SURGICAL PHILOSOPHY
OF THIS SKILLS WORKSHOP

Pelvic organ prolapse is a form of hernia, reflecting the interplay of discrete fascial tears and collagen weakness within the adjacent connective tissue. This dynamic has important practical implications for the pelvic reconstructive surgeon.

Genital prolapse and urinary incontinence are amongst the most prevalent problems in women's health. Gynaecologic surgeons traditionally viewed prolapse in mechanically simplistic terms, as just a stretching of the endopelvic fascia. Hence, surgical strategies centred on techniques for plicating "thinned" vaginal walls or shortening "weakened" apical ligaments. The true defects causing prolapse went unnoticed and unrepaired. Although traditional colporrhaphy delivers reasonable symptom relief, the rates of recurrent prolapse and persistent incontinence are unacceptable. Moreover, "success" is sometimes achieved at a cost of compromised coital function.

Recent anatomic research has shown that normal pelvic relationships depend upon several complementary mechanisms, which serve as a 'fail-safe' back up system. Primary support for the pelvic contents comes from the muscles of the pelvic diaphragm, which create a horizontal levator plate, a narrow urogenital hiatus, and sharp urethro-vesical/ano-rectal angles. In this orientation, Valsalva pressure waves pin the bladder, vagina and rectum against a dynamic backstop created by the simultaneous contraction of the levator ani muscles. The main supportive function of the endopelvic fascia is to anchor the viscera over the pelvic diaphragm. However, neuronal stretch injury during childbirth can transform the levator plate into a flaccid funnel. Intra-abdominal forces then produce a shearing stress, which slowly propels the pelvic viscera towards a widened urogenital hiatus. The endopelvic fascial continuum can also be damaged by these powerful childbirth forces. Hypertrophy of the endopelvic connective tissue allows pelvic organ support to hold for a time; however, these connective tissues are not designed to resist chronic passive strain and will usually fail over time.

Once pelvic organ support decompensates, therapeutic options focus mainly on the endopelvic connective tissues … because fascial support defects are the only element that can be physically repaired.
The pathogenesis of these fascial support defects can be distilled down to two series of events:

- The primary event is the occurrence of 'site specific' tears in the fascial hammocks – generally at the first vaginal birth (Fig 1). However the elastic tissues of young women initially camouflage these tears, keeping the damage subclinical for decades.
- Diverse secondary events (including ageing, abdominal weight gain, chronic straining or inherited tissue weakness) may cause the viscera to sag and stretch, to the point of eventual cystocoele, rectocoele or vault inversion.

In essence, pelvic organ prolapse is a form of hernia, reflecting the interplay of discrete fascial tears and collagen weakness within the adjacent connective tissue. This dynamic has important practical implications for the pelvic reconstructive surgeon. Certainly, if the bladder or rectal walls are grossly stretched, it is still necessary to plicate… in order to restore normal visceral evacuative function. However, durable cure depends on re-anchoring the avulsed fascial edges back onto the axial skeleton. As demonstrated by hernia surgeons over the last 40 years, effective repair generally requires tissue augmentation with some form of biomaterial. Unfortunately, the heavy synthetic meshes that perform quite well within the dense collagenous fasciae of the abdominal wall are poorly tolerated within the loose fibromuscular areolar tissues of the lower genital tract. This impasse is set to change, as gynaecologists abandon inert permanent implants in favour of dynamic, remodelling protein scaffolds which can re-engineer strong host tissue layers.
These advances will swing the surgical pendulum away from fashionable laparoscopic methods, back to the transvaginal approach.

