Programme

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Kevin McEleny
Consultant Urologist
Newcastle-Upon-Tyne Hospitals NHS Trust

Kevin McEleny is Consultant Urologist and Associate Clinical Lecturer. After training in the North East Region he set up a Supra-regional Male Service at Newcastle Fertility Centre. He set up the http://All-About-Fertility.com site and is on the BFS Executive committee. He has published on a range of male fertility topics and his current interests include male fertility genomics and psychosocial aspects of the male fertility experience.

Marc Lucky
Welcome from the module lead

Asif Muneer
Consultant Urological Surgeon & Andrologist
University College London Hospital

Having completed his higher degree (MD) at UCL investigating the physiology of smooth muscle dysfunction, he went on to higher surgical training in Oxford. He then undertook further fellowships to the University of Paris, NKI in Amsterdam and MD Anderson Texas. He has received a number of awards including the intercollegiate gold medal, British Urological Foundation award, Ethicon fellowship, Ralph Shackman fellowship and the Harold Hopkins Golden Telescope.

Mr Muneer has published widely on all aspects of urology and has co-edited seven books including Viva Practice for the FRCS(Urol), Textbook of Penile Cancer and Atlas of Male Genitourethral Surgery. He is past President of the British Society for Sexual Medicine, Chair of the British Association of Urological Surgeons Section of Andrology and the current BAUS Honorary Secretary.

Talk title: Male history and examination

Many men feel marginalised in the fertility consultation and that pertinent male factors are often overlooked by the clinical team. Before we can decide how to treat patients we first of all need to understand what is happening to them and this requires clinical assessment. This talk will explain why male issues are important in the fertility context and will review some of the important aspects that need to be considered. We will then outline an approach for assessment.

Key learning points

• To understand the reasons why it is important to assess male fertility patients
• To understand how to take a history from a male fertility patient
• To learn how the focused physical examination of male fertility patients is performed

Talk title: Surgical Sperm Retrieval Techniques

Approximately 60% of men presenting with azoospermia will be diagnosed with non-obstructive azoospermia (NOA). Before the development of intracytoplasmic sperm injection (ICSI), assisted reproductive techniques (ART) used sperm from an ejaculated semen sample for in vitro fertilization (IVF). However, the availability of ICSI has now allowed men previously deemed infertile to now father their own biological offspring provided that sperm can be harvested from the testicles.

Although techniques such as PESA, TESA or TESE will be discussed in the context of obstructive azoospermia, the gold standard for NOA is microdissection TESE which requires a more extensive dissection of the testicular parenchyma and harvesting the best tubules. The technique and outcomes of these techniques will be presented together with the risks of surgery including testicular atrophy and hypogonadism.

Key learning points

• The gold standard for NOA is microdissection TESE
• Success rates are independent of pre operative FSH
• Retrieval success rates depend on the underlying histological diagnosis
**Odunayo Kalejaiye**  
*Consultant Urologist and Onco-Andrologist*  
University Hospitals Birmingham NHS Trust  

Odunayo has been a consultant in University Hospitals Birmingham since 2017. She undertook the majority of her surgical and urological training in the South West of England before completing a fellowship in penile cancer and benign andrology at University College London. She now specialises in benign andrology including male subfertility as well as being the lead for penile cancer in the West Midlands.

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**Marc Lucky**  
*Consultant Urologist and Andrological Surgeon*  
Aintree University Teaching Hospital, Liverpool  

Mr Lucky is a fellowship trained Urologist and Andrological surgeon with particular experience in andrology, male infertility, erectile dysfunction and genital reconstruction. A graduate of the University of Liverpool and Fellow of the Royal College of Surgeons in Edinburgh, Mr Lucky brings with him a number of years of experience in the field. Having completed urological training in the North West, Mr Lucky underwent a fellowship in andrology, genital oncology, genital reconstructive surgery and male infertility at University College Hospital, London.

Mr Lucky has contributed to multiple publications in the field of urology and andrology and has presented on the same subjects internationally. He continues to give back to his chosen field by teaching at the Royal College of Surgeons of England Urology courses and is seen by his peers as a leading surgeon in his field.
Male Fertility

Allan Pacey
Professor of Andrology
University of Sheffield

Allan is Professor of Andrology at the University of Sheffield School of Medicine. He is currently the Chairman of the Steering Group for the UK National External Quality Assurance Scheme for Andrology and the Editor in Chief of the BFS journal Human Fertility. He was until January 2015 the Chairman of the British Fertility Society and served as BFS Secretary between 2005-2010. In the 2016 New Year’s Honours list, he was awarded an MBE for Services to Reproductive Medicine.

Talk title: Male reproductive physiology
The embryological development of the male urogenital system is critical to the fertility of adult males and the six months either side of birth is thought to be the time at which the maximum sperm output of the adult testis is established. After puberty, the production of sperm is regulated by the secretion of FSH and LH from the hypothalamic pituitary axis, as well as paracrine factors from the testis itself. In comparison to many other mammals the production of sperm in the human is quite slow, taking just over 70 days followed by further maturation steps in the epididymis.

