

MECHANISM OF ACTION OF PELVICOL PUBO-VAGINAL SLINGS USING MAGNETIC RESONANCE IMAGING (MRI).

Aims of Study

- 1) To demonstrate the anatomical changes, if any, that occur following the insertion of a Pelvicol Pubo-Vaginal Sling.
- 2) To ascertain whether these changes are permanent and /or related to the success of the operation and restoration of urinary continence during short, medium and long term follow-up.

Background

Pelvicol is a strong, sterile, flexible fibrous sheet of acellular porcine dermal collagen and its constituent elastin fibres, which have been extensively and safely used throughout the human body (1). Pelvicol Pubo-vaginal slings have been described as a safe and successful treatment for urodynamic stress incontinence, with success rate at 12 months comparable to TVT (tension free vaginal tape) and with less complication rates (2).

Our preliminary study had shown that Pelvicol fails to show on ultrasound scanning yet is easily demonstrated, in vivo and vitro, using magnetic resonance imaging (MRI).

Methods

A Pilot study, which is approved by the local ethical committee.

Study Group

3 parous women with urodynamic stress incontinence.

All patients undergo the following assessment:
Stamey Scoring of incontinence (Subjective assessment).
Standard 1-hour Pad test (Objective assessment).
MRI pelvis.

This assessment is done pre-operatively, and repeated post-operatively at 2 weeks, 4-6 months and 24 month.

Control Group

1 continent nulliparous volunteer.
1 continent multiparous volunteer.
Both undergo MRI pelvis, for comparison with the study group.

Results

All three women in the study group were subjectively and objectively continent of urine up to 24 months post-operative; the three women scored "zero" on Stamey incontinence score up to 2 years follow up. A standard 1- hour pad test was negative for all three women (<2gm) up to 2 years of follow up. The characteristic vaginal shape on MRI was seen in the control subjects with intact pubococcygeus muscle and normal endopelvic fascial connections between the vagina and levator ani. The incontinent women lacked these anatomical features preoperatively but were apparent on the first postoperative MRI with the sling clearly visible which corrected the abnormality. The anatomical correction persisted at the second (6 month) and third (24 month) follow up scans where 2 of the slings were visible and continence was maintained in all 3 women.

Conclusions

This study has shown that anatomical defects exist in the pelvic floor of women with urodynamic stress incontinence. It has also demonstrated a potential mechanism as to how Pelvicol Pubo-vaginal sling exert its continence effect in these women.

References

Harper C. Permacol: clinical experience with a new biochemical. *Hospital Medicine* 2001; **62**: 90-95

2) Barrington JW, Edwards G, Arun AS. The use of porcine dermal implant in a minimally invasive pubovaginal sling procedure for genuine stress incontinence. *BJU* 2002; **90**: 224-227

Key Words

Pubovaginal sling, Stress incontinence, MRI.