BJUI

Tuesday 16 June
ePoster Session 3
1400–1600 Charter 2
HISTORY OF UROLOGY
Chairs: Mr Jonathan Goddard & Mr Ed Jefferies
ePosters P31–P42

P31

The evolution of urinary diversion and the orthotopic neobladder

K Williams, IP Wharton
University Hospitals Coventry & Warwickshire NHS Trust

The earliest recorded attempt to divert urine from ureter to intestine was performed at St Thomas' Hospital by John Simon (1851). A 13-year old with bladder exstrophy underwent bilateral **ureterosigmoidostomy** but died later from renal failure. Subsequent attempts at ureterointestinal diversion were invariably complicated by overwhelming postoperative sepsis (Johnson 1852) or uraemia secondary to anastomotic stenosis (Smith 1878). The development of obstruction was reduced with anastomosis of ureteric orifice (Tuffier 1890) or trigone (Maydl 1892) directly onto intestine. Submucosal tunnelling (Coffey-Mayo operation 1912) and ureteric spatulation with mucosa-mucosa anastomosis (Nesbit 1948) further lowered the stricture rate. With increased survival, the inevitable development of hyperchloremic metabolic acidosis became apparent and the procedure lost favour (Ferris&Odel 1950). After canine experiments (Gluck&Zeller 1881), Agnew performed the first **cutaneous ureterostomy** for ureteric injury. Rydygier (1892) undertook the first bilateral procedure and Papin (1925) demonstrated from his series of cystectomy patients that mortality from cutaneous ureterostomy (28.7%) was much lower than from ureterosigmoidostomy (59.2%). However, poor methods of anastomosis remained the primary cause of long-term morbidity.

Although first described by Zaayer (1911), it was not until Bricker published his series (1950; mortality rate 3.4%) that **ileal conduit** became established. With a lower infection rate and lack of metabolic shortcomings it rapidly became the gold standard. Despite better outcomes in animal experiments, **colonic conduit (**Übelhör 1952) failed to supercede it.

After cystectomy continent urinary diversion is the ideal objective. In suitable patients this may be achieved by creating a continent urinary reservoir or **neobladder**. Tizzoni&Poggi (1888) constructed the first reported neobladder in a dog using a two-stage technique. Ileum was looped and then anastomosed to the ureters and bladder neck.

Lemoine (1912) created the first human neobladder by reimplanting the ureters and urethra into displaced rectum. The patient died postoperatively of sepsis. Couvelaire (1951) reported the first human ileal neobladder with anastomosis to the urethra and exteriorisation to the abdominal wall (high-pressure safety valve to prevent reflux nephropathy). Camey (1959) popularised ileal neobladders using a 'U'-shaped loop. To increase capacity and decrease intraluminal pressure Kock (1969) devised a pouch fashioned from detubularised ileum. 'Nipple valves' were then created from intussuscepted afferent and efferent portions to prevent reflux and achieve continence. Introduction of clean intermittent catheterisation (Lapides 1971) further increased interest in the field.

After animal experiments (1984), Studer introduced an ileal pouch with afferent loop (chimney). This rapidly became the most widely used neobladder. Hautmann (1987) then described a 'W' or 'M'-shaped detubularized neobladder which gained popularity with female patients. **Ileocaecal neobladders** have also been constructed with the Orthotopic Mainz pouch (1983) and ileocolonic 'Le Bag' pouch (Light&Scardino 1986) most described.

Neobladder development has not been achieved purely through surgical advances but also through an increased appreciation of the physiology involved. As bowel specific problems persist (metabolic imbalance, mucus secretion, etc.), the development of autologous tissue-engineered bladders is now being explored.

P32

Adam's lost rib

R Sandler, S Venugopal, S Miah, C Molokwu
Royal Hallamshire Hospital, Sheffield

Introduction: In numerous monotheistic scriptures, Eve, the first human female, was made from Adam's 'rib'. Both sexes, however, possess an identical configuration of 12 pairs of ribs. Anatomically, in comparison to primates, the only bone

