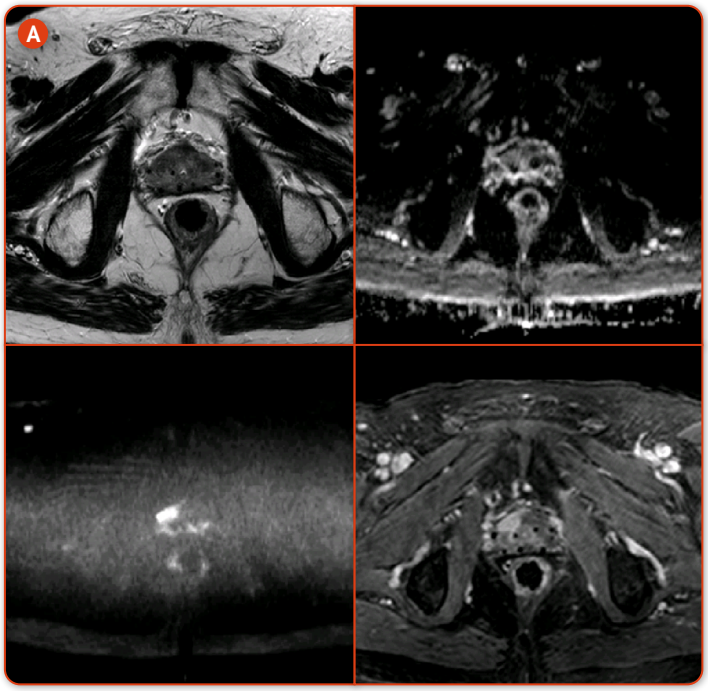
Salvage Focal Prostate Cryotherapy of 1.2cc Anterior Lesion

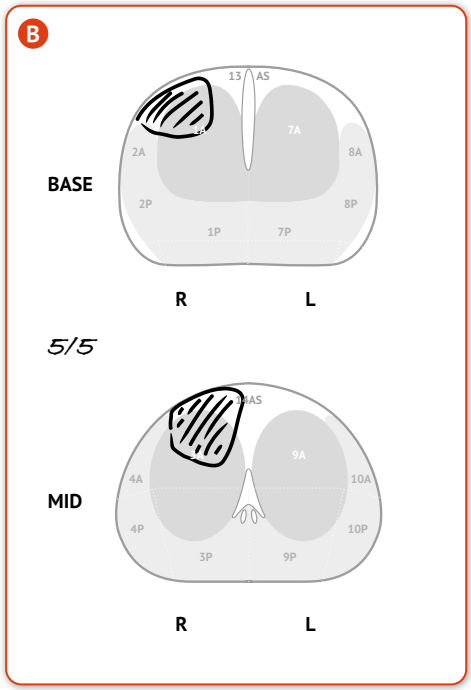
Taimur T Shah
Charing Cross Hospital, Imperial College Healthcare NHS Trust and Imperial College London (ICL)

PRESENTATION

- 72-year-old man presented with a possible recurrence having had brachytherapy for Gleason 3+3 prostate
  cancer ten years previously
  - PSA nadir after radiotherapy was 0.3ng/ml and had risen to 7ng/ml
  - Otherwise fit and well (had undergone an open appendectomy during his thirties)
- The patient underwent staging investigations consisting of a prostate mpMRI, choline PET-CT and a NM bone scan. Scans showed no evidence of metastatic disease and so the patient underwent a template mapping
  and targeted biopsy
- 3T mpMRI showed a 1.2cc, PI-RADS2, 5/5 right anterior lesion A
- Transperineal prostate mapping and targeted biopsy confirmed right-sided Gleason 4+3, 8mm maximum
  cancer core length (MCCL) prostate cancer B
- Diagnosis of recurrent prostate cancer T2aN0M0; the patient was offered all salvage treatment options and chose focal cryotherapy



Presentation: Multiparametric MRI reveals 1.2cc right anterior lesion. Top: T2 axial view (left) and ADC map (right). Bottom: b2000 diffusion-weighted image (left) and dynamic contrast-enhanced image (right)



Pre-cryotherapy: MRI diagram of right anterior lesion

Diagrams adapted from Villers A *et al.* Diagnostic and Interventional Imaging (2012) 93, 262–267

> *"Focal salvage cryotherapy has managed to provide oncological control and maintain this patient's quality of life in his later years."*

Salvage Focal Prostate Cryotherapy of 1.2cc Anterior Lesion

Doctor Taimur T Shah Charing Cross Hospital, Imperial College Healthcare NHS Trust and Imperial College London (ICL)

