Original Article

DOI: 10.7860/JCDR/2020/45208.14073

Adverse Effects Associated with Urethral Catheter Placement- Patient's Perspective

Surgery Section

AVINASH PS THAKUR[1], VIVEK SHARMA[2], PRASHANT PATEL[3], ARPAN CHOUDHARY[4], FANINDRA SINGH SOLANKI[5], SANGEETA SINGH[6]

ABSTRACT

Introduction: Although Indwelling Urinary Catheter (IUC) have an important role in the care of hospitalised patients, nevertheless it is associated with numerous issues that must be addressed on a daily basis. Due to its invasive nature, it is a cause of discomfort and/or pain and also a potential threat to patients safety. The various adverse effects of IUC are associated with higher risk of infection, longer hospital stay and negative impact on daily activities of the patients. Patients perspective is the best source of information for IUC related adverse effects.

Aim: To estimate the incidence of all adverse effects (complications) associated with the IUC use and to reproduce patients perception about how their well-being and safety is affected by it.

Materials and Methods: In this observational study, hospitalised patients with an IUC were identified and followed-up for 30 days after its insertion. Information regarding both infectious and non-infectious IUC related adverse effects (complications) was collected through patients interviews. Follow-up assessments were performed 15 days and 30 days after the catheter insertion. During this assessment patient's perspectives about the IUC and its adverse effects were collected. All variables were categorical and percentage and proportions were calculated manually.

Results: Total 390 patients were evaluated and analysed. Study comprised of 73.85% males and 26.15% females. The mean age was of 56.7±6.5 years. The IUCs was inserted before surgical procedures in 305 patients (78.2%) with 284 patients (72.82%) having them removed within five days of insertion. A total of 259 patients (66.4%) reported at least one complication because of the IUC. The non-infectious complications were 54.1% and infectious were 12.3%. Both infectious and noninfectious complications were described more commonly by patients who still had their IUC. Most common complications were feeling of urgency/bladder spasms (25.9%) in catheter removal group and pain/ discomfort (52.7%) in catheter in situ group.

Conclusion: As per the patients perspective the non-infectious complications are also bothersome in addition to the infectious one and management programme should include both the component essentially.

Keywords: Catheter associated urinary tract infection, Complications of urethral catheter, Indwelling urinary catheter, Urinary tract infection

INTRODUCTION

After its invention in the 1930s, the IUC are one of the most commonly used medical devices [1]. It is estimated that 20% of hospital inpatients have IUCs placed during their hospital stay [2-4]. Due to its invasive nature, it is a cause of discomfort and/or pain and also a potential threat to patients safety. Catheter-Associated Urinary Tract Infection (CAUTI) is the most common catheter-associated adverse effect (complication) [3,5]. Per day the IUC remains in situ in a patient, he/she has a 3% to 7% increased risk of acquiring a CAUTI [6,7]. There are several studies on infectious complications of IUC in the literature but the non-infectious complications associated with their use are still ignored by researchers. Several patient safety problems are related with Foley catheters [8]. There are symptoms due to non-infective aetiology of catheter, which are bothersome and non-negligible for the patients. These include post catheterisation pain, Catheter-Related Bladder Discomfort (CRBD) (described by the patients as urinary frequency and urgency with or without the sensation of urge incontinence), catheter associated trauma, catheter blockage, accidental dislodgment, urine bypassing and on long term catheterisation haematuria and development of stricture urethra. The various complications of IUC are associated with an increased length of hospital stay and higher risk of urinary tract infection among surgical patients [9].

Hollingsworth JM et al., reported in their study that non-infectious IUC related adverse effects were as prevalent as infectious component [10]. Patients frequently point out that an IUC insertion causes feeling of intermittent or constant pain, negative impact on daily activities and sleeping habits. In addition, several studies reported that gradually patient's tolerance increased for these complications of urinary catheter, but most of them experienced discomfort, embarrassment, agitation, dismay and pain with reduced quality of life [11-13]. Although the patient is the best source of information for IUC related adverse effects, unfortunately data on the study of these problems in patients perspective are limited.

Hence, the aim of this study was to estimate the incidence of all adverse effects (complications) associated with the latex IUC and to reproduce end user (patient) perception about how their well-being and safety is affected by the use of IUC.

