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[Intervention Review]

Minimally invasive synthetic suburethral sling operations for stress urinary incontinence in women

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ABSTRACT

Background

Stress urinary incontinence (SUI) is a common condition affecting up to 30% of women. Minimally invasive synthetic suburethral sling operations are among the latest forms of procedures introduced to treat SUI.

Objectives

To assess the effects of minimally invasive synthetic suburethral sling operations for treatment of SUI, urodynamic stress incontinence (USI) or mixed urinary incontinence (MUI) in women.

Search strategy

We searched the Cochrane Incontinence Group Specialised Register (searched 20 March 2008), MEDLINE (January 1950 to April 2008), EMBASE (January 1988 to April 2008), CINAHL (January 1982 to April 2008), AMED (January 1985 to April 2008), the UK National Research Register, ClinicalTrials.gov, and reference lists of relevant articles.

Selection criteria

Randomised or quasi-randomised controlled trials amongst women with SUI, USI or symptoms of stress or mixed urinary incontinence, in which at least one trial arm involved a minimally invasive synthetic suburethral sling operations.

Data collection and analysis

Two review authors assessed the methodological quality of potentially eligible studies and independently extracted data from the included trials.

Main results

Sixty two trials involving 7101 women were included. The quality of evidence was moderate for most trials. Minimally invasive synthetic suburethral sling operations appeared to be as effective as traditional suburethral slings (trials, n = 599, Risk Ratio (RR) 1.03, 95% Confidence Interval (CI) 0.94 to 1.13) but with shorter operating time and less post-operative voiding dysfunction and de novo urgency symptoms.

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Minimally invasive synthetic suburethral sling operations appeared to be as effective as open retropubic colposuspension (subjective cure rate at 12 months RR 0.96, 95% CI 0.90 to 1.03; at 5 years RR 0.91, 95% CI 0.74 to 1.12) with fewer perioperative complications, less postoperative voiding dysfunction, shorter operative time and hospital stay but significantly more bladder perforations (6% versus 1%, RR 4.24, 95% CI 1.71 to 10.52).

There was conflicting evidence about the effectiveness of minimally invasive synthetic suburethral sling operations compared to laparoscopic colposuspension in the short term (objective cure, RR 1.15, 95% CI 1.06 to 1.24; subjective cure RR 1.11, 95% CI 0.99 to 1.24). Minimally invasive synthetic suburethral sling operations had significantly less de novo urgency and urgency incontinence, shorter operating time, hospital stay and time to return to daily activities.

A retropubic bottom-to-top route was more effective than top-to-bottom route (RR 1.10, 95% CI 1.01 to 1.20; RR 1.06, 95% CI 1.01 to 1.11) and incurred significantly less voiding dysfunction, bladder perforations and tape erosions.

Monofilament tapes had significantly higher objective cure rates (RR 1.15, 95% CI 1.02 to 1.30) compared to multifilament tapes and fewer tape erosions (1.3% versus 6% RR 0.25, 95% CI 0.06 to 1.00).

The obturator route was less favourable than the retropubic route in objective cure (84% versus 88%; RR 0.96, 95% CI 0.93 to 0.99; 17 trials, n = 2434), although there was no difference in subjective cure rates. However, there was less voiding dysfunction, blood loss, bladder perforation (0.3% versus 5.5%, RR 0.14, 95% CI 0.07 to 0.26) and shorter operating time with the obturator route.

Authors' conclusions

The current evidence base suggests that minimally invasive synthetic suburethral sling operations are as effective as traditional suburethral slings, open retropubic colposuspension and laparoscopic colposuspension in the short term but with less postoperative complications. Women were less likely to be continent after operations performed via the obturator (rather than retropubic) route, but they had fewer complications. Most of the trials had short term follow up and the quality of the evidence was variable.

PLAIN LANGUAGE SUMMARY

Minimally invasive synthetic suburethral sling operations for stress urinary incontinence in women.

Stress urinary incontinence (involuntary leakage of urine on effort, or exertion, or on sneezing or coughing or laughing) is the commonest form of incontinence in women and reduces their quality of life. One in three women over the age of 18 years will be affected by stress urinary incontinence. Over the years surgery has become less invasive but there are many different types of operations. Minimally invasive synthetic suburethral sling operations are effective and relatively safe with cure rates of about 80% in the short term. They are also suitable for women who have had unsuccessful previous incontinence surgery. There is some evidence to suggest that operations using certain types of tape materials (type 1 meshes) are more effective with fewer complications (such as infections and tape erosions into the vagina or urethra) than other types. There are two ways of carrying out these operations, either behind the pubic bone or through the groin. Those passing behind the pubic bone are more effective and longer follow-up results are available, but they result in more problems with passing urine after operation and more cases of bladder injury. A major limitation is that long term follow-up data for the effectiveness of many of these procedures are lacking.