

Dear Doctor,

Greetings from Micro Labs limited. We are happy to bring you **"NU Rounds"** which contains latest and interesting news in the field of Urology.

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Looking forward to your valuable feedback

Best Regards,

Medical Team, Micro Labs Ltd

## *Prostatic abscess with infected aneurysms and spondylodiscitis after transrectal ultrasound-guided prostate biopsy: a case report and literature*

### Introduction

Transrectal ultrasonography (TRUS)-guided prostate biopsy is a standard method for diagnosing prostate cancer. It is relatively safe and well tolerated method with minor complications (such as pain, hematuria, hematospermia, and rectal hemorrhage) or, rarely, significant complications (such as sepsis, macroscopic hematoma, and urinary retention). Infected aneurysms can arise because of the hematogenous spread of bacteria, which cause aneurysmal changes in the arterial wall, and a pathogen can be further disseminated by this route to cause a prostate abscess. The gold-standard treatment of the disease remains surgical resection and debridement of the infected aorta involving the placement of an interposition graft or extra-anatomic bypass, and long-term antibiotic therapy. However, this procedure is associated with high mortality of 13.3–40%. Spondylodiscitis is also an extremely rare complication of TRUS-guided prostate biopsy. A literature review identified a further six cases of spondylodiscitis that had occurred after transrectal ultrasound-guided prostate biopsy. Fluoroquinolones, and particularly ciprofloxacin, are widely used prophylactically alongside TRUS-guided prostate biopsy. However, the incidence of infectious complications associated with prostate biopsy has significantly increased in recent years.

### Review of the reported cases of spondylodiscitis after transrectal ultrasound-guided prostate

| References               | Age | Symptoms        | Antimicrobial prophylaxis | Location | Susceptibility                           | Bacteremia |
|--------------------------|-----|-----------------|---------------------------|----------|------------------------------------------|------------|
| Taşdemiroğlu et al. [12] | 53  | Fever, backache | None                      | L2–3     | <i>E. coli</i>                           | No         |
| Karapolat et al. [13]    | 70  | Fever, backache | Ciprofloxacin, Gentamicin | T6–7     | <i>E. coli</i>                           | No         |
| Kaya et al. [14]         | 59  | Fever, backache | Ciprofloxacin             | L4–5     | <i>E. coli</i>                           | No         |
| Dobson et al. [15]       | 69  | Fever, backache | Ciprofloxacin             | L2–3     | Fluoroquinolone resistant <i>E. coli</i> | Yes        |
| Hiyama et al. [16]       | 59  | Fever, backache | Cefotiam                  | C7/T1    | <i>Enterococcus faecalis</i>             | Yes        |
| Li et al. [17]           | 71  | Fever, backache | Levofloxacin              | L3–5     | Multiple drug resistant <i>E. coli</i>   | Yes        |
| Present case             | 78  | Fever, backache | Cefazolin                 | L2, 4, 5 | ESBL <i>E. coli</i>                      | Yes        |

