



A PILOT STUDY ON BACTERIURIA FOLLOWING CATHETERIZATION IN OBSTETRICS AND GYNECOLOGICAL SURGERIES

Gynaecology

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ABSTRACT

BACKGROUND: Indwelling Foleys catheter does continuous urinary drainage in the postoperative period of patients undergoing obstetric and gynecological surgeries.

AIMS and OBJECTIVES: To study the rate of postoperative catheter induced bacteriuria in obstetric and gynecological surgeries using variables such as duration of catheter insitu, type of bacteriuria, type of surgery and most common organism isolated. **METHODS :** This study is a retrospective observational study done over a period of 2 months from March 2019-April 2019 in which 64 patients were enrolled. The variables studied are rate of catheter induced bacteriuria, common organisms isolated, rate of bacteriuria associated with duration of catheterization.

RESULTS: Rate of catheter induced bacteriuria was 32.8%. Most common organisms isolated were *E.coli*, *Klebsiella*, *Pseudomonas*. Bacteriuria was 15.38% when duration of catheterization was 24 hrs, 35% when duration of catheterization was 48 hrs and 55.5% when duration of catheterization was 72 hrs.

CONCLUSIONS: It is better to avoid catheterization. Duration of catheterization should be reduced to minimise catheter induced bacteriuria and associated morbidity, prolonged hospital stay after surgery.

KEYWORDS

Bacteriuria, Postoperative urine culture, Nosocomial, Methicillin resistant Coagulase negative *Staphylococcus*.

INTRODUCTION:

Bladder drainage by transurethral Foleys catheter is a common practice used during and after gynecological and obstetrical surgery to monitor urine output and prevent post-operative urinary retention.¹ However, its implementation was relatively custom based, hospital policy based and personal preference dependent, therefore duration varies markedly.² Risk of infection is about 5-10% with each day of indwelling catheterization and 1-3% with each insertion in intermittent catheterization.^{3,4} The catheter is usually removed immediately after surgery or 12-24 hours or more post surgery. This practice has been associated with urinary tract infections.^{5,6}

Urinary catheter acquired infection is usually manifested as asymptomatic bacteriuria (CA-ASB).⁷ Asymptomatic bacteriuria is defined as one or more organisms present in quantitative count >100000 CFU/ml in the absence of symptoms.

UTI IS defined as one or more organisms present in quantitative count >100000 CFU/ml associated with one or more of dysuria, pain, fever, rigor or sepsis.

The most common infecting organism is *E.coli*. Other organisms are *Enterococcus*, *MR CONS* (methicillin resistant coagulase negative staphylococcus), *Candida albicans*, *Klebsiella species*, *Streptococcus species* and *Proteus mirabilis*.²

METHODS:

This is a retrospective observational study. Data were collected from 64 patients who underwent obstetric or gynecological surgery conducted between March 2019-April 2019 in department of Obstetrics and Gynecology ASRAMS medical college Eluru.

Routine blood investigations were done. Preoperatively Foley's catheter was inserted under strict aseptic conditions 30 minutes before start of surgery. Routine urine examination was sent on postoperative day 2. Urine culture was sent for those who had 4 or more pus cells per high power field on routine microscopy. All patients received spinal anesthesia except those who underwent laparoscopy which was done under general anesthesia.

Duration of catheter in situ was different in various surgeries ranging from minimum 1hr to maximum 72 hours. Prophylactic antibiotics were given 30 minutes before skin incision and continued for 7 days postoperatively.

INCLUSION CRITERIA:

All the patients undergoing surgery for obstetrics and gynecological indications were catheterized.

EXCLUSION CRITERIA:

Preoperative urine culture positive
Injury to bladder or ureter during operation

Other associated complications during operation e.g., hematoma, excessive hemorrhage.

Neurological disorders, urinary incontinence.

Variables assessed are duration of catheter in situ, type of bacteriuria, type of surgery and most common organism isolated.

RESULTS:

A total of 64 patients were enrolled in the study. 50 patients underwent lower segment cesarean section (LSCS) and 14 patients underwent gynecological surgeries. Gynecological surgeries performed were Total abdominal hysterectomy (TAH), Vaginal hysterectomy along with pelvic floor repair (VH+PFR), Anterior colporrhaphy along with posterior colporrhaphy (AC+PCR), ovarian cystectomy. Duration of catheterization was 24-72 hours. 21 (32.8%) patients had postoperative urine culture positive.

26 patients had duration of catheterization of 1-24 hours out of which 4 patients (15.38%) had positive postoperative urine culture, 20 patients had duration of catheterization 25-48 hours out of which 7 patients (35%) had positive postoperative urine culture, 18 patients had duration of catheterization 49-72 hours out of which 10 patients (55.5%) had postoperative urine culture positive. Most common organism isolated was *E.coli*. Other organisms are *MR CONS*, *Klebsiella*, *Pseudomonas*, *Candida albicans*.

TABLE 1: Various surgeries performed

NAME OF SURGERY	No OF PATIENTS	PERCENTAGE OF PATIENTS
LSCS	50	78.1%
TAH	10	15.6%
VH+PFR	2	3.1%
AC+PCR	1	1.6%
OVARIAN CYSTECTOMY	1	1.6%

TABLE 2: Postoperative urine culture positive.

POST OPERATIVE URINE CULTURE POSITIVE	No OF PATIENTS	%
Positive	21	32.8%
Negative	43	67.2%

TABLE 3: Various organisms isolated

ORGANISM ISOLATED	No OF PATIENTS	%
E.coli	7	33.3%
MR CONS	5	23.8%
Klebsiella	4	19.1%
Pseudomonas	3	14.2%
Candida	1	4.8%
Polymicrobial	1	4.85%

TABLE 4: Duration of catheterization and postoperative urine culture positive rate

DURATION OF CATHETER IN SITU IN HOURS	No OF PATIENTS	No OF POSTOPERATIVE POSITIVE CULTURE	% OF POSITIVE CULTURE
1-24	26	4	15.38%
25-48	20	7	35.5%
49-72	18	10	55.5%

DISCUSSION:

In our study catheter induced bacteriuria was 32.8%. Results were comparable with study done by Stamm WE and Hilton P where bacteriuria rate was 30%.^{7,8} Similar results were obtained in study done by Rupakala BM et al where bacteriuria was 34.5%.

In our study, most common organism isolated was *E.coli*. Results are comparable with study done by B Shreshta et al which showed that *E.coli* was most common organism.

In our study bacteriuria was more when duration of catheterization was more. Similar study done by S Niveditha et al found catheter induced bacteriuria was more when duration of catheterization was more.⁹

Study done by Glavid et al, found that rate of catheter induced bacteriuria was more in long term catheterization.¹⁰

Study done by Hijalmer et al also found that catheter induced bacteriuria was more in long term catheterization.¹¹

CONCLUSION:

We conclude that catheter induced bacteriuria was more when duration of catheterization was more. It is better to avoid catheterization wherever possible. If not possible at least duration of catheterization should be reduced. This reduces catheter induced bacteriuria and associated morbidity, hospital stay and financial burden.

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