which Adam could have lost, in order to create Eve, is the baculum (penile bone).
Methods: A search was done in Google, Google Scholar and PubMed using the search terms, 'baculum', 'penis bone', 'os penis', 'penis ossification' and 'comparative study of baculum'. Identified articles were reviewed manually.
Results: The Hebrew word 'tzela' could generally mean any 'supportive structure', not specifically a 'rib'. Comparative studies suggest varied functions of the baculum in initiating and prolonging the duration of intercourse and aiding sperm delivery in a competitive mating environment. The decrease in competitive mating in humans could have resulted in evolutionary loss of function of the baculum. Physiologically, human penile rigidity is achieved haemodynamically prior to penetration, whereas in other mammals and primates, rigidity for penetration can be provided by the baculum, with haemodynamic erection occurring after. Human penile ossification has been reported in literature as being spontaneous, post-traumatic or secondary to Peyronie's disease.
Conclusion: With the limited evidence available, we were unable to ascertain if, when, how and why the human male lost his baculum and whether the human female has benefitted from this loss. However, with the increasing prevalence of erectile dysfunction and use of penile implants, it is clear that some human males would have benefited from the presence of a baculum.

P33
The history of vasectomy

L Yeo, K Chan
York Hospital

The vasectomy procedure is a common method of male contraception used today however historically the procedure has been performed for other indications.
The clinical use of vasectomy dates back to the 1880s and early indications were to achieve prostatic atrophy and thereby improve obstructive urinary symptoms as an alternative to castration. The procedure was popular for a period because of minimal harm and perceived efficacy but soon after it was realised that vasectomy did not produce prostatic atrophy.
A later indication for vasectomy was as prophylaxis against epididymitis following prostatectomy, as this was a frequent complication of the procedure. A number of notable surgeons at the beginning of the twentieth century certainly recommended vasectomy at the time of prostatectomy. However as surgical techniques improved and effective antibiotics were developed the incidence of epididymitis fell.
Eugen Steinach later popularised the procedure as a method of 'rejuvenation' and the procedure became known as the Steinach operation. It was adopted worldwide and even Sigmund Freud underwent the procedure although he was dubious about its effect. By the late 1940s the procedure fell out of fashion.
In the 1890s, the American surgeon Ochsner recommended vasectomy for eugenic purposes. Several states in United States passed laws authorising vasectomy for various conditions and crimes, but this later stopped by the 1960s.
Clearly the history of vasectomy is an interesting and colourful one particularly since its voluntary use for family planning only came about in the mid 1900s. Now there are several techniques described to improve outcomes.

P34
Stones of great Britons

K Farrag, I Dickinson, S Sriprasad
Darent Valley Hospital

Introduction: Over the course of history, renal stones, has affected many famous personalities. The biographies of many historic British greats have account of their stones and suffering This review explores some of them.
Methods: A search for pertinent primary and secondary sources was undertaken using internet and library sources.
Results: James VI King of Great Britain had kidney stones. He suffered from haematuria and colic. Similar problems affected King George IV and Oliver Cromwell, whose physician at the time advised him to consume fluid and move his body violently, a primitive form of expulsive therapy! Samuel Pepys (1633–1703) the Member of Parliament wrote that he had a successful operation for a bladder stone and encouraged others although it carried significant mortality. Robert Walpole the first prime minister of Great Britain, and his family suffered with kidney stones. William Harvey was a recurrent stone former with gout. John Wilkins (1614–1672) the bishop of Chester and founder of the royal society went through a very painful episode during passing a kidney stone and retention. His death is attributed to opioids toxicity. Sir Isaac Newton suffered from urinary incontinence due to bladder stones and had attacks of gout!
Thomas Sydenham known as the English *Hippocrates* described his own kidney stone pain, a classic urinary colic description.
Conclusion: Even in yesteryears celebrity medical problem gave publicity to the disease and the branch of medicine.

P35
Willard E Goodwin a urologist who one day made a mistake but it was a good one!

J Hale
Guy's and St Thomas' NHS Foundation Trust

Introduction: In 1955 Willard.E.Goodwin during an arteriography attempt in a patient with hydronephrosis inadvertently placed a needle in the renal collecting system. In addition to the first nephrostomy tube Goodwin also performed the first antegrade nephrostogram.
Material and Methods: A systematic search of urological literature, historical sources, online and published material was performed on the subject.
Results: In 1955 with William Casey he went on to describe the first 18 attempts performed in 16 patients. Including an honest discussion on failed attempts and complications that did and can occur. Their patients ranged form children with PUJ obstruction to adults needing reconstruction. Their indications were to allow temporary drainage to see if renal function improved or to allow temporary urinary diversion in order to preform reconstruction surgery in the future.
In their discussion of complications and dangers their list of possible problems that can arise is so relevant and complete that it could have been written last year rather than 60 years ago with no benefit of cross-sectional imaging.
Conclusions: Throughout his career Goodwin was known as a pioneer and innovator. During a sabbatical in renal transplantation he reported the first

effective use of steroids for allograft rejection. At UCLA, he helped develop the division of urology to world class status, and handed over the reigns early so he could continue to turn his interest to academic matters. He rejoiced in his trainees being appointed to important posts within the Urological community.

