BJUI

BAUS Annual Meeting, 17–20 June 2013

Unmoderated Poster Sessions

Tuesday 18 June & Wednesday 19 June 2013
Unmoderated Poster Session
1315–1345 Exhibition Hall (Central 2)
HISTORY OF UROLOGY
Posters U1–U11

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U1

The story of urethroplasty: From revolution to evolution

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Introduction: Before the advent of urethroplasty, dilatation often was the only palliation of the suffering of urethral stricture giving rise to the aphorism "Dilatation once, dilatation always". Developments in anesthesia and antisepsis in the 19th century facilitated advances in reconstructive surgery, revolutionizing management of strictures for the first time in millennia.
Materials and Methods: A search of the urological literature and historical sources was undertaken to identify the landmarks and pioneers.
Results: Anastomotic urethroplasty after stricture excision, first performed by Huessner (1883) did not gain favour, due to penile angulation, until the 1970s, after its role was defined for short bulbar structures. Pasteua and Iselin (1906) developed a staged approach, marsuplising the urethral margins to the skin then tublarising the resulting epithelized segment. Hamilton Russell (1915) later converted the urethral ends into a "riband", anastomosing the posterior urethral marigins allowing closure by secondary intention. Swinney (1952) and Johanson (1953) then lay strictures open, burying a strip (as described by Denis Brown 1949) before definitive closure at 2nd stage. Patch urethroplasty was developed by Devine who utilized split skin grafts before popularization of skin flaps by Orandi (1968), Turner-warwick (1969) and Blandy (1968). The first buccal musosa graft is now attributed to Kirill Sapezhko (1890) who treated an 8 cm long US. This technique later re-discovered by Graham Humby (1941) for use in hypospadias, was reintroduced in the modern era by El-Kasaby (1993).
Conclusion: The history of modern urethroplasty represents a paradigm of surgical craft, ingenuity and innovation that continues to develop.

U2

From the penile bone to the modern day implant; the history of the penile prosthesis

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Introduction: Achieving a satisfactory erection has been the pursuit of mankind for centuries. Historically, numerous lotions, potions and superstitions have been used in an attempt to improve erectile function. In recent years great efforts have been taken to find a reliable surgical solution to the problem.
Materials & Methods: A systematic search of online and published material reporting on the history and development of the penile implant was conducted.
Results: The concept of using a penile prosthesis was born from Aristotle's observations of the "os penis" which is a cartilaginous support found in the penis of several animal species that aids sexual penetration. Bogoraz was first to experiment with the "artificial os penis", using rib cartilage in conjunction with a tubed phalloplasty to reconstruct a traumatised penis in 1936. Unfortunately the long-term success of this operation was limited by natural resorption. Early attempts to overcome this involved implantation of acrylic stents and polyurethane rods, and finally the silicone prosthesis, which was first described in 1964. Modern day implants can now be broadly categorised into inflatable and non-inflatable, of which prototypes of each kind were introduced almost simultaneously in 1973.
Conclusions: The penile implant has been a popular and important treatment option for men with erectile dysfunction for over 50 years. However, the ideal penile prosthesis is yet to be produced. Future advances are likely to focus on the ease and speed of transition between flaccid and rigid states, in order to more closely resemble the changes that occur physiologically.

U3

The evolution in our understanding of prostatic anatomy and its Surgical Management

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Introduction: We hypothesized that over time anatomical knowledge of the prostate gland has advanced in tandem with the urological procedures carried out.