MATERIALS AND METHODS

This observational study was conducted in the tertiary care centre, from November 2018 to March 2020. Sample size was calculated using Open epi software version with margin of error and confidence levels were kept at 5% and 95%, respectively. Total 390 hospitalised patients (initially 435 patients were selected but 45 lost during follow-up and did not respond) with an IUC (made of latex) were identified and followed-up for 30 days after its insertion, even if the catheter had been removed during that time. All participants provided written informed consent.

Inclusion criteria: Urology staff identified patients on selected inpatient wards who were catheterised during the previous five days. Patients eligibility criteria were:

1. Admitted in an acute care, intensive care and progressive care units,
2. Catheterisation for the first time during this hospital stay,

3. Patients age more than 18 years,
4. IUC had been in place for no longer than five days.

Exclusion criteria:

1. Age less than 18 years.
2. Patient's inability to provide information during assessment process (e.g., dementia, delirium or poor condition).
3. Non-consenting patients.
4. Patient that missed the follow-up.

Potentially eligible patients were included in the recruitment process. Information about patient characteristics, infectious and non-infectious complications of urethral catheter, reason for urethral catheter insertion, any symptom before catheterisation was obtained directly from patients. Follow-up assessments were performed 15 days and 30 days after the catheter insertion. During these follow-up assessments, patients were asked about their symptoms and experiences during the previous two weeks and four weeks. These assessments were conducted in Out Patient Department (OPD) if patient was willing to come to hospital or by telephone. Patients who did not respond were excluded from the study. During this assessment patient's perspectives about the IUC and its adverse effects such as pain and other symptoms were collected and analysed.

Study Measures

Primary end results were infectious and non-infectious adverse events related with IUC. All participants were informed about the symptoms of infectious complications including fever, burning micturition, frequency or urgency in urine and other signs indicative of infection that needed them to visit a physician. Non-infectious events for patients in which IUC was removed included blood in the urine, feeling of urgency or bladder spasms, incontinence of urine, difficulty with starting or stopping the urine. For participants with an IUC in situ, non-infectious drawback included feeling of urgency or bladder spasms, pain or discomfort, blood in the urine and trauma to the skin. Secondary end results of interest focused on patients perspectives about their IUC, such as their effect on daily activities, social living and comfort level.

STATISTICAL ANALYSIS

The general descriptive statistics for all variables of interest, including baseline patients characteristics and outcomes of interest were calculated. The primary outcome was the percentage of patients experiencing a complication from an IUC at any time, which was measured for selected individual complications as well as by category (infectious vs. non-infectious). The frequency of complications at each site was also analysed. All variables were categorical and percentage and proportions were calculated manually.

RESULTS

Out of 435 eligible patients, 390 patients were evaluated and analysed after their consent, the rest were lost to follow-up. Study comprised of 288 (73.85%) males and 102 (26.15%) females. The mean age was of 56.7±6.5 (range 19-70) years. Patient's demographic features are provided in [Table/Fig-1]. History of catheterisation in past was present in 34 (8.7%) patients. IUCs were inserted before surgical procedures (urological and non-urological surgeries such as hernia, appendix etc., were included) in 305 participants (78.2%) and for short duration (3.3±0.7 days); with 284 patients (72.82%) having them removed within five days of insertion. Out of 390 patients, 348 were followed-up in OPD and 42 were followed-up by telephone. Total 26.4% patients described experiencing soreness, bleeding, discomfort or injury during catheter insertion or removal when it was kept for less than five days whereas 35.8% patients reported these adverse effects when catheter was kept for more than five days.

Variable	Total patients (N=390)
Age in years (mean and SD, range)	56.7±6.5 (19-70)
Male and female	288/102
History of catheterisation in past	34 (8.72%)
Cause of catheter insertion-	
During surgical procedure	305 (78.20%)
Urinary retention	36 (9.23%)
For measuring the hourly urine output	12 (3.07%)
For incontinence	10 (2.56%)
For immobilisation of patient	9 (2.30%)
For other reasons	18 (4.61%)
Comorbidities-	
Heart disease	41 (10.5%)
Diabetes	26 (6.6%)
Renal insufficiency	17 (4.4%)
Duration of IUC use ≤5 days	284 (72.82%)
Duration of IUC use >5 days	106 (27.17%)
Experienced pain, discomfort, bleeding, or trauma during IUC insertion/removal	
When IUC use was for ≤5 days	75/284 (26.4%)
When IUC use was for >5 days	38/106 (35.8%)

[Table/Fig-1]: Patients demographic profile and characteristics.