P36
The lost urologist: Edward Canny Ryall

W Gallagher, E Sabin, J Goddard
University Hospitals, Leicester

Introduction and Objectives: Edward Canny Ryall was a pioneering early 20th century urologist. He was a great philanthropist, dedicating his life to relieving the suffering of urology patients while enhancing knowledge in the specialty.
Material and Methods: Archives and records of All Saints Hospital from the Wellcome Institute and the London Metropolitan Archives.
Results: Canny Ryall (1865–1934) was born in Limerick and studied medicine at the Royal College of Surgeons in Dublin. He trained as a General Surgeon but focused his interest in urology; a growing specialty at the time. In 1911, unhappy with the care given to urology patients elsewhere, he established All Saints Hospital, a specialist urological centre. It was an institution sustained by his dedication and charitable donations. He was supported in his cause by the then Prime Minister Arthur Balfour. At its height, All Saints Urology Hospital had 55 inpatient beds and treated 600 inpatients and 1500 outpatient a year. This included neonatal urology, enuresis clinics, renal stones, elderly urology, cancer and tuberculosis. He promoted urology in the UK through his beautifully illustrated 1925 book 'Operative Cystoscopy', which was hailed as a landmark in surgical publications. All Saints was the first institution in Britain to promote TURP over open prostatectomy and one of his protégés was Terrence Millin.
Conclusion: Canny Ryall died in his home in Harley Street, London on the 11th February 1934 at the age of 69. He was a seminal urologist who changed the course of the specialty.

P37
History of cryotherapy for prostate cancer

B Lau, TS Shah, MV Valerio, HA Ahmed, MA Arya
University College London

Introduction: Cryotherapy describes the process of targeted tissue destruction by applying freezing temperatures. The origins of cryotherapy date back to the 19th Century when James Arnott first applied ice mixtures to breast and skin cancers. Since this era, the development of cryotherapy has been significant and it is now considered a treatment option for localised prostate cancer.
Methods: A systematic literary search was performed looking at the history of cryotherapy and the advancements in cryotherapy technology for prostate cancer.
Results: Developments in physics during the 20th century improved freezing techniques. The crude ice-mixtures used by James Arnott were replaced by liquid gases in the early 20th century. The invention of cryoprobes, devices inserted into the tissue to deliver the freezing temperatures, further helped in precisely targeting cancerous tissue. The most recent generation of devices uses pressurised gasses, allowing thinner cryoprobes which minimise damage to surrounding tissue. For use in prostate cancer, technologies such as urethral warming catheters and TRUS imaging further helped reduce adjacent tissue damage. Since PSA testing began, there has been a stage and grade migration of prostate cancer with a fall in mortality. Less radical treatment options are becoming more attractive, and therefore recent developments in cryotherapy are focusing upon focal rather than whole-gland therapy.
Conclusion: Since the introduction of cryotherapy, the technology and delivery methods have improved significantly. These advances have improved oncological and morbidity outcomes which has allowed cryotherapy to become a viable treatment for prostate cancer.

P38
The history of pelvic organ prolapse from antiquity to present day

P Cheetham, J Mattimore, AE Katz
Winthrop University Hospital, Garden City, New York, USA