Materials and Methods: Primary and secondary sources were studied to identify the thoughts, controversies and conclusions of pioneer surgeons and scientists throughout time, who contributed to the modern understanding of prostatic anatomy, pathology and its treatment.
Results: Urethral instrumentation and perineal lithotomy identified, by feel, a mass or organ at the bladder base. Bladder outflow symptoms stimulated Ancient, Medieval and later Renaissance scholars, such as Herophilus, Vesalius and Niccolò Massa to investigate and publish on the discovery, description and drawings of the prostate, respectively. In the late 16th century blind surgical techniques targeting "urethral carnosities", perhaps the prostate, were being developed. Max Nitze's cystoscope in 1877 allowed for the "lobes" of the so far palpable only prostate, to be finally seen in vivo and then anatomically described by Oswald Lowsley. Later, these lobes were targeted transurethrally by means of the cold punch, the resectoscope and diathermy. Technological advances in transrectal ultrasound, microscopy and tissue staining allowed McNeal to describe the prostatic anatomy in zones; zones that could be appreciated by the urologist's ultrasound. Patrick Walsh's detailed study of prostatic neuroanatomy has improved the outcomes of open radical and now robotic radical prostatectomy.
Conclusion: The complimentary disciplines of surgery and anatomy, along with evolution in technology have transformed the understanding of prostatic anatomy and the management of prostatic disease from the earliest reed catheter to the latest robotic prostatectomy.

U4
The history of the stent

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Introduction: This paper looks at the evolution of the stent into its urological application.
Methods: Internet and Pubmed searches were undertaken.
Results: A dentist to the royal household in the 19th century, Dr Charles Stent developed a compound to produce non-distorting dental moulds. Half a century later, Stent's compound was used by a Dutch surgeon to stretch and fix in place skin grafts in war-shattered faces (Esser JF. Ann Surg. 1917; 65: 297–315). Esser described this application as Stent's mould and later described the mould itself as a stent.
In accordance with Esser, the Oxford English dictionary describes a stent as, 'an impression or cast . . . used to maintain pressure so as to promote healing, especially of a skin graft'. It gives an alternative definition of, 'a splint placed temporarily inside a duct, canal or blood vessel to aid healing or relieve an obstruction'. This is how we as urologists employ stents, but how did this alternative application come about?
Almost another half century later, stents were applied to bile duct anastamoses in dogs to promote healing and prevent stricturing (Remine et al. Arch Surg. 1954; 69: 255–262). Although likely already in common use, this application of stents to tubular structures became evident in urology in 1972 when Goodwin described the use of internal stents in a paper (Goodwin WE. Urol Dig. 1972; 11: 13–14).
Conclusion: It is likely that the stent was named after a dentist and adapted for use by urologists almost a century later.

U5
From ancient Egyptians to the present: A history of urogenital schistosomiasis, implications for its control and management

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Introduction & Objectives: Schistosomiasis has been described as 'an ancient disease of man'. The parasite is transmitted to humans by skin penetration of a specific form of the parasite, which has a life cycle in freshwater snails. Its prevalence is greatest in Sub-Saharan Africa and the Nile-River Valley in Egypt. The objective of this presentation is to review the effects of schistosomiasis on world events through the ages.
Materials & Methods: A literature review was undertaken looking at the history of research into the disease and the implications for its management.
Results: Schistosomal-ova have been recovered from Egyptian mummies dating back to 1200 BC. During the period of the Roman occupation the use of the ox-driven water wheel permitted intensive irrigation, correspondeding with the observation of haematuria and bladder stones.
During Napoleon's 3-year invasion of Egypt, army physicians reported haematuria, but without knowing the etiology of schistosomiasis they attributed it to the climate with soldiers instructed to wear condoms for prevention.
The construction of the Aswan Dam in 1964 dramatically reduced the flow of water leading to a rise in snail population and increase in schistosomiasis rates.
By 1980, a new compound called praziquantel became available, and was found have 90% efficacy in eradicating human infection after one dose. This rapidly reduced infection rates worldwide.
Conclusion: Schistosomiasis has been described as far back as ancient Egyptians but it's in the last 150 years. A better understanding of the epidemiology of urogenital schistosomiasis has changed methods for its control and management.

U6
Frederic Foley – The modern day father of incontinence management

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The optimal management of urinary incontinence for individual patients has long been the holy grail for functional urologists. Over the centuries, numerous techniques for containing urinary leakage, providing controlled voiding and, more recently, spontaneous voiding have been described. Few physicians have made a significant or lasting contribution to any of these domains. However, Frederic Foley (1891–1966) revolutionised both the containment of incontinence and restoration of controlled voiding.
Although, the practice of urethral catheterisation dates as far back as Celsus in 30 BC, it was not until 1853 that Reybard described the first self-retaining catheter made of rubber and goldbeater's skin. Frederic Foley modified this design and, in 1929, described a self-retaining latex balloon catheter for achieving haemostasis after cystoscopic prostatectomy. Over the subsequent years, he developed the design to provide