Patients described adverse effects of IUC during the follow-up visits at 15 days and 30 days are shown in [Table/Fig-2] and most of the adverse effects were decreased on second visit. During the 30 days after catheterisation, 259 of 390 patients (66.4%) reported at least one complication because of the IUC. The non-infectious complications were 54.1% and infectious complications were 12.3% [Table/Fig-3]. Women were more likely to report an infectious complication and men were more likely to report a non-infectious complication.

Adverse effect (N=390)	At 15 days n (%)	At 30 days n (%)
Infectious complication	37 (9.4)	48 (12.3)
Pain or discomfort	96 (24.6)	70 (17.9)
A feel of urgency or bladder spasms	122 (31.2)	104 (26.6)
Blood in the urine	43 (11.0)	37 (9.4)
Urine leak	76 (19.4)	61 (15.6)
Trauma to skin with IUC securement or insertion	15 (3.8)	18 (4.6)
Skin problems in the genital area	31 (7.9)	25 (6.4)
Meatal bleeding or other type of discharge	27 (6.9)	18 (4.6)
Restrictions in social activities associated with having the catheter	93 (23.8)	74 (20.9)
Restrictions in activities of daily living associated with having the catheter	45 (11.5)	30 (7.6)

[Table/Fig-2]: Patients described adverse effects of IUC during the follow-up visits.

Both infectious and non-infectious complications were described more commonly by patients who still had their IUC. In 354 patients catheter was removed in this one month period, their frequently quoted non-infectious complications were feeling of urgency, difficulty with starting or stopping urine stream, leaking urine and pain or burning on urination. Overall, it was also found that the all complications were more commonly reported in the patients with a catheter inserted due to urinary retention or bladder obstruction and it was also related with longer duration of catheterisation. This study finding substantiates the gravity of non-infectious complications of catheter. Patient's versions about their experience with the use of IUC were also obtained during

Complications	IUC in situ n=36 (%)	IUC removed n=354 (%)	Total n=390 (%)
Infectious complication	8 (22.2)	40 (11.2)	48 (12.3)
Fever, burning micturition, urinary urgency, frequency, or other symptoms suggestive of an infection that needed you to visit a physician	5 (13.8)	31 (8.7)	36 (9.2)
Non-infectious complication	26 (72.2)	185 (52.2)	211 (54.1)
Pain or discomfort	19 (52.7)	51 (14.4)	70 (17.9)
A feel of urgency or bladder spasms	12 (33.3)	92 (25.9)	104 (26.6)
Blood in the urine	8 (22.2)	29 (8.2)	37 (9.4)
Trauma to skin with IUC securement or insertion	6 (16.6)	12 (3.3)	18 (4.6)
Pain or burning on urination	NA*	56 (15.8)	NA
Difficulty with starting or stopping urine stream	NA	64 (18.0)	NA
Urine leak (including peri-catheter leak)	03	58 (16.38)	61 (15.6)
Spraying of urine stream	NA	33 (9.3)	NA
Split stream of urine	NA	43 (12.1)	NA
Skin problems in the genital area	4 (11.1)	21 (5.9)	25 (6.4)
Meatal bleeding or other type of discharge	3 (8.3)	15 (4.2)	18 (4.6)
Newly diagnosed urethral stricture	NA	02 (0.5)	NA
Bladder or kidney stones	01 (2.7)	09 (2.5)	10 (2.5)
Other complications	17 (47.2)	24 (6.7)	41 (10.5)
Sexual problems	NA	22 (6.2)	NA
Restrictions in social activities associated with having the catheter	19 (52.7)	55 (15.5)	74 (20.9)
Restrictions in activities of daily living associated with having the catheter	16 (44.4)	14 (3.9)	30 (7.6)

[Table/Fig-3]: Patients described adverse effects and complications of IUC during the month after placement.
*NA: Not applicable, several patients reported >1 complications with IUC

the study. Some patients express disappointment with indwelling catheter. For example, one patient reported, "I will never allow putting foley catheter again, in future!" Another reported that the catheter was "intolerable, inconvenient and difficult to sleep with." Many participants reported that the removal process was very painful.

One patient reported, "I felt that catheter was cutting my urethra while coming out." However few patients reported that their experience with the IUC was not very bad. A few patients replied: "My first experience with catheter wasn't too poor, I could tolerate it."

Urine leaking from the IUC when it was in place or from the urethra after its removal was a concern for many patients. As one patient said, "Nobody has given any instruction to me on how to handle a urine leak; finally I found it on internet". This study also covered the lifestyle issues that occurred by catheter insertion, such as sexual problems that are also crucial to patients. One patient stated that, "I am very much disappointed with my urinary problem because I have not been able to have sex since long time."