Introduction: Pelvic organ prolapse (POP) was described in 1500 B.C. POP remains a common and debilitating female pelvic floor disorder. POP management evolved from rudimentary pessaries and herbal medicines into modern robotic repair procedures.
Patients and Methods: A non-systematic review of medical texts and current literature identified by pubmed pertaining to history and development of POP surgery was performed.
Results: Recommendations 'to correct a displaced womb' were described in the Ebers Papyrus. Hippocrates described pomegranate pessaries to reduce POP and succussion. Leonardo Da Vinci (1452–1519) contributed to texts following extensive cadaveric pelvic dissection. Vesalius described the female genital tract. In the 16th century, pessaries evolved from lint balls to brass, cork, wood or metal, then to rubber in 1844. The first vaginal hysterectomy for POP was reported by Choppin, of New Orleans, in 1861. Le Fort developed partial colpocleisis in 1877, a technique still used today. In 1898, Watkins, not believing in removal of the non-diseased uterus, described interposition surgery. Donald and Fothergill developed the Manchester operation. In 1971, Randall and Nichols reported surgical outcomes of transvaginal sacrospinous fixation for vault prolapse. Two major shifts have occurred in POP surgery: introduction of vaginal mesh and advanced endoscopic surgery. Abdominal sacrocolpopexy, is now achievable via laparoscopic or robotic approaches.
Conclusions: POP was described thousands of years ago, since which time there has been evolution surgical treatment options. Early anatomists hastened progress in understanding anatomy. More recently advances in technology have been key to progress in surgical techniques.

P39

Post-transurethral prostatectomy suprapubic pressure test: A tribute to the life and accomplishments of William Wardill (1894–1960)

F Khan, FY Youssef, NS Smith, AM Myatt, MS Simms
Castle Hill Hospital, Hull

Introduction: Concluding a transurethral prostatectomy (TURP), an assessment of the success of resection by applied suprapubic pressure with an expressed flow rate (the Wardill test) is common practice. The test has been handed down by word of mouth with no description in any journals published till today. The Wardill test is attributed to William Wardill, a surgeon in Newcastle-Upon-Tyne and a pioneer of surgery in his day. We observe his teachings and notable achievements.
Materials and Methods: Archives at the Royal Society of Medicine and Wellcome History of Medicine libraries were searched for publications and records relating to the life and surgical achievements of W.E.M Wardill.
Results: Born in Gateshead, where his father was a Mayor, he was educated at Newcastle Royal Grammer and Millhill School. Having persuaded his parents, he studied at Newcastle medical school and graduated in 1918. During the First World War, he served as a surgeon probationer in the R.N.V.R and then, after graduation as a temporary surgeon. He returned to Newcastle in 1920 and, having completed his F.R.C.S., he became house surgeon to Grey-Turner and Rutherford Morrison. Early in his career, he undertook extensive work on cleft palate surgery and pharyngeal musculature. In a Hunterian lecture in 1927, he showed that in patients with cleft palate the pharynx was abnormally wide and that the problem was how to narrow it. Furthermore, in his Hunterian lecture in 1932, he described further developments in his technique and suggested a classification of speech defects still used today. In spite of his involvement in plastic surgery, he remained a general surgeon, and, following a visit to the Mayo Clinic in 1937 with T J Lane of Dublin; he started a department of urology, largely devoted to the Mayo Clinic technique of punch prostatectomy, at the Newcastle General Hospital. In 1948, he left the National Health Service and emigrated to South Africa where he farmed the Cape Province for two years prior to returning as chair of surgery from 1952 to 1958 at the royal medical college in Baghdad. He then returned to reside in the UK. He died at his home in Newcastle-Upon-Tyne on 24 December 1960, aged 66.
Conclusion: William Wardill contributed abundance to many fields of surgery. Amongst the advances of modern surgery, the Wardill test remains a fundamental principle and outcome measure of resection in transurethral prostatectomy.

P40

Mitomycin-C: Historical aspects of the discovery of most commonly used chemotherapy agent in urology