continual bladder drainage and, in 1937 published a description of the one piece dual-lumen balloon catheter we know today. Despite Foley's design being patented by Paul Raiche of the Davol Rubber company, C.R.Bard distributed the catheters under his name.
Foley subsequently turned his attention to controlled voiding and, in 1947, described the first artificial urinary sphincter. It consisted of an inflatable circular cuff which was applied around a surgically isolated length of skin-covered urethra and a pneumatic piston. This design evolved under other physicians and by the 1960s operations with completely implantable devices were being undertaken. Foley's design was also integrated into the Brantley Scott artificial sphincter (1972) that subsequently became the template for the currently used AMS 800™ device.

U7
The role of the urinary catheter in the birth of the para-olympics

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Introduction: Historically (as far back as the Smith's Papyrus in 4000BC) spinal injury was an ailment not to be treated. These patients died from renal failure and urinary sepsis until the 1950s. With poor survival rates, rehabilitation was not considered and sport was a far cry. This scenario was changed by a visionary from Stoke Mandeville Hospital – Dr Ludwig Guttmann.
Materials and Methods: A literature search for 'history of spinal injury', 'Ludwig Guttmann', 'bladder management in spinal injury', 'birth of para-olympics'.
Results: Dr.Guttmann's understanding of the neurophysiology of a cord injured bladder and management by intermittent catheterisation, coupled with the advent of antibiotics improved the survival of these patients. He reported the outcome of 476 patients treated by non-touch sterile intermittent catheterisation done only by doctors, resulting in 80% of patients over 11 years having sterile urine. Catheterisation was continued until reflex voiding was established. With improved survival, rehabilitation came to the fore and this included sport. This was the birth of Stoke Mandeville games which has progressed to the current Para-olympic games.
The advent of Clean Intermittent Self Catheterisation as described by Lapides in the 1970's has provided these patients with more independence to pursue their individual social and leisure interests.
Conclusion: The driving force behind the origins of the Para-olympic movement has resulted in not just the physical and psychological wellbeing of the differently-abled population but also in their social reintegration. None of this would have been possible but for the humble urinary catheter.

U8
The great names behind the radical nephrectomy

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Introduction: Behind every great operation lies a rich history of collaboration and contribution from anatomists and surgeons. On an almost daily basis in theatres across the country, their contributions to the understanding and refinement of procedures are recounted to trainees. The radical nephrectomy is no different and names of renowned anatomists such as Gerota, Brodel and Toldt are mentioned briefly intra-operatively, but often with little time to elaborate on the significant advancements they helped make.
Methods: Time related medical and historical accounts regarding their life, work and contribution were sourced from the internet.
Results: Although Robson's seminal paper helped define the surgical tenets of radical nephrectomy over 50 years ago, many anatomical aspects were described by others. Romanian anatomist, surgeon and radiologists Dimitrie Gerota's lends his name to the important renal fascial layer, fundamental to the oncological principles of radical nephrectomy. Max Brodel was an accomplished artist and anatomists who devoted his career to dissecting cadavers and finding creative ways to illustrate his findings. He defined the avascular plane behind the kidney enabling a safe plane for dissection. Carl Toldt's was an Austrian Professor of Anatomy, who described the white line that helps define the parietal peritoneal layer of the ascending and descending colon mesentry, allowing for safe reflection of the bowel up and off the kidneys.
Conclusions: The history of nephrectomy dates back over 150 years and although the above individuals have been highlighted for their contributions, clearly many more surgeons have innovated and advanced our understanding of renal surgery.