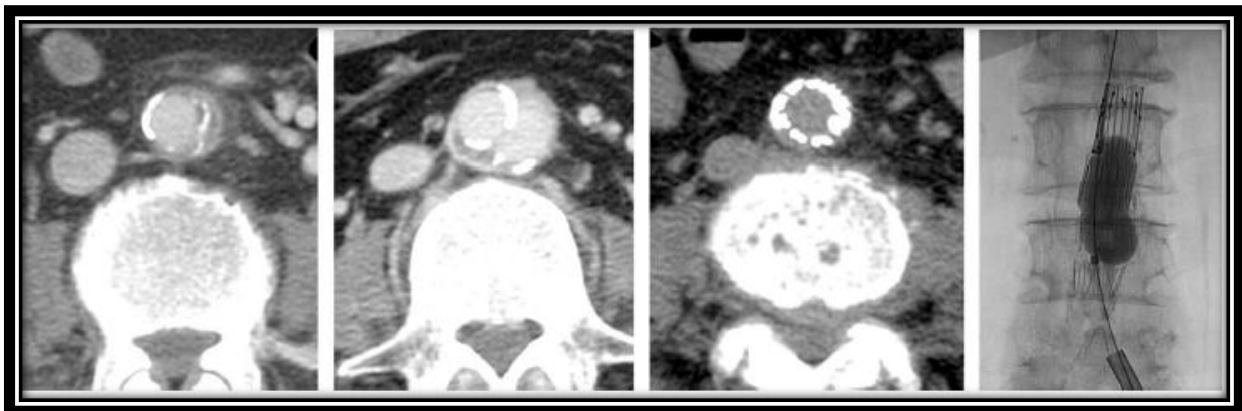
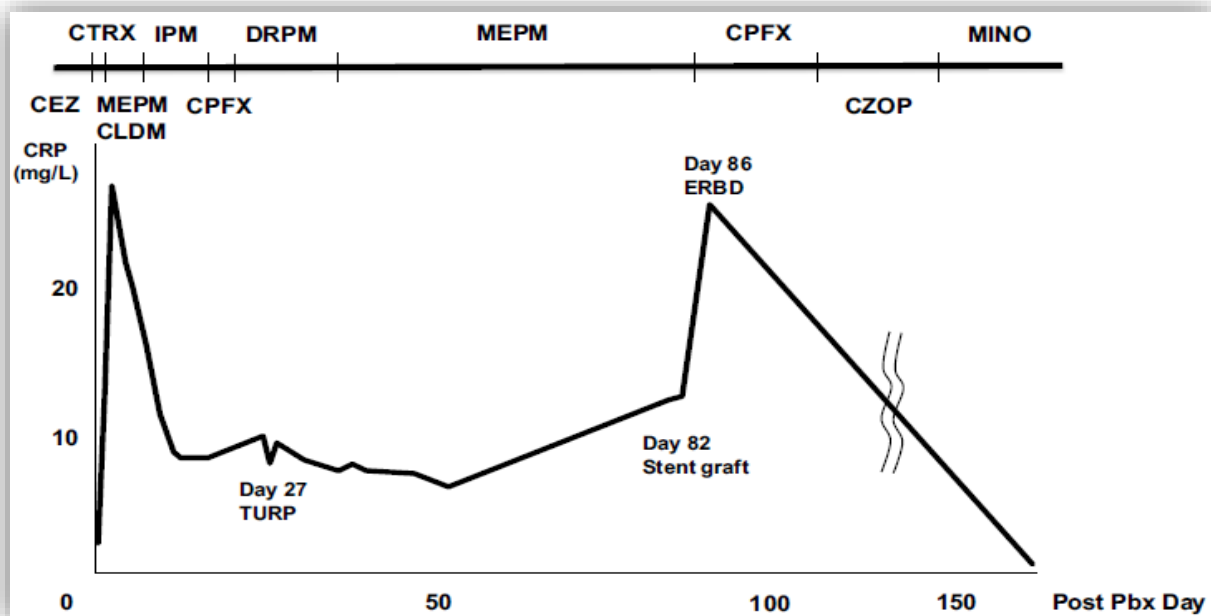
## Review of the reported cases of spondylodiscitis after transrectal ultrasound-guided prostate biopsy

| Reference                | Risk factor | Surgery                   | Complications                         | Outcome    |
|--------------------------|-------------|---------------------------|---------------------------------------|------------|
| Taşdemiroğlu et al. [12] | DM          | Hemilaminectomy           | Epidural abscess                      | Resolution |
| Karapola et al. [13]     | BPH         | Bone graft reconstruction | None                                  | Resolution |
| Kaya et al. [14]         | None        | Hemilaminectomy           | Epidural and intradiscal abscess      | Resolution |
| Dobson et al. [15]       | None        | Aspiration                | Epidural abscess                      | Resolution |
| Hiyama et al. [16]       | None        | Aortic valve displacement | Endocarditis                          | Resolution |
| Li et al. [17]           | BPH         | Laminectomies             | Epidural and psoas muscle abscess     | Resolution |
| Present case             | None        | TURP, EVAR                | Prostate abscesses, infected aneurysm | Resolution |

*E. coli* *Escherichia coli*, *ESBL* extended-spectrum lactamase, *DM* diabetes mellitus, *BPH* benign prostatic hypertrophy, *TURP* transurethral resection of the prostate, *EVAR* endovascular aneurysm repair

### Case Report:

A 78-year-old man presented with back pain, sepsis, and prostate abscesses. Twenty days post TRUS guided prostate biopsy, patient found to have a 20-mm diameter abdominal aortic aneurysm that expanded to 28.2 mm in the space of a week, despite antibiotic therapy. Blood culture showed the presence of extended-spectrum-lactamase (ESBL)-producing *Escherichia coli* (*E. coli*), which was sensitive to Imipenem.