H Nemade, PM Thompson, A Rao
Oxford University Hospital NHS Trust

Introduction and Objectives: Although urology is primarily a surgical speciality, evolution of pharmacotherapy over time has revolutionised the treatment of certain disorders. Endoscopic resection was the only treatment that was available for superficial bladder tumours, till the development of intravesical instillation of chemotherapeutic agents. The discovery and introduction of mitomycin C into urological field is researched in this presentation.
Methods: Material per taining to early treatment of bladder cancer was reviewed. Correspondences with Japanese companies where the discovery was made also contributed immensely to the research.
Results: The mitomycins are a family of aziridine-containing products isolated from Streptomyces species. After discovery of penicillin by Fleming, there was an interest in isolating substances from microorganisms that were capable of killing other bacteria. Japan, after its defeat in the WWII, was keen to be a frontrunner in development of newer antibiotics. Dr. Kitasato founder of Kitasato Institute laid the foundation of early development of microbiology and pharmacology. Dr Toju Hata (1908–2004), after serving in the army during the War, joined Kitasato Institute to pursue his interest in microbiology. His hard work paid results as in 1953, he discovered the antibiotic Leucomycin. In 1956, Hata isolated mitomycin-A & mitomycin-B from Steptomyces caespitosus that had antibiotic & antitumour activities. Dr Hata along with Dr Shigetoshi Wakagi from Kyowa Hakko Kogyo company later reported the isolation of mitomycin-C from the same fermentation broth at a higher pH and that this compound had much higher antitumour activity. After the success of intravesical therapy using Thiotepa in 1961 by Jones and Swinney, Dr Shida and his colleagues reported in a Japanese journal the use of mitomycin C. Because of lesser side-effects and its efficacy, mitomycin-C became the most popular agent for intravesical therapy for superficial bladder cancer.
Conclusions: The discovery of mitomycin C is interesting as it was being isolated as an antibiotic but found to have antineoplastic properties. Its success in reducing the recurrence had made it the most commonly used chemotherapeutic agent in urology.

P41

The evolution of testicular prostheses: greater patient satisfaction or are we still dropping the ball?

S Deverill, DJ Hodgson, P Thompson
Queen Alexandra Hospital, Portsmouth

Introduction: The development of testicular prostheses has been influenced both by greater appreciation of psychosexual consequences of testicular absence and developments in material science.
Patients & Methods: Medline, google and google scholar searches were performed.
Results: In 1941, the first synthetic prosthesis ('vitallium') was used to treat a soldier with depression following orchidectomy. Subsequently polymethylmethacrylate, glass spheres, polyvinyl alcohol sponge, dacron and gelfoam were all trialled, with the hope that they would produce a more natural feeling alternative. The greatest advance was the development of silicone elastomers by the chemical industry. The first silicone testis was produced as early as 1964. The most significant improvement was a silicone gel filled, silicone rubber prosthesis which was described by Lattimer et al (1973), which was used widely until 1988 when a firmer, silicone-coated product became the standard. There was a voluntary withdrawal of silicone-gel filled

prostheses in the US in 1995 following concerns about the risks of silicone migration into surrounding tissues. A new saline filled, silicone shelled prosthesis was then introduced, which continues in use today. Also available are semi-solid silicone elastomer prostheses. Modern prostheses have been criticised for their dimensions, sometimes resulting in dissatisfaction related to size, shape and weight.
Conclusions: The implants currently used are safe, inert and have the physical properties of weight and texture that mirror as much as possible the testis they replace. Nevertheless, they remain imperfect and perhaps their acceptability and the expectations and satisfaction of the patient could be improved by more pre-operative involvement.

P42
The history of penile enhancement – to cut a short story long

PD Cleaveland, Z Ali, A Parnham, I Pearce
Lancashire Teaching Hospital NHS Trust, Royal Preston Hospital

Introduction: Throughout history the penis has been a sign of masculinity characterised by its length, shape and performance. Insecurity regarding penile dimensions and methods of penis enlargement are well reported. We present the various methods of penile enhancement from ancient times to modern day era.
Methods: A literature search was conducted describing penis size and methods for penile enhancement throughout history. We reviewed the evolution of these techniques and present our findings.
Results: Procedures employed for male enhancement date back to ancient rituals, such as the African custom of hanging weights from genitals and the Topinama tribesmen (Brazil) practice of increasing penile size by allowing a snake to bite the penis. Approaches to penis enlargement have since evolved, with more sophisticated methods currently employed. A vacuum device utilising a compression ring was first patented in 1917. The first recorded penile augmentation procedure was performed in 1971 for the treatment of microphallus in bladder exstrophy children. Over the years, division of the suspensory ligament in cosmetic surgery has become established. Other initiatives include penile rings, penile extenders/traction devices, and jelqing. The mainstay of girth enhancement is fat injection into the penis, described in 2006. These methods have various degrees of success as well as associated morbidity.
Conclusion: Penile enhancement is an interesting and controversial subject. It is clear that since ancient times across cultural divides, penile dimensions have been topical. The evolution of the techniques currently available to enhance penile size is ongoing fuelled by intrigue and demand.