U9
Forgotten organs of ancient Egypt: A modern day atlas of retroperitoneal anatomy

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Introduction: Ancient Egyptians believed the dead would use their organs in the next life. Embalmers removed and placed them in sacred jars. The only organs remaining during mummification were the heart and kidneys. Experts speculate embalmers found the kidneys a challenge to dissect. We explore surgical techniques that made identification difficult and review modern-day computed-tomographic imaging of these expertly preserved organs.
Methods: Time related sources in medical and historical literature were reviewed, including archives at the Wellcome History of Medicine Collection, Royal Society of Medicine, and the British Museum, London.
Results: Ancient Egyptians believed the bladder purified the body by forming urine. The role of the kidney was not appreciated and hieroglyphics detailing their existence did not exist. This was a function of how difficult these organs were to identify by embalmists.
A three-inch upper-abdominal incision was made to remove intra-abominal organs. There was poor visualization of the retroperitoneum, and descriptive texts describe "a heavy impervious layer behind the bowel." This represented retroperitoneal fat and Gerotas fasica. The abdominal cavity was packed with linen bundles preventing collapse and maintaining perfect retroperitoneal architecture.
Future Egyptologists examined mummies with computed tomography. Images reveal excellent preservation of renal architecture, anatomical variations and a spectrum of

renal disease and including cystic malformation, dysplasia, tuberculous scarring and malignancy.
Conclusion: Poor anatomical appreciation of the retroperitoneum during ancient mummification has led to perfect preservation of the kidneys. It has allowed modern-day Egyptologists to study these organs and compare them against patterns of renal disease seen today.

U10
With all my glove- history of the first surgical rubber glove

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Introduction: Today, no surgical procedure is undertaken without using rubber gloves. However until the nineteenth century, surgeons operated with their bare hands. We look at the history of the first rubber glove used in surgery.
Materials/ Methods: Google and Pubmed search on history of the surgical glove.
Results: Surgeons in the eighteenth operated with their bare hands. The era of antisepsis saw Lord Lister from Glasgow use carbolic acid, hitherto used to neutralize stench of open sewers in Glasgow. This led to surgeons spraying carbolic acid on their hands prior to operating.
This new technique was adopted by William Halsted, famous American surgeon at Johns Hopkins Hospital in Baltimore.
Halsted's chief operating nurse, Caroline Hampton, reacted to this strong chemical and got dermatitis. She also happened to be Halsted's lover. Halsted had to think of a way to keep his lady love in his operating room. In 1890 he approached Goodyear Rubber Company and asked them to make a rubber glove that he designed that could be dipped in carbolic acid purely to protect Caroline's dainty hands. They got married the same year.
His assistant Bloodgood started using the gloves and found that dexterity was not lost, and encouraged others to follow suit. It wasn't until 1964 that Ansell started making disposable sterile surgical gloves.
Conclusion: The rubber glove was born out of protecting a scrub nurse's hands from chemical hand-wash. This story highlights how historical applications of inventions often change from their intended use to innovative and beneficial use.

U11
The history of uroradiology: A meeting of two specialties

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Introduction: Daily urological practice relies heavily on radiological imaging. Urinary-tract imaging has greatly advanced since the discovery of x-rays. We chronicle this remarkable century-long development and how these advancements led to the birth of modern uroradiology.
Methods: Historical publications and images from the British Library and Royal College of Radiologists were evaluated and literature search performed.
Results: The accidental discovery of X-rays in 1895 by Rontgen (Physicist) sparked interest into urinary-tract imaging. The first pre-operative radiographic image of renal calculi followed within a year. In 1906, von Lichtenberg (Urologist) and Voelcker invented retrograde pyelography. In 1929, Swick (urologist) developed the first relatively safe intravenous contrast material and technique for urography. After initial scepticism, intravenous urography became an integral imaging tool for the next 45 years, replacing retrograde pyelography as the most common by the 1960s. The 1950s and 60s also saw selective angiography and nephrotomography emerge for imaging the renal parenchyma.
In 1946, Lindblom (radiologist) described the technique for percutaneous renal access (to differentiate cysts from neoplasms). The Seldinger (1953) technique was then described. Percutaneous nephrostomy eventually became popular for upper tract drainage in the late 1970s. In 1968, Hounsfield invented the CT scanner. Combined with ultrasound, radiological advancement had now reached its golden era. The superiority and relative safety of CT resulted in a drastic decline in the use of intravenous urograms over the next 20 years.
Conclusion: Fascinating and innovative discoveries have resulted in imaging of the urinary-tract becoming less reliant on urologists, creating a key complimentary radiological sub-specialty.