TREATMENT

- Right anterior focal cryotherapy performed using five IceSeed™ 1.5 needles
- Two thermocouples used for temperature monitoring within the lesion and at Denonvilliers' fascia
- Urethral warmer inserted over a wire after a flexible cystoscopy confirmed no needles present within the urethra or bladder
- Two 10-minute freeze cycles

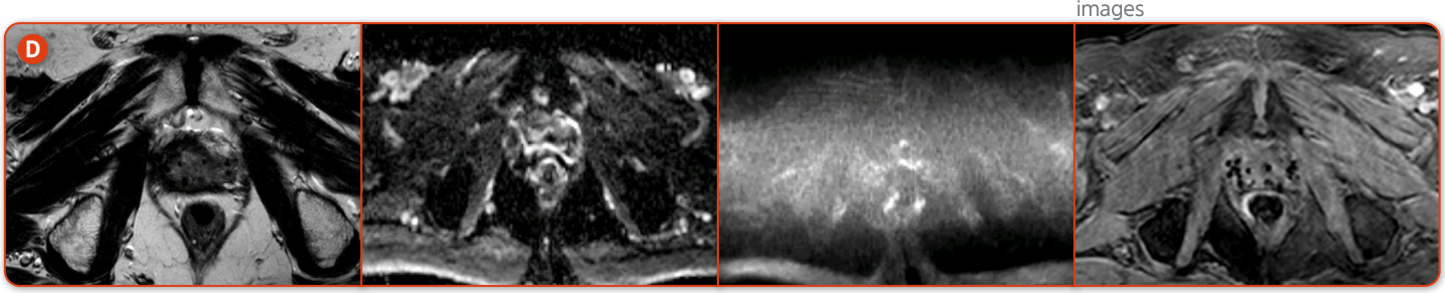
Freeze* 10 min → Passive Thaw 3 min → Active Thaw 3 min → Freeze* 10 min → Active Thaw Remove Needles

* Each 10-minute freeze cycle must include ≥3 minutes at <-40˚C at the most lateral border of the tumour margin

OUTCOME

- The PSA post treatment dropped significantly to 0.05ng/ml and has remained stable in the two years since, indicating a very good response
- Early and late post-operative MRI images showed very good tumour coverage and no residual cancer C D
- Repeated annual mpMRI has not shown any evidence of residual or recurrent cancer

Post cryotherapy: Six-week follow-up MRI dynamic contrast-enhanced T1 images



Post cryotherapy: One-year follow-up MRI. Left to right: T2 axial view; ADC map; b2000 diffusion-weighted image; dynamic contrast-enhanced image

CONCLUSION

- Salvage cases are generally regarded as being difficult, particularly in patients who have had previous brachytherapy. Outcomes from salvage surgery – whether it be a prostatectomy or a minimally invasive
therapy such as cryotherapy – are generally worse than in patients with primary disease. Salvage prostatectomy, however, carries significant morbidity for the patient with very high rates of incontinence and erectile dysfunction and a risk of rectal injury, along with a long post-operative recovery period[1-4]
- This patient had a very well-localised anterior recurrence after previous brachytherapy. He underwent salvage focal cryotherapy as a day-case procedure and had a catheter *in situ* for one week. He had no major adverse events and although he suffered from minor incontinence, this did not require him to wear a pad. His PSA dropped significantly to 0.05ng/ml and has remained stable
- Focal salvage cryotherapy has managed to provide oncological control and also maintain this patient's quality of life in his later years

References:
1. Kimura M *et al.* BJU International 2009; 105:191-201.
2. Shah T *et al.* Anticancer Ther 2014; 14(11):1337-47. **3.** Chade DC *et al.* Eur Urol 2012; 61(5): 961-71. doi: 10.1016/j.eururo.2012.01.022.
4. Pearce SM *et al.* Urol Oncol 2015; 33(4):163.e1-6. doi: 10.1016/j.urolonc.2015.01.016.

ADC: Apparent diffusion coefficient
MCCL: Maximum cancer core length
3T mpMRI: 3 Tesla multiparametric magnetic resonance imaging
MRI: Magnetic resonance imaging
NM: Nuclear medicine
PET-CT: Positron emission tomography–computed tomography
PI-RADS: Prostate Imaging Reporting and Data System
PSA: Prostate specific antigen

PI-880008-AA

Boston Scientific
Advancing science for life™

www.bostonscientific.eu