

How to transition from Transrectal to Trans perineal Prostate Biopsy; experience after 1500 TP biopsies.

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Introduction



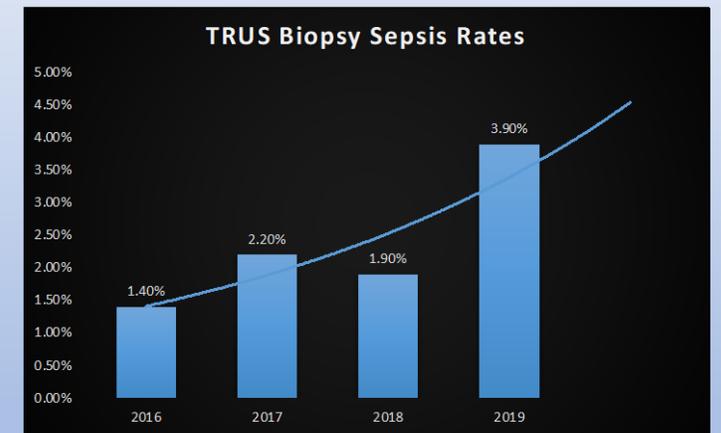
- ▶ Transrectal ultrasound-guided (TRUS) biopsy has been gold standard for prostate biopsy and performed in our institution since 1989
- ▶ Due to the emergence of multi-drug resistant bacteria, rates of post-TRUS biopsy infection are increasing^{1,2}
- ▶ Studies have shown a marked increase in hospitalizations due to sepsis in recent years^{3,4}
- ▶ 1% hospitalization risk⁴
- ▶ Deaths due to post TRUS sepsis have been reported (34/50,000)⁴

Introduction

- ▶ Our institution has been performing TRUS biopsy since 1989
- ▶ Average 489 biopsies performed per year between 2010-2019
- ▶ Biannual QI meetings are held to detail post-procedure complications (as part of national guidelines)
- ▶ Our data showed increasing incidence of post-procedural sepsis over last 7 years causing us to explore switching to TP biopsy
- ▶ Decision made to make a transition to transperineal ultrasound-guided (TP) biopsy in April 2020



Fig 1: Post TRUS sepsis rates 2016-2019





TP biopsy is generally the domain of urologists

- ▶ PubMed search of 'Transperineal Prostate Biopsy'
 - ▶ 100 most recent articles reviewed
 - ▶ 85 were in urology journals
 - ▶ 4/15 in radiology journals described 'in-bore' MRI guided biopsy
 - ▶ 7/15 compared MRI to TP biopsy (TP performed by urology)
 - ▶ 4 did not state who performed biopsies
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- ▶ Need for TP biopsy is increasing exponentially
 - ▶ If radiologists don't move to TP they may be left 'out of the loop'



Why did Radiology and not Urology decide to offer outpatient TP biopsy?

- ▶ Radiology already performed all the TRUS biopsies for urology in a well-oiled referral pattern
- ▶ Our sepsis rate was rising worryingly
- ▶ Most of our urologists were not performing TP biopsy or were offering it in a very limited way
- ▶ Two radiologists had experience in TP biopsy under general anaesthetic and in guiding transperineal prostate brachytherapy for the radiation oncology service

Transition to Transperineal Prostate Biopsy Under Local Anaesthetic

- ▶ Traditionally TP biopsy is performed under general anaesthetic
- ▶ More recently TP biopsy with local anaesthetic described
- ▶ Two radiologists had experience in TP procedures under GA
- ▶ Radiologists travelled to an external centre with experience to observe TP biopsies performed under **local anaesthetic**
- ▶ Began performing TP Bx under local anaesthetic in April 2020

New equipment required, new costs

- ▶ Hitachi Bi-Plane Brachytherapy convex/linear Transducer and footswitch (€16,949.40)
- ▶ Modified lithotomy chair (€12,473.43)
- ▶ Applied and received funding through local hospital funding on basis of cost savings by reducing post-biopsy sepsis rates
- ▶ Negotiation with insurance companies for appropriate code for outpatient TP biopsy under local anaesthetic reflecting increased complexity but reduced risk complications



Other Consumables

Equipment	Comment
Mefix self-adhesive fabric tape (SCA Mölnlycke Ltd) 5cm	2 Strips - to elevate scrotum
Razor	To ensure aseptic technique
Chloraprep skin antiseptic (2% chlorhexidine gluconate + 70% isopropyl alcohol [CHG + IPA] in a 3.0-mL applicator) (Medi-Flex Hospital Products, Inc., Overland Park, Kan)	Time given to allow fully dry
Xylocaine 10mg/ delivered dose mucosal spray	Applied to perineal skin for added anaesthesia
1 x 25G needle and 1 x 20G spinal needle	25G needle for skin and 20g needle for deeper infiltration
2% lidocaine	
Instillagel	Inserted per rectum
Condom type cover for Covering Rectal Ultrasound probe	
1 x 11 cm 17G Temno Introducer Needle and 1 x 16 cm 18G Biopsy Needle Gun	For taller or larger patients a longer system may be required (15cm introducer/20cm needle)
Specimen Containers	Prelabelled
Opsite Spray to skin after procedure	Dressings are not suitable for perineum



Transition and efficiency

- ▶ 6 TRUS biopsies per session had been performed prior to change
- ▶ Initially 2 TP biopsies per morning were performed by 2 GU radiologists – taking approximately 60 minutes
- ▶ After 2 months training, 2 more GU radiologists trained in the procedure and TRUS biopsies were abandoned completely
- ▶ After 6 months, 4 TP biopsies were performed per session, averaging 30 minutes; all attendings who previously performed TRUS were trained in TP
- ▶ Waiting lists have not increased due to better patient selection using MRI
- ▶ Residents are now performing biopsies under direct supervision
- ▶ Over first 6 months: average used of conscious sedation 35%
- ▶ Now rate of sedation is 13%

Results – reduction in sepsis and bleeding

Complication	TRUS (April 2019 – March 2020)	TP Biopsy (April 2020 – August 2022)
UTI	9/590 (1.5%)	3/1499 (0.2%)
Sepsis	23/590 (3.9%)	4/1499 (0.3%)
Acute Urinary Retention	1/590 (0.17%)	2/1499 (0.1%)
Severe Rectal Bleeding	1/590 (0.17%)	0/1499

Procedure	Cancer diagnosis	Total
TRUS Biopsy	384 (65%)	590
TP Biopsy	1004 (67%)	1499



Discussion

- ▶ By August 2022 1499 TP biopsies performed
- ▶ 4 performed per morning session, reduced from prior TRUS biopsy list of 6
- ▶ No increase in waiting list as fewer numbers require biopsy now that all patients have MRI and more have active surveillance
- ▶ Significantly reduced post-biopsy complication rates, while maintaining a functioning cancer diagnosis service
- ▶ Initial outlay of cost in setting up service more than offset by savings in TRUS-related sepsis costs

Radiologists are best placed to provide TP biopsy

- ▶ Radiologists are already adept at US guided biopsy
- ▶ Radiologists have MRI interpretative skills to optimize targeting possible cancers
- ▶ TP can access all lesions, including anterior and peri-urethral lesions
- ▶ With increasing multidrug resistance globally, and a much safer alternative available, sepsis after TRUS will be increasingly difficult to defend

THANK YOU

References

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