

Cesarean Delivery As One Of The Common Causes Of Gynecologic Urinary Tract Injuries

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Abstract

The purpose of this survey was to review urologic complications of gynecologic surgeries referred to the urology department of our hospital in a period of 15 years.

All recorded files of the urology department of the Imam Hospital and referred consultations from 1994 until 2009 were reviewed. The documents of all patients with urinary tract injuries through gynecologic surgeries were evaluated. All information about primary operative procedure, type of injury, age, date of presentation, symptoms at the presentation, laboratory data, imaging studies, method of surgical corrections and results of procedures were analyzed.

There were 43 urinary tract injuries due to gynecologic surgeries. The most common injuries were vesicovaginal fistulas in 17 cases (39.5%) followed by ureteral ligation in 13 cases (30.23%). Primary surgery causing these complications were cesarean deliveries in 16 (37.2%) and abdominal hysterectomies in 13 cases (30.23%).

In this research cesarean delivery is one of common causes of urinary tract injuries. An important predisposing factor is the emergent situation of cesarean deliveries. Case reports and awareness of the patient's gynecologic state and anatomical details of the lower urinary tract can prevent complication and urinary tract injuries.

INTRODUCTION

In women, due to approximation of urinary and internal genital tract, the urinary tract is in jeopardy of getting inflicted by diseases or injuries during gynecologic surgeries (1). About 75% of urinary tract injuries resulting in vesicovaginal fistulas occur during gynecologic surgeries (2). On the other hand in about 1.6-2.5% of major gynecologic surgeries bladder or ureter injuries are seen (3). Because some of injuries get corrected spontaneously or are not reported or due to loss of total or partial function of the kidneys, the true prevalence of bladder or ureteral injuries should be considered to be higher than these found in the records.

There are two predisposing factors in increasing complications of injuries during operations:

A: Most of urinary tract injuries occur during operations for benign diseases and non problematic states.

B: Most injuries aren't diagnosed during primary operations. Because we haven't any information about these injuries in our region we started this study to clarify the extent of the problem.

METHODS AND MATERIALS

The study was descriptive statistical. All the documents of

the urology department patients (more than 30,000 documents) were reviewed. The urology department of Imam Hospital is the referral centre for all kinds of urinary tract injuries and traumas. Patient's documents with urinary tract injuries caused by gynecologic surgeries were reviewed. The review included all information including: age, parity, cause and time of referral after injury, laboratory findings, radiologic and cystoscopy findings, kind and site of primary surgery. By call contact the data were completed. From 30,000 hospitalizations in 15 years there were 43 patients with lower urinary tract injuries after gynecologic surgeries.

RESULTS AND DISCUSSION

The information of the 43 patients was analyzed. Mean age of the patients was 43.3 years (between 20 and 70 years), and mean parity 4.9 (0-14). Most common symptoms were true incontinence in 48.27% (20 cases) with diagnoses during operation 20.68% (9 patients). Bad general condition, abdominal pain, weakness, nausea, vomiting, vaginal discharge, hematuria, or irritative symptoms had been seen in other patients. Complications resulting in bilateral ureteral ligation had been seen in 1 patient (2.32%).

Most common operations that caused urinary tract injuries

were cesarean deliveries in 16 (37.2%) and abdominal hysterectomies in 13 cases (30.23%) (Table1).

Table 1

Relative prevalence of gynecologic surgeries causing urologic complications

Surgery	Number	Percent
Cesarean section	16	37.2
Abdominal hysterectomy	13	30.23
Excision of ovarian mass	3	6.97
Vaginal hysterectomy	3	6.97
Pereira operation	2	4.65
Tubal ligation	2	4.65
Curettage and laparotomy	1	2.32
Radical hysterectomy	1	2.32
Burch colposuspension	1	2.32
Cystocele repair	1	3.34

Mean interval before referring patients for surgical repair was 77.48 weeks (0-960 w). In 9 cases (20.93%) diagnoses of injury was during primary surgeries (7 bladder injuries and 2 ureteral injuries).

Urine analysis of the patients showed pyuria in 44.18 % (19 patients) and hematuria in 32.55 % (14 patients), urine cultures were positive in 31 cases (72.09%). The most common isolated organism was E. coli followed by Entrobacter, Pseudomonas and Klebsiella.

Renal function with considering Cr >1.5 gr/dl as renal insufficiency was normal in 79.06 % (34 cases). There was rising of Cr in 18.6% of patients (8 cases) and one of patients needed to get dialysis. 62.79 % (27 patients) had hydroureteronephrosis and 37.2% had normal kidneys in Ultrasonography and IVP. Urinary tract injuries details are shown in table (table 2).

Table 2

Relative prevalence of urinary tract injury in 43 patients

Injury	Number	Percent
Vesicovaginal fistula	17	39.53
Ureteral ligation	13	30.23
Bladder rupture	9	20.93
Uterovesical fistula	1	2.32
Uretherovaginal fistula	1	2.32
Foreign body in bladder	2	4.65

Cesarean delivery is one of the common gynecologic operations that caused urinary tract injuries. Therefore understanding its proper indications and methods seems to

be imperative. The risks associated with cesarean delivery can be divided into short term, longer term and those that present risks to future pregnancies. Incidental surgical injuries are short term. Bladder injuries are the most common injuries to surrounding structures occurring at the time of cesarean delivery. In evaluating a series of nearly 15,000 cesarean deliveries, bladder injuries were encountered in 0.28% of deliveries (0.14% for primary cesarean sections and 0.56% for repeat procedures)(4). Less common surgical injuries involve the bowel or ureters. Risk factors for any of these injuries are prior pelvic surgery (including prior cesarean deliveries), emergency cesarean delivery, and cesarean-hysterectomy (4, 5). Early recognition and prompt management of these injuries are important points for preventing the development of further complications, such as sepsis, renal failure, and fistula formation (3, 6). Despite the fall of urinary tract injuries caused by gynecologic operations, these complications still are seen. Comparison between the result of this study with similar surveys showed lower age of our patients (the difference wasn't significant) that probably was due to high prevalence of cesarean sections and other operations in this age group (7). Our patients had a rather longer delay before referring for follow-up.

In this study the rate of diagnosis of ureteral injuries during operation was 15.38% which is equal with most previous studies (6, 7).The rate of ureterovesical co-injuries was lower comparing to other studies which probably is due to the ureter position and surgeons concentration on the ureter instead of bladder region (2, 8). Cesarean delivery was one of operations resulting in ureteral injuries. There was a significant difference with other similar studies that could be due to frequent implementation of cesarean deliveries in emergent status (9). There was no ureteral injury resulting from diagnostic or therapeutic laparoscopy due to lower incidence of laparoscopy in our region in that period. There was no ureteral injury with vesicovaginal fistula. Nowadays in the ureteral injury situation the urologists prefer an initially noninvasive management such as DJ stent placement but definitive treatments including simple ureteral reimplantation, Boari flap procedure and psoas hitch are successful in most cases (7, 10) . About 26.92% of bladder injuries were diagnosed during the operation that was significantly different from previous studies with 51% diagnoses during operations. There was one bladder injury during tubal ligation that had no similar injury in the reviewed studies. Good surgical practice involves awareness of the risk factors, and anticipating and preventing any

injury. Despite an emergency situation, the surgeon should proceed in a controlled manner to limit the chance of bladder injury (5) .

CONCLUSION

Cesarean delivery is one of the common gynecologic operations that caused urinary tract injuries during surgeries; therefore understanding of its proper indications and methods seems to be imperative.

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