Images of the aortic aneurysm. Initial computed tomography (CT) image of the abdomen/pelvis, demonstrating a 20-mm abdominal aortic aneurysm, with evidence of inflammatory changes, 20 days after prostate biopsy. Repeat CT image revealing that the abdominal aortic aneurysm diameter has increased to 30 mm, 64 days after the prostate biopsy. CT and angiography showing the successful exclusion of the aortic rupture by endovascular stent grafting

Patient underwent transurethral resection of the prostate to control prostatic abscesses. Although his aneurysm decreased to 23 mm in size after surgery, patient continued to

experience back pain. Patient was diagnosed as having pyogenic spondylitis and this was managed using a lumbar corset. Sixty-four days after the prostate biopsy, the aneurysm had re-expanded to 30 mm.



**Lumbar images obtained 40 days after prostate biopsy. Contrast-enhanced T1-weighted magnetic resonance image of the lumbar spine shows contrast-enhancement of the L2, L4, and L5 vertebral bodies**

Endovascular aneurysm repair (EVAR) was performed using a microcore stent graft 82 days after the biopsy. Four days after the EVAR, the patient developed acute cholecystitis, and underwent endoscopic retrograde biliary drainage. One hundred and sixty days after the prostate biopsy, all the complications had improved, and was discharged.

**Conclusions:** A rare case of complication with TRUS-guided prostate biopsy that involved prostatic abscesses, aneurysms, and spondylodiscitis. Although such complications are uncommon, but still some patients may develop such complications, hence clinicians should be aware of the potential for such severe complications of this procedure to develop.

Source: Nomura et al. Prostatic abscess with infected aneurysms and spondylodiscitis after transrectal ultrasound-guided prostate biopsy: a case Report. BMC Urol (2021) 21:11.

## **Efficacy and safety of prostatic artery embolization for benign prostatic hyperplasia: a systematic review and meta-analysis of randomized controlled trials**

### **Aim:**

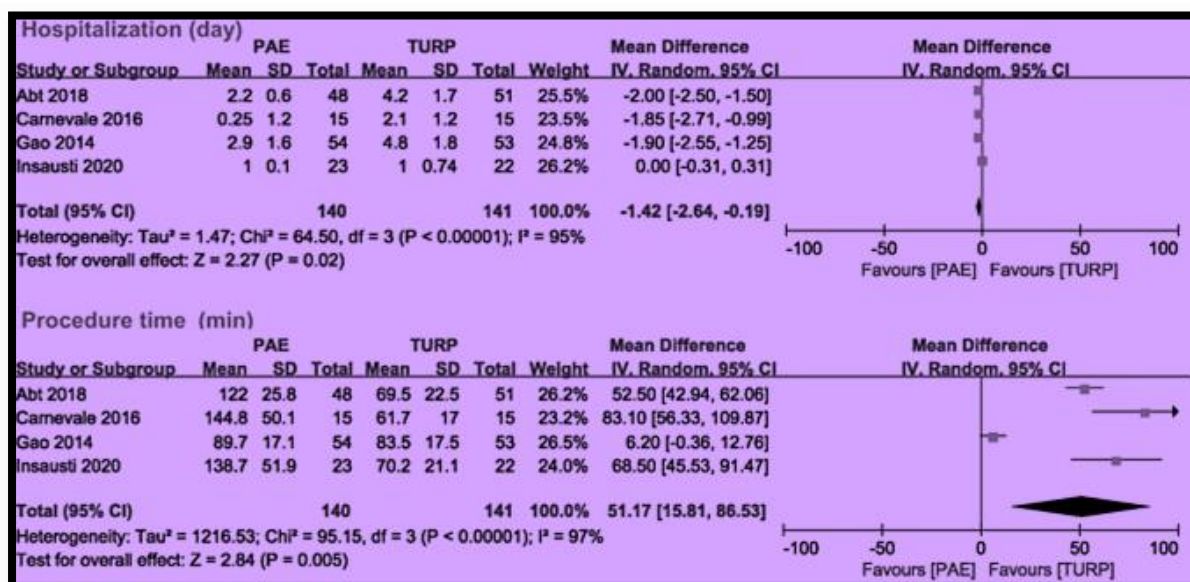
To evaluate efficacy and safety of prostatic artery embolization (PAE) versus transurethral resection of the prostate (TURP) in patients affected by benign prostatic hyperplasia (BPH).