Fig 1: The rectovaginal septum has torn away from the pericervical ring. The shiny white fascia of RVS is seen in the lower half of the photograph and the pre-peritoneal fat of an enterocoele is seen above the sharp avulsion line.
Essentially all recto-enterocoeles form in this way

This 'Skills Workshop in Advanced Vaginal & Pelvic Reconstructive Surgery' will demonstrate how to restore complete fascial integrity within the two semi-independent vaginal suspensory systems:

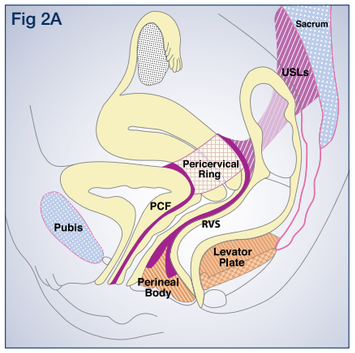
Postero-superior Suspensory Axis

The endopelvic connective tissues of the superior and posterior axes align into a strong leash that ties the perineal body to the sacral periosteum (Fig 2A). Disruption of this posterior suspensory axis leads to vault inversion, recto-enterocele and descending perineum syndrome (Fig 2B). This workshop teaches transvaginal methods for the definitive repair of these support defects, by reunification of the uterosacral ligaments to the rectovaginal septum (sometimes combined with the construction of a Posterior IVS 'neo-cuff').

Mid-vaginal Anterior Suspensory Hammock

The bladder is supported by a fascial diaphragm, strung between two force vortices – one static (pubic rami and perineal membrane) and one dynamic (USL's and peri-cervical ring). Laterally this diaphragm is tautly attached to the ischial spines and fascial white lines. Net effect is a 'trampoline-like' hammock, which provides passive support (at rest) and dynamic lift (at pelvic floor muscle contraction). Biomechanical engineering principles predict that a diaphragm will fail where the lines of force concentrate – at the peripheral margins, rather than centrally. Hence, potential weaknesses exist along the superior and lateral margins. Destabilising this hammock converts the 'trampoline' into a 'trapdoor', and a rotatory cysto-urethrocoele results. This workshop teaches definitive transvaginal methods of cystocoele repair, through the reunification of the fascial hammock from white line to white line and re-suspension to the pericervical ring.

Surgical techniques are taught primarily through the direct intertwining of extensive video footage from cadaveric dissections with DVDs from the operating room. Emphasis is placed on exactly where to find the dissection planes, and on how to safeguard adjacent structures. Precise, mechanically sound use of organic and synthetic biomaterials is emphasised, ensuring that indiscriminate use of bolsters doesn't substitute for sound surgical technique. The workshop will integrate the other teaching with 7 hours of essentially unedited LIVE SURGERY footage, comprehensively covering all course topics.



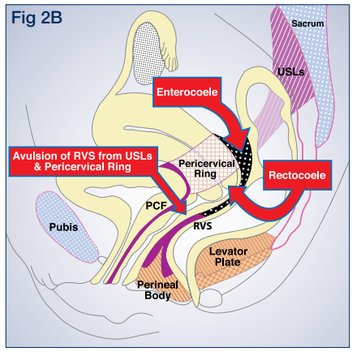


Fig 2 shows the intact postero-superior suspensory axis, with a strong sheet of relatively collagenous endopelvic connective tissue running from sacrum to perineum. Laceration in the mid-pelvic plane is the almost universal cause of recto-enterocoele.

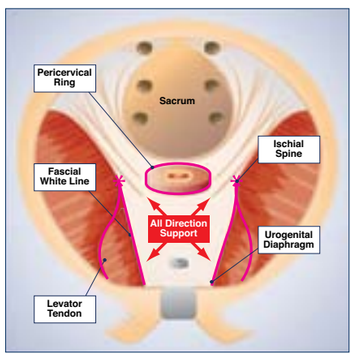


Fig 3A shows how an intact anterior suspensory hammock functions like a trampoline.

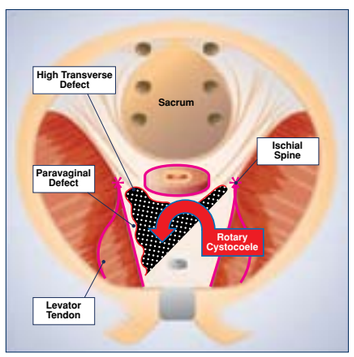


Fig 3B shows how tearing on 2 or more sides converts this trampoline into a trapdoor, through which the bladder and urethra are pushed out as a rotatory cystocoele. Any cystocoele repair that does not address the underlying biomechanical defect is likely to lack reliability and durability.