the capsule of the ovarian tumours, one of which was serous cystadenoma and the other one endometriotic chocolate cyst. These mishaps were recognized during the operation and in both cases ureteroneocystostomies were performed by General Surgeon.

Uterine fibroids particularly in the cervical region distort the local anatomy and predispose to such injuries. Three out of the four abdominal hysterectomies during which urinary tract was injured were performed for fibroid uterus. Two of these had cervical fibroids and the ureter was injured in one and ligated in the other. One presented later with ureterovaginal fistula and ureteroneocystostomy was performed four months later. The one who had ureteric ligation developed hydroureter and hydronephosis for which repeat laparotomy and ureteric-catheterization was performed by the Urologist. The obstruction resolved spontaneously after dissolution of the ligature. The two bladder injuries

TABLE - 1
YEAR WISE DISTRIBUTION OF UROLOGICAL INJURIES

Year	Total Op	Abd	Uro Inj	Vag	Uro Inj
1985	609	422	1	187	—
1986	734	489	1	245	—
1987	776	526	2	250	—
1988	930	614	2	316	—
1989	1060	690	2	370	—
1990	862	576	2	286	1
1991	857	563	—	294	—
1992	828	534	—	294	1
1993	907	606	1	301	1
1994	918	640	—	278	1
Total	8481	5660	11 0.19%	2821	4 0.14%
					Total Injuries 15 (0.18%)

TABLE - 2
ABDOMINAL OPERATION

A. LAPAROTOMIES		No.	Site/Type	Management
i.	Ectopic Preg.	2	Fundus of Bladder	Immediate Repair
ii.	Ovarian Tumour	2	Ureteric Transection	Ureteroneo-cystomy
iii.	Mass Hypogastrium (Hydatid)	1	Fundus of Bladder	Repair
iv.	Perforated Uterus	1	Fundus of Bladder	Repair
B. ABDOMINAL HYSTERECTOMIES				
i.	Fibroid Uterus	3	i. Supratrigonal Area of Bladder	Repair
			ii. Ureteric Ligation	Repeat Lap. and Ureteric Catherization above ligation
			iii. Ureterovaginal Fistula	Ureteroneocystomy
ii.	Endometriosis	1	Post surface of Bladder	Repair

during abdominal hysterectomies had bad adhesions because of pelvic inflammatory disease and endometriosis.

It was the separation of vaginal wall from the bladder during which bladder got opened in the 4 vaginal repair operations. Only one that is the vault prolapse had adhesions due to the previous surgery. One patient who had vaginal agenesis had injury to the base of bladder during the vaginoplasty. She had virtually no space between bladder and the rectum. All these injuries during vaginal operation were satisfactorily repaired.

DISCUSSION

Operative urological injuries during gynaecological surgery can be a cause of prolonged morbidity and lead to legal, economic and emotional problems. The incidence of such injuries (0.18%) was much lower than expected considering that complicated cases are referred to this

Hospital and, moreover, being a teaching institute a lot of surgery is performed by the trainee registrars, usually with limited experience. The incidence is quite low when compared with the result from a hospital involved in resident training where it was 1.7%.² As mentioned by Win. Guerriero the low incidence in various studies may be due to the fact that many such injuries are missed and are revealed several days after the operation. This particularly happens in those cases where there is crush injury due to clamping or by ligature. So many such cases may not have returned.

The predisposing or risk factors for such injuries are congenital anomalies, inflammation and adhesions, large tumours, malignant invasion, radical surgery and pelvic radiation.^{4,5,6} But they can occur in so called easy operations for benign diseases.^{7,8} In this study such predisposing factors were present in less than 30% of cases.

TABLE - 3
VAGINAL OPERATION

i.	Vaginal Hysterectomies for Uterovaginal prolapse	2	Supratrigonal area of Bladder	Repair per Vagina
ii.	Anterior Colporrhaphy for Cystocele	1	Post surface of Bladder	Repair per Vagina
iii.	Vault Repair for Vault Prolapse	1	Post surface of Bladder	Repair per Vagina
iv.	Vaginoplasty Vaginal agenesis	1	Base of Bladder	Repair per Vagina

If these injuries are recognized and repaired at the time of operation the post operative morbidity can be reduced significantly.^{9,10} Only two of these injuries in our study were not diagnosed during operation: the one who developed uretero-vaginal fistula and the second who had ureteric ligation. All the bladder injuries were diagnosed and repaired immediately.

The diagnostic features of such injuries are wetting of the operative field with urine, blood in the urine or the disturbing sight of the balloon of the Foley's catheter.³ Cases of suspected injury can be confirmed by filling of bladder with dye or intravenous injection of dyes like Indigo. Carmine and Methylene Blue. Intravenous lasix and fluids may help if such dyes are not available. If in doubt cystoscopy and retrograde ureteric catheterization is the ultimate answer. In the absence of the facility of cystoscopy one should not hesitate to open the bladder and catheterize the ureters.

This study also revealed that most of the injuries were repaired by the surgeon responsible for these. In this study we tried to find whether such mishaps could have been avoided, but as already mentioned these occurred in the cases which were thought to be simple. So as also concluded by Manu W.J even extensive roentgenographic investigations of genito urinary tract prior to operation can not help to prevent them.^{4,5} According to Simel D.L et

al who studied cost effectiveness of pre-operative intravenous urogram for benign diseases, these should be performed only in selected cases where there is great probability of abnormality. Thus important factors in prevention of such injuries is clear exposure of structures at risk and application of proper surgical technique.

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