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TRANSPERINEAL TEMPLATE BIOPSIES OF THE PROSTATE (PROSTATE MAPPING)

Why should you consider Transperineal Template Biopsies of the Prostate (Prostate Mapping)?

The current standard diagnostic pathway for prostate cancer involves TRUS guided biopsy in 'at-risk' men i.e. those with a raised PSA or abnormal digital rectal examination. Different areas of the prostate are sampled with approximately 8 - 12 biopsy cores.

However, there are problems with this pathway.

Firstly, TRUS-guided biopsy is performed in a 'blind' manner, without the guidance of imaging to direct the clinician to any areas of concern. As a result, areas that are out of reach, such as the anterior prostate and apex, are either under-sampled or never sampled. Secondly, areas of clinically insignificant cancer area are found, which may never have caused a man harm or prostate related death if left undetected and untreated. Thirdly, when a diagnosis of prostate cancer is made, information on the burden and exact location of disease, cannot be accurately determined using this technique.

What are Transperineal Template Biopsies of the Prostate (Prostate Mapping)?

Transperineal template guided prostate biopsy is an alternative method for sampling the prostate, which Mr Shergill provides here at the Nuffield Chester. It involves biopsies taken via a grid placed on the perineum (area between the scrotum and rectum), and is usually performed under general anaesthetic or sedation and locoregional anaesthetic.

Advantages to this technique include the improved diagnostic accuracy compared to TRUS biopsy. When samples have been taken every 5mm, using the transperineal route, detection rates of cancer have been significantly improved compared to TRUS biopsy. In particular, anterior and apical areas of the prostate are more easily sampled compared to standard TRUS biopsy. In addition, the rate of sepsis is significantly lower, as biopsies are taken via the skin, rather than via the rectum. However, reported urinary retention rates are higher than following TRUS biopsy, varying between 3-30%, although this risk can be lowered through a short course of an alpha-blocker medication starting 2-3 of days before the procedure.

Who may benefit from a template guided transperineal prostate biopsy?

(1) Men with a suspicion of prostate cancer and a previous negative TRUS biopsy.

Many men undergo more than one TRUS biopsy if the suspicion of prostate cancer remains, despite a previous negative result. This is particularly relevant in those with an evasive anterior lesion, in whom a diagnosis would not have been made with TRUS biopsy, regardless of the number performed, due to the position of the lesion in the gland. The transperineal biopsy technique allows sampling of these more difficult areas.

(2) Reassurance of low-risk disease status in men wishing to undergo active surveillance.

Men diagnosed with low-risk disease on standard TRUS biopsy may elect to undergo a period of active surveillance. A transperineal template mapping biopsy, with sampling of the gland up to every 5mm, allows confirmation or otherwise, of low-risk status prior to initiation of this management plan.

(3) For planning focal therapy

The transperineal template prostate biopsy can provide an accurate map of disease burden and location. The results of the biopsy could guide targeted, or 'focal therapy', to the cancer lesion.

Why should I have this procedure?

There are a number of reasons why prostate mapping biopsies may be suitable for you:

Precision diagnosis:

- If you have a raised PSA and need to have a prostate biopsy, this type of biopsy provides state-of-the-art diagnosis
- If you need to have a biopsy and do not wish to undergo the procedure under local anaesthetic.
- If you have a raised PSA or other risk factors for developing prostate cancer, but your prostate biopsy or biopsies have not detected any cancer so far.

