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# Gynecology and Minimally Invasive Therapy

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## Editorial

### Sacrospinous ligament fixation of transvaginal mesh: An innovative concept's 10 years of influence



#### Background

The Surgery for Pelvic Organ Prolapse Committee of the third International Consultation on Incontinence recognized that adequate support for the vaginal apex is the keystone of a durable surgical repair for women with advanced prolapse<sup>1</sup>. Restoring the anatomy of the vaginal apex by apical suspension can be achieved by several techniques, including the “gold standard” sacral colpopexy<sup>2</sup>, sacrospinous ligament fixation, uterosacral ligament suspension, iliococcygeus muscle suspension, and McCall's culdoplasty. One of the first studies comparing sacrospinous ligament fixation and sacral colpopexy was ours which was cited by Cochrane review.<sup>3</sup> Together with another two studies, the results indicated that sacral colpopexy yield better durability, yet pose potentially severe surgical mobility.<sup>3–5</sup> Vaginal surgery still is the first line option and mainstay in the current practice of surgical prolapse management due to the optimal surgical concept that safety out weighted efficacy.

#### Innovative concept: transvaginal mesh fixation on sacrospinous ligament

In 1998, we introduced the transvaginal mesh reinforced frail vaginal tissue fixation on sacrospinous ligament (SSL) long before the commercial introduction of transvaginal mesh devices for the management of recurrent vault prolapse following sacral colpopexy. This was an original and innovative procedure with excellent outcomes and the article was published in 2005.<sup>6</sup> As a center of

excellence we continuously study and collect valuable data on all the devices being used for management of genital prolapse in our daily practices. This is to ensure that the women under our care are given the best clinical evidence management based on the validated result of our studies. Published studies conducted for each transvaginal devices were as listed below: (1) Perigee device (launched in 2004<sup>7</sup>; American Medical Systems, Minnetonka, MN, USA); (2) Prolift Pelvic Floor Repair Systems (launched in 2005<sup>8</sup>; Gynecare; Ethicon, Inc., Somerville, NJ, USA); (3) Elevate Anterior and Apical Prolapse Repair System (launched in 2007<sup>9</sup>; American Medical Systems, Inc., Minnetonka, MN, USA); and (4) Avaulta Plus BioSynthetic Support System (launched in 2008<sup>10</sup>; C.R. Bard, Inc., Murray Hill, NJ, USA).

#### The effect of transvaginal mesh fixation on SSL

The first generation transvaginal mesh developed was a self-fashioned mesh without any anchorage. Subsequently the second and third generation mesh devices adopted the sacrospinous fixation point for the mesh anchorage provided a precut mesh with specially design trocar for anchoring the mesh either to the obturator muscle or to the sacrospinous ligament for better surgical efficacy. Along with the transvaginal mesh fixation on the SSL concept, all unanchored transvaginal mesh procedures were either phased out or removed from market. To prove that sacrospinous ligament fixation is mandatory to provide apical support we conducted studies on transvaginal mesh (Perigee and Prolift A, Avaulta system) with sacrospinous ligament fixation.<sup>7,8,10</sup> Results show better prolapse cure rates on transvaginal mesh with sacrospinous fixation and that transvaginal mesh provided good anterior compartment support. The long-term follow up of 86 months has shown the important role of transvaginal mesh on vaginal surgery.<sup>11</sup>

Single incision mesh kits namely the Elevate Anterior Apical System and the Elevate Posterior System both utilized sacrospinous ligament as the apical fixation point. Studies show excellent objective and subjective prolapse cure rates. Similarly adopting the concept of apical support we conducted a comparative study between Elevate Anterior/Apical system and Perigee with sacrospinous ligament fixation. This study further enhances the role of sacrospinous ligament fixation on apical support which shows that both are equally safe, effective, and durable procedures. However, this study also highlighted the possibility of developing *de novo* stress urinary incontinence in women under the Elevate arms.<sup>9,12</sup> All of our studies were conducted with aims of providing

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safe, efficacious, and durable procedures for the good of our patients.

## Conclusion

In conclusion, transvaginal mesh anterior is a good option of treatment for women with advanced pelvic organ prolapse when it has to be anchored to the sacrospinous ligament.

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Chang Gung Memorial Hospital, Linkou, Taiwan is the first hospital in Asia to have a dedicated Urogynecology Department. The Urogynecology Division is specialized in dealing with diagnosis and treatment of female genital organ disorders as well as urinary dysfunction and pelvic floor abnormalities. In addition, our Urogynecology Department has achieved many firsts in Taiwan. In 1994, we set up our own Urodynamic study room and we introduced Tension-free vaginal tape (TVT) for urinary incontinence to our patients in 1995. We started our outpatient clinic for cystoscopy in 1996. In 1999, we integrated the pelvis bladder function rehabilitation center with licensed-trained full time physical therapists. Our department not only provides diagnosis and treatment services, we also have a cross-specialty work team that provides the patient with a more complete medical support.

We spread the knowledge of Urogynecology by holding lectures in Korea, Japan, Australia, Hong Kong, Singapore, Malaysia, Thailand, Indonesia, China, India, Macau as well as conducting surgical workshops in Singapore, Malaysia, Thailand, China, India, and Thailand. Being the one with the longest history in Urogynecology specialty in Asia, the center published the most urogynecological related paper in Asia regarding Urogynecology, SUI surgery, prolapse sonography, conservative treatment, and diagnostic methods.

In the past years, we have more than 19 fellows from countries such as England, Jordan, and many other Asian countries here with us to do their training. Along with training, we offer study opportunities for all fellows. It is my privilege to have all excellent fellows work together with me and accomplish all the studies on schedule so that this issue, an issue exclusively from CGMH Urogynecology, would be able to be released.

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