Letter to the editor BJOG "Necessity the mother of invention"- wider significance of novel mid-urethral rectus fascial sling.

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Dear Dr. Aris Papageorghiou,

Re (1) Fayyad AM, Hasan MR. Novel technique of laparoscopic mid-urethral autologous rectus fascial sling for stress urinary incontinence. BJOG. 2024 Nov;131(12):1587-1590. doi: 10.1111/1471-0528.17877. Epub 2024 May 29. PMID: 38812080.

The ban on large vaginal mesh implants unfortunately took with it the midurethral sling (MUS). Unlike mesh sheets, horizontally-positioned tapes, did not have the crippling pain complications from vaginal mesh scar tissue compressing nerves. British women now have few equivalents to MUS for their SUI (stress urinary

incontinence). In the midst of this gloom, *"Necessity, the mother of invention"* inspires human creativity to provide solutions.

I write as the codeveloper of the MUS and the Integral Theory of Female Urinary Incontinence (IT) (2), to congratulate the authors on their skilful, innovative, well-engineered, laparoscopic fascial sling operation (1), which they based on the same IT anatomical principles behind the MUS (2).

The aim is to provide further information on the IT as a practical guide for addressing pelvic floor symptoms besides SUI.

The 1990 IT stated (2), *"Symptoms of stress and urge, mainly derive, for different reasons, from laxity in the vagina or its supporting ligaments, a consequence of altered collagen/elastin"* (2). Underlying (2) was the discovery that bladder function was not from the bladder itself, but from outside it: 3 cortically directed pelvic floor muscles contracted against suspensory ligaments to close urethra (continence), open it (micturition) and stretch vagina like a trampoline to prevent bladder-base stretch receptors from activating micturition at low bladder volumes (urgency, urge incontinence). Collagen deficiency in such ligaments would weaken the muscle forces to cause prolapse and symptom dysfunctions, Figure1.

It was repeatedly observed that repair of uterosacral ligament (USL) for uterine prolapse, also gave high rates of cure for urge, frequency, nocturia, abnormal emptying and chronic pelvic pain and bowel dysfunctions (3-7).

The IT is agnostic about whether pelvic ligaments causing pelvic symptoms are repaired abdominally or vaginally. BJOG readers interested in exploring recent advances in etiopathogenesis of bladder/bowel/pain/prolapse dysfunctions and recent advances in surgical technique can do so at a recent IT Update (20 papers,45 authors, 60 videos). https://atm.amegroups.org/issue/view/1400 New surgical methods described therein include collagenopoietic wide bore polyester suture techniques to plicate (and add collagen) to ligaments weakened by childbirth and age without the need for tapes. The Fayyad paper (1) has opened a door for an entirely new direction for laparoscopic surgery. Expert laparoscopists can easily adapt the new vaginal techniques described in the IT Update to reproduce the impressive symptom cure results recorded for bladder/bowel/ chronic pelvic pain/ prolapse from the now banned uterosacral slings (3-7).

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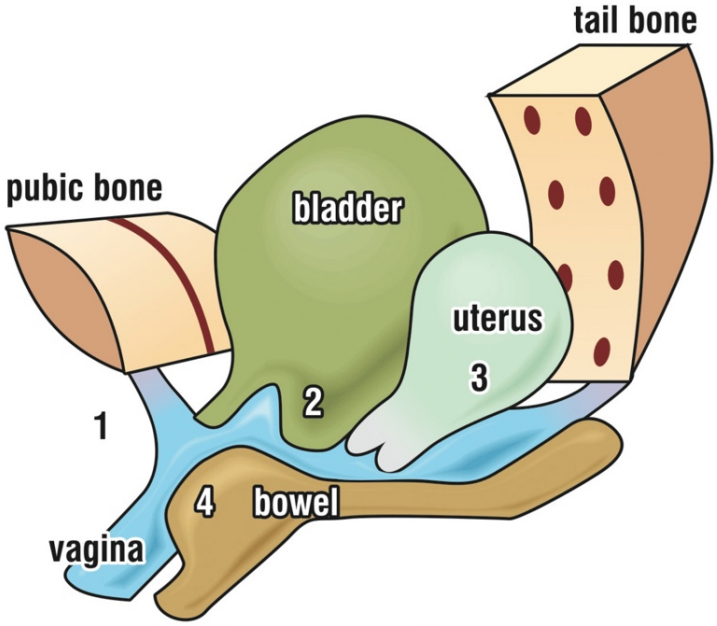

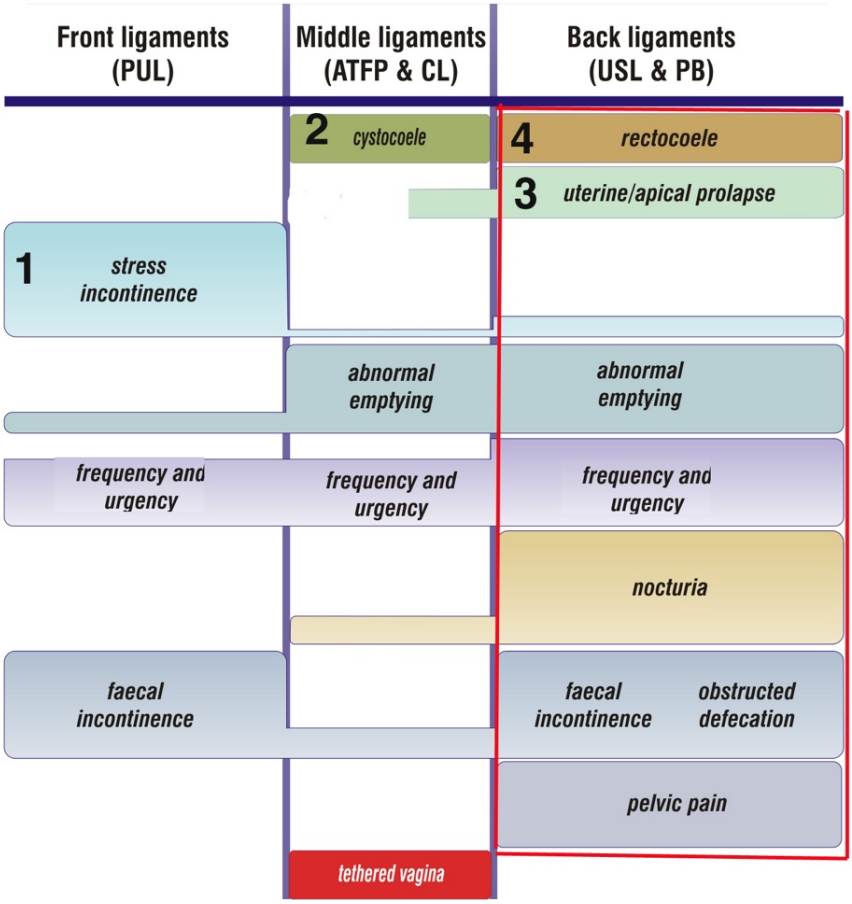

Figure1 diagnostic algorithm- a useful "aide memoire" for pelvic symptoms and surgical guide.

Each symptom even if occurs only "sometimes", is ticked in the appropriate box.

Symptoms are associated with specific ligaments (numbers 1-4) and prolapses. The symptoms in the red rectangle can all be caued by USL (uteroacral ligament) weakness or laxity.

The size of the box indicates probability of association with a particular prolapse or ligament.

Some ligaments can cause multiple symptoms. 3 symptoms are uniquely caused by one ligament; stress urinary incontinence : PUL (pubourethral); Nocturia and chronic pelvic pain: USL (uterosacral).