This approach provided a different and important view on potential complications that may bother patients and may occur outside the hospital setting.

DISCUSSION

This study aimed at bringing out the perceptions in patients regarding catheters and the adverse effects arising due to catheter placement which varies from 1 to 10 % in hospitalised patients [10,14-16]. CAUTI are more common in women because of shorter urethra and device proximity to the perineum [17]. Male patients were more commonly pretentious by non-infectious complications of IUC. About one third of the patients in this study complained about catheter related pain, insertion/removal problems, and catheter related bladder spasms. The catheter is a common source of pain and this can be minimised by use of 2% lignocaine jelly for insertion, better positioning of catheter and use of anti-spasmodic medication for persistent bladder spasms. Patient with steady pain needs the assessment for latex sensitivity and for whether the catheter is on unnecessary traction. Catheter insertion or removal was problematic for many patients; literature on this aspect is based on case series, such as injury by faulty catheter insertion in males often linked with prostate obstruction or about techniques for removal without deflating balloon [18,19].

This descriptive study of IUC related adverse effects conducted at tertiary medical centre had three main findings. Firstly, the patients described complication rate of IUC use was found to be 66.4%, which was more than previously reported studies [10,20]. Second, non-infectious complications with IUC were reported more frequently than infectious complications. Females were more likely to suffer from infectious complications whereas males tended to have non-infectious complications. Third, nearly half of patients with IUC in place reported restrictions in activities of daily living (44.4%) and social activity (52.7%). These findings are relatively new, pertinent to patient safety, and could not have been exposed without direct follow-up in present study of catheterised patients.

Other researchers have also analysed the non-infectious complications of IUC but without the direct patients perspective. Such as Leuck AM et al., evaluated both the infectious and traumatic complications related with the urethral catheter use and found that trauma when associated with pain was significantly more common than infection [20]. Another study showed that although rarely reported, but complications with catheter use were associated with longer hospital stay and urinary tract infection [9]. In the present study the mean duration of hospital stay was 4.6±1.1 day and infection rate was 12.3% but in patient with catheter related complications (16 out of 390 patients) the hospital stay (5.3±1.2 day) and infection rate (16.7%) were increased. Davis NF et al., reported that incidence of trauma during IUC placement was 6.7 per 1000, which was associated with longer hospital stay and increase in health care costs [21], in this study trauma was found in 10 out of 390 patients and in these patients the hospital stay was longer as compare to other patients (6.5 vs 4.6 days). The most common litigation claim was traumatic insertion of a urethral catheter as per one study [22].

Even with brief period use of IUC, the complications other than the infectious component form the majority. Some events like catheter blockage, urethral trauma, and haematuria require visit to

the hospital and possibly intervention, so they probably increase health care costs. Integration of the findings after hospital stay may fully represent possible complications of this invasive device. Approaches for a better follow-up and scrutiny of non-infectious complications should also be considered.

The findings of this study have clinical implications. It is imperative to decrease the non-infectious complications of IUC in a manner which is as robust as has been done to significantly reduce CAUTI in patient populations [23,24]. Thus, importance of attempts to decrease these complications cannot be overemphasised. Catheter overuse elimination is one method of prevention. This approach is a part of current CAUTI prevention initiatives. Recently some health care associations focus on ensuring that IUC are placed only for appropriate reasons and they were removed as soon as they are no longer medically needed [25].

To reduce the overall complications of IUC the strategy should be based on proper catheter insertion technique with strict maintenance protocol, avoidance of unnecessary catheter insertions and prolonged catheterisation. In the study institute, every catheterisation (only in indicated patients) was performed by an experienced health care professional and care of IUC was explained to every patient and their relatives and time of IUC removal was also informed.

Meddings J et al., in a systematic review reported that to decrease the catheter complications and for better patient safety, reminders about an IUC and stop orders should be used [26]. Around 6% of urologic consultations are for complications from catheter placement [27]. A variation in health care worker's knowledge has observed concerning proper care of IUC in other studies [28]. Proper education and skill development aimed at trainees may be important to reduce non-infectious complications [29]. The initiatives to actively involve the patients in their treatment plan and increasing their knowledge about the complications should be taken. If the patient does not raise the concern with the catheter, the healthcare workers will not realise the burden for patients. The noninfectious complications should be included with CAUTI as a major area of possible hurt, therefore, a main objective for future prevention attempts.