The number and quality of sperm ejaculated depends on many factors including the abstinence period and the level of arousal as well as the quality of spermatogenesis itself. Spermatogenesis is affected by some lifestyle factors such as temperature (e.g. tight underwear), recreational drug use (e.g. cannabis) and occupation (e.g. exposure to glycol ethers). Finally, clinicians should be aware that sperm makes up only a minor part of the ejaculate (approximately 5% by volume), with secretions from accessory glands such as the prostate and seminal vesicles, among others.

Key learning points
- Identify the components of the male reproductive system and how they work;
- understand the endocrine regulation of male reproductive system
- Highlight factors which influence the efficiency of spermatogenesis and ejaculate quality

Bryan Woodward
Scientific Director
X&Y Fertility

Bryan Woodward (PhD, FRCPath) is a freelance reproductive scientist who specialises in trouble-shooting fertility clinics to improve andrology and embryology services. He has helped set up numerous IVF laboratories and offers hands-on andrology and embryology training as required. In the UK, he is the Person Responsible at X&Y Fertility.

Talk title: Tests of semen quality
Tests of semen quality are usually undertaken as an initial investigation into male fertility. Traditional tests are often performed in a pathology laboratory, where basic macroscopic and microscopic assessments are undertaken. These include sperm count, morphology and motility, as all have been reported to be predictive of pregnancy. Beyond the basic repertoire, more detailed tests are available in a few specialist labs to provide further information about semen quality. For example, sperm can be processed, as it would for assisted conception treatments, to see if the quality can be improved. Further tests can then be performed immediately prior to insemination to help to select the best quality sperm. Detailed diagnostic tests are also available, such as sperm DNA integrity, immunohistochemistry, and karyotyping, which may also offer useful information. This talk will provide an overview of tests of semen quality that are available in the diagnosis of male fertility.

Key learning points
- To understand the parameters of traditional tests of semen quality
- To learn how to check whether the test results are reliable?
- To be aware of more detailed tests of semen quality
Miguel J. Xavier
Research Associate
Newcastle University

Dr Miguel J Xavier obtained his B.S. (Hons) in Biology from the University of Aberdeen, UK, in 2010; his MSc in Bioinformatics from the Imperial College London, UK, in 2011 and Ph.D. in Biological Sciences from the University of Newcastle, Australia in 2018 followed by a post-doctoral fellowship in the Institute of Genetic Medicine of the Newcastle University, UK since 2018.

Dr Xavier is a molecular geneticist and bioinformatician who has been investigating the genetics of male infertility for almost 10 years, first identifying hotspots of mutation in the sperm of infertile men and now finding novel genetic causes underlying severe forms of male infertility.

Key learning points

- Genetic studies show that more than 100 genes can play a role in male infertility
- Current screening tests for azoospermia or oligozoospermia patients are of limited usefulness and new gene panels need to be developed
- Genetic studies employing patient-parent trio sequencing data are essential to finding novel causes of severe male infertility

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Rowland Rees
Consultant Uro-andrologist
University Hospital Southampton

Rowland is a urologist specialising in andrology and male genital surgery based in Southampton, and also works at the Institute of Andrology at UCLH, where he completed a fellowship in andrology and micro-surgery in 2006/7. He has over 10 years of experience in the investigation and management of male infertility, and runs a male fertility clinic at the Complete Fertility Centre. He was Chairman of the BAUS section of Andrology for 2018-2020.

Talk title: The genetics of severe male infertility: genetic testing and diagnostic

Reproduction is vital to our species and despite natural selection against it, infertility is still found at a high frequency in the human populations worldwide. Genetic research is essential to increase our knowledge regarding severe male infertility biology, and to improve the diagnostic yield and clinical relevance of current genetic testing approaches. Limited progress has been made in the last 20 years, with no new genetic targets conclusively associated with severe male infertility while approximately 70% of cases remain unexplained. Taking a page from studies into other rare syndromes, patients and their fertile parents were screened to identify novel germline mutations and structural variants as the potential source of infertility. The importance of conducting unbiased genomic approaches and novel functional validation assays in large cohorts of patient-parent trios cannot be underestimated if we are to identify the genetic causes of male infertility and implement new diagnostic and clinical procedures.

Key learning points

- Genetic studies show that more than 100 genes can play a role in male infertility
- Current screening tests for azoospermia or oligozoospermia patients are of limited usefulness and new gene panels need to be developed
- Genetic studies employing patient-parent trio sequencing data are essential to finding novel causes of severe male infertility

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Talk title: Varicocele and Post Testicular causes of male fertility

This presentation will firstly discuss the incidence, impact and treatment of Varicoceles in the context of male factor infertility. The evidence for the association between varicocele and abnormal sperm parameters, the pathophysiology, as well as the impact of varicocele treatment on semen parameters and pregnancy rates will be discussed. The options of treatment with their relative success rates will also be reviewed.

