7.5: Historical Perspective

Traditionally the anterior repair of a cystocele using Kelly plication sutures have been useful in the management of stress incontinence. However the effect is transient, and while it cures anterior compartment prolapse, the anterior repair is not an authentic continence operation. Meta analyses of heterogeneous studies suggest a continence rate of 67% - 72%, but generally the success is around 66%. Long term results are poor, and at 5 years success falls to 37%. The major indication for a bladder buttress in contemporary practice is for the woman who prefers to sacrifice continence for a reduced chance of complication – the incidence of long – term voiding complication following this procedure approaches zero.

One of the first effective procedures to gain acceptance was the Burch colposuspension. John Burch described his operation in the 1950’s and it became the accepted benchmark. Several sutures plicate the peri – urethral fascia to elevate the anterior vaginal wall and bladder. Colposuspension is still applicable today, if the patient requires a continence procedure and is fortuitously undergoing laparotomy.

While the Burch procedure is as effective as modern sub – urethral slings, a prospective randomized trial showed higher morbidity than the sling so it is nowadays probably best reserved for women subject to serindipidous pelvic surgery. Several drawbacks attend the operation, chief of which is subsequent enterocoele formation. Voiding dysfunction, detrusor overactivity and uterovaginal prolapse are consistently reported sequelae to colposuspension. The widespread adoption of the modern TVT has been primarily driven by the reduced surgical morbidity of such procedures. In a recent randomized controlled trial between the TVT and colposuspension, analysis after 2 years reported an objective success rate for the Burch of 51% versus 63% for the TVT group.

In the 1960’s needle suspension procedures were popularized by Stamey, Pereyra, Raz and others, but time has shown that while short – term cure was reasonable, they were insufficiently robust to maintain continence. Needle suspensions are now perhaps only indicated in the less – mobile elderly where a quick gentle procedure will suffice. Efficacy in the
long term is poor, with only 50% - 60% cure at 4 years. Needle suspensions do not produce a lower complication rate than the colposuspension, and there is little evidence to support their continued use.

Having been described and used more than a century previously, the rectus sheath sling was all the rage in the 1970’s. While this effectively cures stress incontinence, the procedure suffers considerable morbidity, and comes with the high price of voiding difficulty and irritative storage bladder symptoms. The mean cure rate is a pleasing 86% but long term voiding dysfunction (refractory urge incontinence, the need for clean intermittent catheterisation, and sling revision) occur in 10% of cases. Rectus fascia procedures are safe, with good longterm results and have became the benchmark for this form of sling surgery. Autologous slings can be used to provide effective long term cure of stress incontinence, but allograft and xenograft slings should only be used in the context of well constructed research trials.

In the 1980’s the laparoscopic Burch was introduced, riding the crest of the endoscopic revolution. This sporting procedure was the province of the laparoscopic aficionado, but showed no advantage over the other procedures of the time. There is a higher cure rate with the “open” Burch procedure, and the evidence on laparoscopic Burch is limited by short – term follow – up, small numbers, poor methodology and its technical difficulty.

Peri - urethral injectable agents have been used for the treatment of SI for the past century, but newer agents have caused a re – focus on these methods. A variety of substances have been reported to be safe including GAX collagen, Teflon, zirconium beads, hyaluronic acid, and autologous fat and cartilage. But the ideal agent remains elusive. Agents are applied without general or regional anaesthesia, but there is no agreed method, technique, location, volume or equipment for the procedure. Although short term efficacy in some agents is satisfactory, evidence shows that long term durability of more than 4 years is poor, and no agent is superior to another in terms of efficacy, durability or safety. A recent report suggests that stem cells may be injected adjacent to the urethral sphincter. No data is available suggesting how stem cells obtain innervation, or functional potential. This form of therapy is for now at least, still very experimental. Para – urethral injections can be offered to women with SI on the basis of low operative morbidity – if they are prepared to accept a poor long term success rate.

In the 1990’s the concept of urinary continence being maintained by sub – urethral fascial support was mooted by Petros and Ulmsten in their “Integral Theory” of female continence. From this came the Tension- Free Revolution, with the realization that an open – weave 10mm sub – urethral sling placed without tension mid – urethrally, afforded remarkable results with little morbidity. The original retropubic approach (TVT-R) has now in the new millennium been superceded by the transobturator slings – safer, easier vaginal procedures with the same tension – free sub – urethral principle, but avoiding the pelvic cavity and its viscera completely. Long term data suggested that (at least until recently) the retropubic TVT-R had become the benchmark, with excellent cure rates in a well described, standardized procedure, easily reproduced by most urogynaecologists with predictable outcomes. The Burch colposuspension, conversely, had many modifications and variations of sutures, approaches and methods, yielding variable outcomes as a result.

With progress in minimally invasive surgery, and the idea instead of using trochars attached to synthetic slings instead of open incision, the retropubic midurethral sling (MUS) was developed.

For descriptive purposes, the term MUS will be used to describe the group of synthetic slings placed under the midurethra with a small incision using various trochar devices. This is in contrast to the traditional slings which typically were placed under the proximal urethral through larger incisions without trochars. The 2 general categories of MUS are
the retropubic and transobturator Cede.