The strength of this study is that there are no similar previous studies that have focused on patients knowledge and experience with (short-term) IUC. For assessing the knowledge and experiences with a device complication, patients perspective is most important. The sample of patients was recruited from a wide range of different specialties and wards, which gives valuable discernment in the burden of IUC in hospitalised patients.

Limitation(s)

Patient's self-reporting of data may have been inaccurate, due to misunderstanding or recall bias. Second, these results cannot be generalised to a long-term urinary catheter use. Lastly, some non-infectious complications like blockage, haematuria that have been kept separate from infectious complications, can be associated with urinary tract infections.

CONCLUSION(S)

This study provided an important insight of the complications associated with the use of catheter, many of these problems negatively impact personal health and associated healthcare expenditures. Infection control programs must commence, execute, and supervised to minimise the infections related with use of IUC. Patient understanding and involvement by implementing educational programs that incorporate patients preferences in decision-making may improve the sequelae and adverse effects associated with urinary catheters. Finally, to generate some paradigm changing information a prospective, randomised longitudinal study with large sample size and diverse patient population is needed in future.

REFERENCES

[1] Feneley RC, Hopley IB, Wells PN. Urinary catheters: History, current status, adverse events and research agenda. J Med Eng Technol. 2015;39:459-70.
[2] Saint S. Clinical and economic consequences of nosocomial catheter-related bacteriuria. Am J Infect Control. 2000;28(1):68-75.
[3] Magill SS, Edwards JR, Bamberg W, Beldavs ZG, Dumyati G, Kainer MA, et al. Emerging infections program healthcare-associated infections and antimicrobial use prevalence survey team. Multistate point-prevalence survey of health care-associated infections. N Engl J Med. 2014;370(13):1198-208.
[4] Meddings J, Saint S, Fowler KE, Gaies E, Hickner A, Krein SL, et al. The Ann Arbor Criteria for appropriate urinary catheter use in hospitalised medical patients: Results obtained by using the RAND/UCLA appropriateness method. Ann Intern Med. 2015;162(9)(suppl):S01-34.
[5] Chenoweth CE, Saint S. Urinary tract infections. Infect Dis Clin North Am. 2011;25(1):103-15.
[6] Elvy J, Colville A. Catheter associated urinary tract infection: What is it, what causes it and how can we prevent it? J Infect Prev. 2009;10:36-41.
[7] Lo E, Nicolle LE, Coffin SE, Gould C, Maragakis LL, Meddings J, et al. Strategies to prevent catheter-associated urinary tract infections in acute care hospitals: 2014 update. Infect Control Hosp Epidemiol. 2014;35:464-79.
[8] Fakih MG, Gould CV, Trautner BW, Meddings J, Olmsted RN, Krein SL, et al. Beyond infection: Device utilization ratio as a performance measure for urinary catheter harm. Infect Control Hosp Epidemiol. 2016;37(3):327-33.
[9] Aaronson DS, Wu AK, Blaschko SD, McAninch JW, Garcia M. National incidence and impact of noninfectious urethral catheter related complications on the Surgical Care Improvement Project. J Urol. 2011;185(5):1756-60.
[10] Hollingsworth JM, Rogers MA, Krein SL, Hickner A, Kuhn L, Cheng A, et al. Determining the noninfectious complications of indwelling urethral catheters: A systematic review and meta-analysis. Ann Intern Med. 2013;159(6):401-10.
[11] Mackay WG, MacIntosh T, Kydd A, Fleming A, O'Kane C, Shepherd A, et al. Living with an indwelling urethral catheter in a community setting: Exploring triggers for unscheduled community nurse "out-of-hours" visits. J Clin Nurs. 2018;27(3-4):866-75.
[12] Fowler S, Godfrey H, Fader M, Timoney AG, Long A. Living with a long-term, indwelling urinary catheter: Catheter users' experience. J Wound Ostomy Contin Nurs. 2014;41(6):597-603.
[13] Wilde MH. Understanding urinary catheter problems from the patient's point of view. Home Healthc Nurse. 2002;20(7):449-55.
[14] Meddings J, Rogers MA, Macy M, Saint S. Systematic review and metaanalysis: Reminder systems to reduce catheter-associated urinary tract infections and urinary catheter use in hospitalised patients. Clin Infect Dis. 2010;51:550-60.
[15] Nicolle LE. Urinary catheter associated infections. Infect Dis Clin North Am. 2012;26:13-28.
[16] Saint S, Baker PD, McDonald LL, Ossenkop K. Urinary catheters: What type do men and their nurses prefer? J Am Geriatr Soc. 1999;47:1453-57.
[17] Maki DG, Tambyah PA. Engineering out the risk for infection with urinary catheters. Emerg Infect Dis. 2001;7(2):342-47.
[18] Villanueva C, Hemstreet GP. Difficult male urethral catheterisation: A review of different approaches. Int Braz J Urol. 2008;34(4):401-11; discussion 412.
[19] Patterson R, Little B, Tolan J, Sweeney C. How to manage a urinary catheter balloon that will not deflate. International Urology and Nephrology. 2006;38:57-61.
[20] Leuck AM, Wright D, Ellingson L, Kraemer L, Kuskowski MA, Johnson JR. Complications of foley catheters-Is infection the greatest risk? J Urol. 2012;187(5):1662-66.
[21] Davis NF, Quinlan MR, Bhatt NR, Walsh M, Thornhill J, Mulvin D, et al. Incidence, cost, complications and clinical outcomes of iatrogenic urethral catheterisation injuries: A prospective multi-institutional study. J Urol. 2016;196(5):1473-77.
[22] Awad MA, Osterberg EC, Chang H, Gaither TW, Alwaal A, Fox R, et al. Breyer1,5 et al. Urethral catheters and medical malpractice: A legal database review from 1965 to 2015. Transl Androl Urol. 2016;5(5):762-73.
[23] Saint S, Greene MT, Krein SL, Rogers MAM, Ratz D, Fowler KE, et al. A program to prevent catheter-associated urinary tract infection in acute care. N Engl J Med. 2016;374(22):2111-19.
[24] Saint S, Fowler KE, Sermak K, Gaies E, Harrod M, Holland P, et al. Introducing the No Preventable Harms Campaign: Creating the safest health care system in the world, starting with catheter-associated urinary tract infection prevention. Am J Infect Control. 2015;43(3):254-59.
[25] Saint S, Olmsted RN, Fakih MG, Kowalski CP, Watson SR, Sales AE, et al. Translating health care-associated urinary tract infection prevention research into practice via the bladder bundle. Jt Comm J Qual Patient Saf. 2009;35:449-55.
[26] Meddings J, Rogers MA, Krein SL, Fakih MG, Olmsted RN, Saint S. Reducing unnecessary urinary catheter use and other strategies to prevent catheter-associated urinary tract infection: An integrative review. BMJ Qual Saf. 2014;23(4):277-89.
[27] Thomas AZ, Giri SK, Meagher D, Creagh T. Avoidable iatrogenic complications of urethral catheterisation and inadequate intern training in a tertiary-care teaching hospital. BJU Int. 2009;104:1109-12.