Secondly the post-testicular causes of male infertility will be reviewed, focussing mainly on obstruction to the male genital tract and various levels. The causes, investigation and treatment of obstruction at the level of the prostate, vas deferens and epididymis will be outlined, together with the success rates of treatment. Lastly the issue of ejaculatory and sexual dysfunction will be covered, along with potential therapeutic options.

Key learning points

- Men presenting with infertility and abnormal semen parameters should be interviewed and examined to look for treatable causes of subfertility, and offered treatment where possible
- Men with infertility, a clinical varicocele and abnormal semen parameters should be offered varicocele treatment
- Treatment of obstruction results in pregnancy rates of 30-75% depending on the underlying cause
Mr Parnham is a consultant urologist at The Christie NHS Foundation Trust in Manchester. He provides a genital oncology and late effects service at Europe’s largest single site cancer centre. He has trained in the North West, West Midlands, Oxford and London and completed advanced microsurgical training at Weill Cornell, New York and onco-fertility experience at University College London.

Talk title: Testicular Cancer and Fertility

Testis cancer is the most common malignancy in men between the ages of 20 and 35, which coincides with peak reproductive age. Despite significant advances in oncological control offering almost unparalleled survival characteristics, the affects on fertility and subsequent management there of lag. The influence of testicular malignancy and treatment modalities on testicular function all can negatively affect fertility potential. Early detection, intervention and storage can mitigate against these risks but require a change in the management paradigm. New evolving surgical and medical options now exist for those patients presenting with azoospermia as well as for those further in their treatment.

Key learning points

• Despite the advances in oncological management of testis cancer leading to exceptional survival statistics this has had a negative effect on sufferers’ fertility in an age group that can least afford it
• Early screening and sperm banking is the gold standard for men presenting with suspected testicular cancer
• Specialist testis cancer centres should have access to dedicated fertility services including embryologists and storage
Richard Quinton
Consultant & Senior Lecturer in Endocrinology
Newcastle-upon-Tyne Hospitals & University

Dr Richard Quentin has been a Consultant Endocrinologist at the Royal Victoria Infirmary, Newcastle-upon-Tyne, since 1999 and Senior Lecturer at Newcastle University. He graduated from Cambridge University in 1989 and, following core medical training at St Bartholomew’s Hospital, London and Erasmus University Hospital, Rotterdam, he trained in general and reproductive endocrinology at UCL Hospitals, gaining his CCST in 1998, along with a lifelong interest in reproductive endocrinology. He has been active in the field of hypogonadism research since 1993 and was awarded the Ralph Nobel Prize by Cambridge University for his MD thesis on Kallmann syndrome in 2001.

He has published nearly 200 articles, including several in NEJM, JCI, PNAS & BMJ. As well as collaborating with molecular geneticists to identify key genes involved in the neuroendocrine control of human reproduction, his emphasis on careful patient phenotyping and longitudinal follow-up has resulted in novel clinical observations that have changed perceptions of the plasticity of the human GnRH pulse-generator and its resilience in the face of both genetic and environmental insults. He has long been an active supporter of patient involvement and self-help groups, including ‘kallmanns.org’, ‘Klinefelter Syndrome UK’, ‘Turner syndrome UK’ and was a founder member and Vice Chair of the ‘gnrh.eu network’ of clinicians, researchers, educators, and patients, funded by the EU as part of its collaboration in Science and Technology programme, which re-shaped directions of travel for collaborative research, patient education and patient access to best care across Europe in the field of central hypogonadotrophic hypogonadism.

Talk title: Pre-testicular causes of male infertility

Key learning points

- Men with hypogonadotropic hypogonadism (HH) have a hormonally-treatable form of infertility
- However, adult-onset HH is easily misdiagnosed in reproductively normal men under a variety of conditions
- In reproductively normal men, who were erroneously started on testosterone in the past, the recommended way to restore fertility is to simply stop testosterone treatment
- hCG-mono-therapy is only really effective in men with acquired HH, e.g. post-pituitary surgery, who have the best prognosis – FSH treatment can always be added at a later stage
- However, hCG-mono-therapy is largely ineffective and pointless in men with congenital HH (CHH), who require simultaneous combined FSH+hCG (or pulsatile GnRH) therapy for a period of 1-3 years pump, with around 75% eventually developing sperm in the ejaculate
- The FSH dose (typically 450–900 iU per week, in 3–7 divided doses) should be adjusted to achieve physiological FSH levels, 4 to 8 iU/L
- The hCG (or rCG) dose (typically 1,500–10,000 iU per week, in 2–3 divided doses) should be adjusted so as achieve physiological levels of testosterone, E2, Hb and Hct
- CHH men with smaller testes (< 4 mL), or history of bilateral cryptorchidism have the worst prognosis and may benefit from 2-3 months pre-treatment with FSH (to boost Sertoli and germ cell numbers) prior to initiating combined gonadotropin (or GnRH) therapy
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Thank you for participating in Virtual Study Week 2022.
Should you have any questions please contact bfs@profileproductions.co.uk