Precision risk stratification:

- If you have had a prostate biopsy which has already shown low risk prostate cancer which may be suitable for active surveillance and wish to have greater certainty about whether this is the correct option for you. In other words, you wish to make sure that the prostate biopsy has not missed areas of higher Gleason grade tumours or missed other areas of prostate cancer which would mean that active surveillance is not a good option for you.
- If you have had a prostate biopsy which has already shown moderate risk prostate cancer of Gleason 3+4=7 or 4+3=7 and/or high volume of prostate cancer in the gland. You are not keen on having radical treatments. You wish to find out if the prostate biopsy may have over-called the prostate cancer as a higher risk than it actually is and you may actually be suitable for active surveillance.
- If you have had a prostate biopsy which has already shown moderate or high risk prostate cancer of Gleason 3+4=7, 4+3=7 or 4+4=8 and/or high volume of prostate cancer in the gland. There is a possibility that the prostate biopsy has over-called the Gleason score of the prostate cancer and the amount of prostate cancer present in the prostate. You wish to avoid treatments such as radical radiotherapy and radical surgery and wish to be considered for newer treatments such high intensity focused ultrasound treatment (HIFU) or cryosurgery.

- If you have had a prostate biopsy which has already shown moderate or high risk prostate cancer of Gleason 3+4=7, 4+3=7 or 4+4=8 and/or high volume of prostate cancer in the gland. There is a possibility that the prostate biopsy has over-called the Gleason score of the prostate cancer and the amount of prostate cancer present in the prostate. You wish to avoid treatments such as radical radiotherapy and radical surgery and wish to be considered for clinical trials that are looking at destroying only the areas of prostate cancer (focal therapy) rather than the whole prostate. Such treatments may lead to less side-effects, although these are trials so the outcome is not certain.

What happens on the day of the procedure?

The procedure is carried out under general anaesthetic. You will be admitted to hospital for 1 or 2 hours depending on when during the day the procedure is scheduled. You will be asked not to eat anything before the procedure and not drink anything as advised by pre-assessment team at the Nuffield. You will be assessed by a Consultant Anaesthetist who will discuss the anaesthesia.

After anaesthesia, a plastic tube called a catheter is inserted through the penis into the bladder so that the water passage can be seen properly throughout the procedure and avoided. After the biopsies have been taken, the catheter is removed. The procedure lasts for 30 to 45 minutes and involves taking around 20-70 biopsies through the skin that lies in front of your back passage rather than through the back passage. Antibiotics are given before the start of the procedure through a vein and pain killers and tablets to help reduce your chances of finding it temporarily difficult to pass urine will be given for 7 days after the procedure. A thick padding will be placed over the area of skin that the needle has gone through to prevent a lot of bruising. This padding should be left for at least 6 hours.

How are prostate mapping biopsies carried out?



An ultrasound probe is inserted into the back passage and the prostate is scanned. Using a grid with holes placed every 5mm, a biopsy needle is inserted through each hole and the prostate is sampled every 5mm. Each biopsy taken is placed in separate pots for a Consultant Histopathologist to examine each one separately under the

microscope. A report is given telling us whether each biopsy has cancer in it or not. Other information is also given such as whether the tissue looked inflamed or whether there are other features such as precancerous areas in the prostate.

What are the potential side effects of prostate mapping biopsies?

Transperineal biopsies carry no extra risk than a normal TRUS biopsy carried out through the rectum. Complications of both include:

- bruising of skin and occasionally bruising that spreads to the scrotum
- prostatitis (inflammation or infection of the prostate) in some men
- temporary discomfort or pain in the back passage area (most men)
- bloody urine usually for the first few days in most men
- bloody semen in most men lasting for up to 3 months in a few men
- retention of urine requiring a temporary catheter for 1 week (up to 10-15%)
- infection (requiring admission and intravenous antibiotics <0.5%)
- a few men have experienced temporary poorer erections for up to 6 weeks

What happens after the procedure?

You will be able to go home on the day of the procedure once you have recovered from the anaesthetic and are passing urine OK. If you have a catheter, we will ensure that the urine is clear before final decision on discharge. If you have a catheter, a written plan will be made for subsequent removal of the catheter after 5-7 days. The results of the biopsies will be available within 1 week to 10 days after the biopsies and Mr Shergill will arrange to see you with these results, in the follow up clinic. If you have any problems please feel free to call Mr Shergill on 07590212021 or the Ward at Nuffield on 01244 684311.