[28] Mody L, Saint S, Galecki A, Chen S, Krein SL. Knowledge of evidence-based urinary catheter care practice recommendations among healthcare workers in nursing homes. J Am Geriatr Soc. 2010;58:1532-37.

[29] Kashefi C, Messer K, Barden R, Sexton C, Parsons JK. Incidence and prevention of iatrogenic urethral injuries. J Urol. 2008;179:2254-57.

PARTICULARS OF CONTRIBUTORS:
1. Assistant Professor, Department of Urology, NSCB Medical College, Jabalpur, Madhya Pradesh, India.
2. Assistant Professor, Department of Urology, Shyam Shah Medical College, Rewa, Madhya Pradesh, India.
3. Assistant Professor, Department of Urology, NSCB Medical College, Jabalpur, Madhya Pradesh, India.
4. Assistant Professor, Department of Urology, NSCB Medical College, Jabalpur, Madhya Pradesh, India.
5. Head, Department of Urology, NSCB Medical College, Jabalpur, Madhya Pradesh, India.
6. Dentist, Department of Dental, Singh Dental Care, Jabalpur, Madhya Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Avinash PS Thakur,
D 415, Swastik Grand, Dhanwantri Nagar, Jabalpur, Madhya Pradesh, India.
E-mail: drapst@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: May 28, 2020
- Manual Googling: Aug 01, 2020
- iThenticate Software: Sep 15, 2020 (17%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? No
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **May 27, 2020**
Date of Peer Review: **Jun 30, 2020**
Date of Acceptance: **Aug 05, 2020**
Date of Publishing: **Oct 01, 2020**