### **Materials and Methods**

Randomized controlled trials on prostatic artery embolization were collected according to specific inclusion and exclusion criteria from PubMed, Web of Science, and Embase were searched up to May 1, 2020. Meta-analyses were performed using RevMan 5.3, STATA 14, and GraphPad Prism 8. Pooled patient-reported scores and functional outcomes were calculated by using a fixed or random-effect model.

### **Results**

Among the search eleven articles met the selection criteria. Along with these eleven articles ten independent patient series were also included in analysis. Pooled estimates suggested no significant difference between TURP and prostatic artery embolization for patient-reported outcomes including International Prostate Symptom Score (2.32 (− 0.44 to 5.09)) and quality of life (0.18 (− 0.41 to 0.77)) at 12 months.



Prostatic artery embolization showed less effective improvements in most functional outcomes such as maximum flow rate, prostate volume, and prostate-specific antigen. Prostatic artery embolization was associated with relatively fewer complications, lower cost, and shorter hospitalization. After the PAE procedure, the overall weighted mean differences for all outcomes except sexual health scores were significantly improved from baseline during follow-up to 24 months.

## Conclusion

Prostatic artery embolization is non-inferior to TURP with regard to improving patient-reported outcomes, though most functional parameters undergo more changes after TURP than after PAE. Moreover, PAE can significantly continue to relieve symptoms for 24 months without causing serious complications.

## Key Points

- Prostatic artery embolization is as effective as TURP in improving subjective symptom scores, with fewer complications and shorter hospitalization times.
- Prostatic artery embolization is inferior to TURP in the improvement of most functional outcomes.
- Improvements due to Prostatic artery embolization are durable during follow-up to 24 months.

Source: Xiang, P., Guan, D., Du, Z. *et al.* Efficacy and safety of prostatic artery embolization for benign prostatic hyperplasia: a systematic review and meta-analysis of randomized controlled trials. *Journal of Eur Radiol.* 2021 Jan 15.

**The Urological Society of India Guidelines for the management of pediatric urinary tract infection (Executive Summary)**

**GUIDELINE STATEMENTS:**

**Diagnostic workup**

- Proper history-taking includes questions on primary (first) or secondary (recurring) infection, febrile or nonfebrile UTIs, malformations of the urinary tract, previous surgeries, fluid intake, family history, whether there is constipation/encopresis or the presence of lower urinary tract symptoms, and sexual history in cases of adolescents
- Fever may be the only symptom of UTI, especially in young children
- Newborns with pyelonephritis or urosepsis can present with nonspecific symptoms (failure to thrive, jaundice, vomiting, hyperexcitability, lethargy, hypothermia, and sometimes without fever)
- Septic shock is unusual even with high fever, unless obstruction is present or the child is otherwise compromised

- A complete physical examination is required to exclude any other source of fever, and especially if the fever has no apparent cause, UTI should be ruled out
- Physical examination should search for palpable bladder, palpable and painful kidney, loaded colon suggestive of constipation, stigmata of spina bifida or sacral agenesis, spine and gait abnormality, genital disorders (phimosis, labial adhesion, postcircumcision meatal stenosis, abnormal urogenital confluence, cloacal malformations, vulvitis, epididymo-orchitis, and prolapsed ureterocele), and raised temperature.

### **Diagnosis of urinary tract infection**

- The diagnosis should be based on the presence of both pyuria and  $>10^5$  CFU/ml in a clean-catch midstream voided urine sample
- If urine is obtained by catheterization, 1000–50,000 CFU/ml is considered positive in symptomatic patient
- Any counts obtained after suprapubic aspiration should be considered significant.

