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## Global to focal – The changing face of prostate cancer diagnosis

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Traditional methods of Prostate Cancer diagnosis in males with an elevated or rising PSA have relied on outpatient TRUS biopsy using local anaesthetic and taking between 6-18 biopsies. TRUS biopsy is painful, associated with rectal bleeding in 10%, UTI in 40% and Urosepsis in up to 5% of patients. It is also has a poor sensitivity (<30%) low accuracy rates of <25% and a poor specificity of <30%. From 2010 we changed to Template Guided Prostatic Biopsy (TGPB) carried out transperineally under a general anaesthetic. To date we have carried out TGPB in 344 patients with a positive biopsy rate of 60% (accuracy of 81%; and Specificity of 87%). The procedure is painless, UTIs occurred in 5%, no sepsis and no rectal bleeding. Because of the large numbers of biopsies taken 15% of patients had transient retention. In patients who had a previous negative TRUS biopsy 48% had a subsequent positive TGBP and patients having TGBP on the first occasion for an elevated PSA (2.5-10) 58% had a positive biopsy. With the advent of 3Tesla MRI and MRI fusion technology we have now progressed to MRI fusion biopsy using real time Ultrasound imaging and fusing the abnormal MRI image to perform the biopsy (BioJet Fusion, Global Prostate Solutions). This allows for even greater accuracy of the biopsy without taking large numbers of samples. To date we have achieved a positive biopsy rate of 75% with an accuracy of >90% (in 32 patients). To date there have been no cases of UTI, sepsis or retention. MRI fusion biopsy allows for more accurate identification and biopsy of the Target lesion and subsequent Focal Therapy.

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## The modern era struvite stone: Patterns of urinary infection and colonization

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**Introduction & Objectives:** We sought to offer a modern assessment of struvite stone formation by examining both the characteristics of struvite formers and the nature of associated infectious organisms.

**Methods:** We retrospectively identified patients who underwent PCNL between February 2009 and August 2013. Predisposing characteristics and clinical history of UTI were assessed. Urine cultures (pre-operative clean catch and intra-operative renal pelvis) and stone cultures were reviewed for infection.

**Results:** Struvite formers represented 38 (8%) of 474 patients identified. 82% of struvite formers were female (vs. 47% in nonstruvite formers, P<) while 94% reported recurrent/recent UTI and 60% exhibited a UTI risk factor. A greater percentage of struvite formers demonstrated growth on pre-operative urine (46% vs. 22%, P<), intra-operative urine (10% vs. 7%, P<) and stone culture (69% vs. 23%, P<) when compared to non-struvite formers. Similar differences were found when considering only urea-splitting organisms pre-operatively (31% vs. 10%, P<), intra-operatively (3% vs. 2%, P<) and within retrieved stones (29% vs. 10%, P<). 31% of struvite stones were sterile and 49% grew non-urea splitting organisms including *E. coli* and *Enterococcus spp*.

**Conclusions:** Urea-splitting organisms could not be identified in association with all struvite formers in this series. The presence of sterile stones prompts consideration of antibiotic mediated sterilization and lends support to pre-operative antibiotic use. The presence of traditionally non-urea-splitting organisms encourages re-evaluation of their urea-splitting potential and reveals the importance of expanded antibiotic coverage for both *Enterococcus* spp and *E. coli* in managing suspected struvite stones.

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