

Stone Formation Around Foleys Balloon in Neglected Suprapubic Catheter an Impact of Coronavirus Disease-19 Lockdown

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Abstract

Suprapubic catheterization (SPC) is an alternative for urethral catheterization. SPC is not free of complications such as bacteriuria, leakage, and stone formation. Bacteria attach to the foleys surface forming a biofilm and secrete an extracellular polysaccharide matrix of bacterial glycocalices. The host urinary protein and salts complex with this matrix, leading to encrustation of foleys. Good catheter hygiene, including aseptic catheter insertion, is necessary to reduce the entry of microorganism into the urinary bladder.

Key words: Suprapubic catheterization, Bacteriuria, Stone formation

INTRODUCTION

Suprapubic catheterization (SPC) of the urinary bladder is alternative to urethral catheterization in cases of bladder neck contracture, complete urethral stenosis, neurogenic urinary bladder, in patients who fails to do clean intermittent catheterization. Surapubic catheterization can also be indicated in cases where urinary diversion is required for urinary bladder and urethral healing.^[1] SPC is not free of complications such as bacteriuria, leakage, stone formation. A foreign body within the bladder will initially encrust with calcium oxalate, as a result of the normal stasis that occurs with the storage of urine. Should infection supersede, rapid coalescence of the stone may occur as struvite is deposited on the nascent stone.^[2,3]

We report a case series of two cases where stone formed around foleys balloon catheter.

CASE REPORT

Case 1

A 32-year-old male patient underwent SPC 3 years back for post-traumatic urethral stricture. The patient came with a complaint of passing urine from opening on the ventral aspect of penis and blockage of suprapubic catheter. Patient was lost to follow-up during Coronavirus Disease (COVID-19) lockdown and did not get his SPC changed for about last 1 year. On examination, patient SPC was draining urine and patient was passing urine from urethrocutaneous fistula on the ventral aspect of the penis. We tried to deflate the SPC balloon but could not be deflated. Patient Ultrasonography and X-ray Kidney, Ureter, and Bladder (KUB) was done shown in [Figure 1] which shows opacification around foleys. Patient underwent open suprapubic cystolithotomy with repair of urethrocutaneous fistula which reveals stone formed around SPC foleys catheter shown in [Figure 2].

Case 2

A 30-year-old patient presented with a complaint of SPC blockage and passing urine from the ventral aspect of base of the penis for 6 months. Patient underwent urethroplasty for urethral stricture 1 year back. On examination, patient had urethrocutaneous fistula with blocked SPC. Patient lost to follow-up and did not get his SPC change during Covid

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Month of Submission : 07-2021
Month of Peer Review : 08-2021
Month of Acceptance : 08-2021
Month of Publishing : 09-2021

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Figure 1: X-ray KUB is showing bladder calculi around the foleys bulb of case 1



Figure 3: Intra operative image showing multiple calculi removed from bladder of case 2



Figure 2: Intra operative image showing multiple calculi removed from bladder of case 1



Figure 4: X-ray KUB is showing bladder calculi around the foleys bulb of case 2

19 lockdown. Patient ultrasonography and X-ray KUB [Figure 3] get done and reveal stone formation around foleys balloon [Figure 4]. Patient underwent lay open stage I urethroplasty and Open cystolithotomy.

DISCUSSION

Bacteriuria in presence of indwelling catheter is inevitable and the duration of catheterization is the most important risk factor for the development of bacteriuria which occurs at an incidence of approximately 10% per day of catheterization.^[4] There are two types of the bacterial population (a) Planktonic growth (b) Biofilm growth (layers of organisms on infected indwelling catheters).^[5] Bacteria attach to the foleys surface forming a biofilm and secrete an extracellular polysaccharide matrix of bacterial glycocalices. The host urinary protein and salts complex with this matrix, leading to encrustation of foleys lumen. Colonization with urease-producing microorganisms increases urinary

pH which promotes precipitation of struvite and apatite crystals resulting in catheter encrustation and stone formation. Long-term bladder drainage may also result in bladder lithiasis, with a reported incidence of 0.07–2.2% in patients with chronic indwelling catheters.^[6]

Good catheter hygiene, including aseptic catheter insertion, is necessary to reduce the entry of microorganisms into the urinary bladder. A three weekly catheter change is advised by some to minimize encrustation.

CONCLUSION

It is concluded that in patients of suprapubic catheter proper instruction should be given about foleys care and regular change of SPC to reduce the incidence of stone formation. In our cases, patient did not comply proper follow-up due to covid 19 lockdown. These cases required open surgery for stone removal.

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How to cite this article: Shrivastav V, Thanna H, Jain S. Stone Formation Around Foleys Balloon in Neglected Suprapubic Catheter an Impact of Coronavirus Disease-19 Lockdown. *Int J Sci Stud* 2021;9(6):68-70.

Source of Support: Nil, **Conflicts of Interest:** None declared.