### **Acute management**

- Infants and children with a high risk of serious illness should be referred urgently to the care of pediatric specialist having access to both pediatric urologist and nephrologist
- Empiric antibiotic therapy can be started if the child is too sick even before the urine culture and sensitivity report is available
- For lower tract (cystitis), most children can be treated with oral antibiotics as per the urine culture and sensitivity report
- For upper tract (pyelonephritis), parenteral antibiotics should be started until the child exhibits clinical improvement, generally within 48–72 h, and is able to retain orally administered fluids and medications that is to be continued for the next 10 days
- The total course of antibiotic therapy should be 7–14 days.

### **Imaging after the first urinary tract infection**

- The aim of investigations is to identify patients at high risk of renal damage, chiefly those below 1 year of age, and those with vesicoureteric reflux (VUR) or urinary tract obstruction

## Imaging following the first febrile urinary tract infection

Age <1 year.  
USG  
VCUG  
DMSA (in view of high chances of renal damage)  
Age 1–5 years  
USG  
If abnormal,  
VCUG  
DMSA scan (Sequence either by Top down/Bottom up approach)  
Age >5 years  
USG only  
VCUG/DMSA scan to be done selectively

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USG: Ultrasonography, DMSA: Dimercaptosuccinic acid, VCUG: Voiding cystourethrogram

- Evaluation includes ultrasonography, dimercaptosuccinic acid renal scan, and voiding cystourethrogram performed judiciously.

### Prevention of recurrence

- Children who have had a UTI should be encouraged to drink an adequate amount of liquids (~40 ml/kg/day)
- Children who have had a UTI should have readily access to clean toilets when required and should be encouraged to avoid postponing voiding
- Bladder bowel dysfunction and constipation should be addressed in infants and children who have had a UTI
- In children with VUR who are toilet trained, regular and volitional low pressure voiding with complete bladder emptying is encouraged. Double voiding ensures emptying of the bladder of postvoid residual urine
- Circumcision reduces the risk of recurrent UTI in infant boys and might therefore have benefits in patients with high-grade reflux.

## Antibiotic prophylaxis

- The antibiotics used should be effective, nontoxic with few side effects and should not alter the growth of commensals or induce bacterial resistance
- Antibiotic prophylaxis should not be routinely recommended in infants and children following the first-time UTI
- The indications and duration of prophylaxis depend on patient's age and presence or absence of VUR
- Antibiotic prophylaxis is recommended for patients with UTI below 1 year of age, while awaiting imaging studies, VUR (all grades in infants <2 years, dilating VUR, Grade III–V in 2–5 years), and recurrent febrile UTI (3 or more episodes in a year) even if the urinary tract is normal
- Antibiotic prophylaxis is not advised in patients with urinary tract obstruction (e.g., posterior urethral valves), urolithiasis, and neurogenic bladder and in patients on clean intermittent catheterization. In these cases, the primary cause needs to be addressed first
- Asymptomatic bacteriuria in infants and children should not be treated with prophylactic antibiotics 7. Breakthrough UTI usually results either from poor compliance or associated voiding dysfunction. The UTI should be treated with appropriate antibiotics
- A change of medication being used for prophylaxis is usually not necessary
- There is no role for cyclic therapy, where the antibiotic used for prophylaxis is changed every 6–8 weeks.

## Follow-up

- When results are satisfactory, a follow-up outpatient appointment is not routinely required.
- Parents or caregivers should be informed of the results of all the investigations in writing. Infants and children who have recurrent UTI or abnormal imaging results should be assessed by a pediatric urologist

- Assessment of infants and children with renal parenchymal defects should include height, weight, blood pressure, and routine testing for proteinuria
- Infants and children with a minor, unilateral renal parenchymal defect do not need long-term follow-up unless they have recurrent UTI or family history or lifestyle risk factors for hypertension
- Infants and children who have bilateral renal abnormalities, impaired kidney function, raised blood pressure, and/or proteinuria (random spot protein creatinine ratio  $>0.2$  suggesting significant proteinuria) should receive monitoring and appropriate management by a pediatric nephrologist to slow the progression of chronic kidney disease
- Infants and children who are asymptomatic following an episode of UTI need not routinely have their urine re-tested for infection (no screening urinalysis or culture)
- Asymptomatic bacteriuria is not an indication for follow-up.

Source: Ansari, et al.: The urological society of India pediatric urinary tract infection guidelines. Indian Journal of Urology. January 29, 2021, IP: 1.6.179.69



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