EDITORIAL

Male urogenital disorders

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In recent years there have been significant advances in the diagnosis and management of male urogenital disorders. Some of these advances have been facilitated by technological revolutions in imaging that have found diagnostic clinical and therapeutic applications. There have also been marked developments in defining the molecular biology of cancers that have provided a wide spectrum of therapeutic opportunities.

In this special issue of male urogenital disorders, based on a symposium held at the British Institute of Radiology, London, UK, many of these advances are discussed. The articles are written by recognised leaders in their fields.

Harvey et al [1] discuss the role of transrectal ultrasound (TRUS) in the diagnosis of prostate cancer. The present status and limitations of TRUS are described along with the technique of TRUS-guided biopsy and its complications. Recent advances in contrast-enhanced ultrasound (CEUS), elastography and MR fusion techniques have significantly improved the sensitivity of TRUS-guided prostate-targeted biopsies.

Two articles detail some exciting advances in the treatment of prostate cancer [2, 3]. Challapalli et al [2] describe high dose rate (HDR) brachytherapy in the treatment of localised prostate cancer. The article explores the rationale of HDR as a highly conformal method of dose delivery as well as the radiobiological advantages over low dose rate and external beam radiotherapy. Some initial outcome data and favourable toxicity profiles are discussed as well as emerging future applications and how this procedure will feature alongside stereotactic radiosurgery.

O'Hanlon Brown and Waxman [3] describe trials and dilemmas in the current management of prostate cancer. They discuss how understanding the molecular biology of prostate cancer has been successfully translated into new therapeutic options. Novel modes of inhibition of the androgen/androgen receptor axis have been developed in castrate-refractory prostate cancer. New

chemo- and immunotherapies targeting molecular targets are described along with the intricacies of the interpretation of trial outcomes. Overall, the authors conclude that there is now a range of treatment options for advanced prostate cancer, whereas previously there were few.

Turning to testicular imaging applications, Huang and Sidhu [4] illustrate the potential use of newer ultrasound techniques of CEUS and tissue elastography in the characterisation of both benign and malignant intratesticular lesions. The use of CEUS improves characterisation of testicular lesions and confirms lack of vascularity in benign abnormalities. Tissue elastography allows further evaluation of the cellular consistency. Familiarity with the appearances seen with these ultrasound techniques in both benign and malignant abnormalities will improve diagnostic confidence.

Nevertheless, there are a number of situations in which clinical and radiological assessment are unable to provide a definitive diagnosis of testicular lesions. In these situations, traditionally either open biopsy or orchidectomy has been performed. Ultrasound-guided percutaneous testicular biopsy is an alternative, less invasive method of obtaining a histological diagnosis. Shaida and Berman [5] describe the rationale, technique and potential uses of the technique.

Ammar et al [6] tackle the important subject of male infertility, which has been implicated as a casual factor in up to half of infertile couples. This article reviews the multimodality imaging used in the investigation of male infertility, and illustrates normal and abnormal findings. It discusses the role of testicular ultrasound in the initial assessment. In obstructive azoospermia, further imaging in the form of TRUS and MR may then be able to categorise the level of obstruction and facilitate treatment planning without resort to more invasive techniques. Therapeutic ultrasound procedures such as sperm or cyst aspiration and vasal cannulation are also described.

Patel et al [7] describe the investigation of erectile dysfunction (ED). They examine the anatomical and physiological basis of penile erection. Various imaging

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modalities can be utilised to investigate the physical causes of ED, but penile Doppler sonography (PDS) is the most informative technique. This review details the method for performing PDS and features of specific causes of ED, and also considers the alternative imaging modalities available.

This group [8] then reviews the aetiology and pathophysiology of different types of priapism and the role of the radiologist in the diagnosis and treatment of priapism.

Kirkham [9] details the newly emerging role of MR in imaging the penis, discussing the radiological anatomy and indications for MR. In penile cancer, it may be useful in cases in which the local stage is not apparent clinically. In priapism, it is an emerging technique for assessing corporal viability, and in fracture it can make the diagnosis and locate the injury. In some cases of penile fibrosis and Peyronie's disease it may aid surgical planning, and in complex pelvic fracture may replace or augment conventional urethrography. It is an excellent investigation for the malfunctioning penile prosthesis.

Shaida and Berman [10] describe a novel application of ultrasound in imaging the penile anterior urethra, which has traditionally been depicted using fluoroscopic contrast urethrography. The ascending and descending urethral techniques employed to image a spectrum of pathologies are detailed.

It is hoped that you will find these articles both of interest and stimulating, and that they will inspire you to read further.

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