170

Venkitaraman U[1], Dixit S[1], Chilaka V[1]
1. *Derby City General Hospital*

MANAGEMENT AND OUTCOME OF INJURY TO THE URINARY TRACT AT GYNAECOLOGICAL AND OBSTETRIC PROCEDURES AT A BUSY DISTRICT GENERAL HOSPITAL

Hypothesis / aims of study

To determine the prevalence, management and outcome of urinary tract injury in obstetric and gynaecological procedures at a busy district general hospital in the UK over a five year period from 1st Jan 2004 to 31st December 2008.

Study design, materials and methods

The hospital numbers of patients who sustained urinary tract injuries which required repair in the intraoperative or postoperative period during the period from 1st Jan 2004 to 31st December 2008 were obtained from the coding office. A retrospective review of the notes was performed and the following data were extracted- age, BMI, procedure being performed, grade of surgeon, complexity of the procedure, site of injury to the urinary tract, repair performed and outcome of repair.

Results

There were 31 bladder injuries which required repair and which were sustained during procedures in obstetrics and gynaecology in that time period. We were unable to locate one set of notes. Hence the analysis is on the remaining 30 patients. Twelve (40%) urinary tract injuries occurred at caesarean section (CS) and the remaining eighteen (60%) occurred during gynaecological procedures. The median age in the obstetric patients was 35 (range 26-39) and median BMI was 30 (range 21-52). The median age in the gynaecology patients was 52.5 (range 37-84) and median BMI was 26 (range 21-34). Half the caesarean sections (50%) were performed by a consultant or associate specialist and 16 out of 18 (88%) gynaecology procedures were performed by consultants. There were 5501 caesarean sections during that time period. This gives us an incidence of urinary tract injury at CS of 0.56%. Of the 12 injuries at CS, one was a ureteric injury and the others were bladder injuries. 10 out of the 12 (83%) women had had at least one previous caesarean section and in 7 of the 12(58%), the bladder was very adherent to the lower segment. One CS was complicated by extension of angles into the broad ligament with massive obstetric haemorrhage and one CS ended in a hysterectomy for placenta percreta. 23247 gynaecology procedures(Elective-6933, Emergency- 2415 and Day Case- 13899) were performed during that period. The incidence of urinary tract injuries requiring repair as a percentage of all gynaecology procedures performed and all major elective procedures performed was 0.08% and 0.26% respectively. The gynaecological procedures at which urinary tract injury occurred are shown in Table 1.

Table 1

Procedure	Number (Percentage)
Total Abdominal Hysterectomy +/- Bilateral salpingo-oophorectomy (TAH+/-BSO)	11 (61)
Laparotomy and debulking of ovarian tumour	2 (11)
Laparotomy and excision of retroperitoneal tumour	1 (5.5)
Laparotomy and BSO	1 (5.5)
Total Laparoscopic Hysterectomy (TLV)	1 (5.5)
Laparoscopic adhesiolysis and dye test	1 (5.5)
Sacrocolpopexy	1 (5.5)

The procedure was made challenging by the presence of large fibroids in 6 women, ovarian/retroperitoneal mass distorting anatomy in 5 women, densely adherent bladder in 8 women and dense adhesions in 4 women. All injuries except 1 were to the bladder and were detected intra-operatively and were repaired. with 2-0 vicryl or monocryl. In the majority of cases the repair was tested by injecting methylene blue into the bladder and checking for a good seal. Urology input was requested in 12 women(40%). The duration of continuous bladder drainage ranged from 2 to 25 days. The ureteric injury was detected 4 days after LSCS and was diagnosed by a combination of cystoscopy, ureteroscopy, intravenous urogram (IVU) and retrograde cystogram. This patient underwent a right nephrostomy in the first instance as a stent could not be passed up the right ureter. This was followed 7 weeks later by a laparotomy and reimplantation of the right ureter. Broad spectrum antibiotics were given in all but I woman (97%) for a period ranging from 5-7 days. One woman was lost to followup. The patient with ureteric injury had a normal IVU 6 weeks after the ureteric reimplantation and is doing well. In the remaining 28 women the bladder injury healed with no problems.

Interpretation of results

Our incidence of bladder injury of 0.56% during caesarean is comparable to other units (1). Our study confirms the finding by (2) that previous caesarean section is a significant risk factor for bladder injury at subsequent caesareans. Ureteric injury at Caesarean section is rare (1) and occurred in one woman at CS when the angle extended into the broad ligament. This was accompanied by torrential haemorrhage which obscured the field and made securing haemostasis difficult. Our incidence of urinary tract injury at major elective gynaecological procedures of 0.26% was less than that quoted by (3). Most urinary tract injuries (88%) in gynaecology occurred where the anatomy was significantly distorted by fibroids, adnexal masses and adhesions. All the bladder injuries were detected intra-operatively and managed appropriately. A high index of suspicion for ureteric injury resulted in an early diagnosis and management. The outcome of repair of urinary tract injury by obstetricians, gynaecologists and urologists in our unit was excellent.

Concluding message

Patients should be counselled that there is a significantly increased risk of urinary tract injury during repeat CS and in gynaecological procedures where the anatomy is distorted. They can be reassured that the outcome of repair of these injuries is excellent.

References
1. Eisenkop SM, Richman R, Platt LD, Paul RH. Urinary tract injury during caesarean section. Obstet Gynecol 1982;60(5):591-596
2. Phipps MG, Watabe B, Clemons JL, Jeffrey L, Weitzen S, Myers DL. Risk factors for bladder injury during caesarean delivery. Obstet Gynecol 2005;105(1):156-160
3. Nawaz FH, Khan ZE, Rizvi J. Urinary tract injuries during obstetrics and gynaecological surgical procedures at the Aga Khan University Hospital Karachi, Pakistan: a 20 year review. Urol Int 2007;78(2):106-111

Specify source of funding or grant	**None**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**No**
This study did not require eithics committee approval because	**This was a retrospective review of case notes of women who had sustained a urinary tract injury during obstetric and gynaecology procedures.**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**No**