Efficacy and safety of transvaginal mesh kits in the treatment of prolapse of the vaginal apex: a systematic review

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CRD summary
This review concluded that transvaginal mesh kits appeared to be effective in treating uterine or post-hysterectomy vaginal vault prolapse, but long term and functional outcomes remain unknown. Although the authors' conclusions appear to reflect the limited evidence available, given the uncertainty regarding study quality and the potential for bias in the review process, the conclusions should be interpreted with caution.

Authors' objectives
To assess the safety and efficacy of transvaginal mesh kits for the treatment of uterine or post-hysterectomy vaginal vault prolapse.

Searching
Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Database of Systematic Reviews, DARE, ACP Journal Club and MEDLINE were searched between 1950 and December 2007. Scopus and the Web of Sciences were searched. Search terms were reported. Conference presentations from the International Continence Society, International Urogynecological Association, American Urogynecologic Society and Society for Gynaecologic Surgeons were searched from 2005 to December 2007.

Study selection
Studies of women who underwent vaginal surgery for uterine or post-hysterectomy vaginal vault prolapse were eligible for inclusion if surgery had involved the placement of a mesh kit (Posterior Prolift, Apogee, intravaginal slingplasty, or infracoccygeal sacropexy) for repair of the vaginal apex. Eligible studies were required to report objective and subjective outcomes (as defined in the review) that related to prolapse, urinary, bowel, sexual function, pain, mesh erosion and perioperative surgical complications. Studies that described the use of mesh to support the anterior or posterior vaginal compartment alone, used mesh for incontinence or fistula repair or did not involve the upper vaginal compartment were excluded. Eligible study designs were cross-sectional, case series, case-control, any design with historical controls, cohort or controlled trials.

Some of the included studies involved concomitant procedures, including vaginal hysterectomy and Manchester repair.

The authors did not state how many reviewers screened studies for inclusion.

Assessment of study quality
The authors did not assess study quality due to the limited published evidence available.

Data extraction
The numbers of patients who achieved objective success, experienced total complications (categorised using the previously validated Dindo system), mesh erosion or dyspareunia were extracted to calculate percentages, standard deviations (SDs), and 95% confidence intervals (CIs). Where non-standardised procedures that used polypropylene mesh were reported, these were combined into one group.

Data were extracted by one reviewer and independently checked by a second reviewer.

Methods of synthesis
Weighted mean percentages, together with their combined standard deviations and 95% CIs, were grouped by type of mesh kit.
Results of the review
Thirty studies (n=2,653, range 21 to 349) were included in the review. Mean follow-up was 36 weeks (range three to 123 weeks).

Objective success rates: Success rates were highest using the Apogee mesh kit with a mean of 95.4% (95% CI 95.1 to 95.7; eight studies including one RCT). Other success rates were 91.6% (95% CI 90.9 to 92.3; four studies) with polypropylene, 88.2% (95% CI 87.2 to 89.1; 10 studies including two RCTs) using PIVS and 86.8% (95% CI: 86.4 to 87.3, eight studies) using Prolift.

Complications: The mean number of complications were 17.6% (95% CI 16.7 to 18.5) with Apogee mesh kit, 16.5% (95% CI 15.9 to 17.1) with Prolift, 12.1% (95% CI 11.6 to 12.5) with PIVS and 6.9% (95% CI 6.8 to 6.9) with polypropylene. Mesh erosion and dyspareunia were the most frequently reported complications in all procedures (as reported in the review).

Authors’ conclusions
Transvaginal mesh kits appeared to be effective in repairing apical vaginal prolapse, but long term and functional outcomes remained unknown.

CRD commentary
The review question was clear and supported by appropriate inclusion criteria. Several sources were searched for relevant evidence and abstracts, which helped reduce the possibility that potentially relevant papers were missed. It was unclear whether language restrictions were applied. The authors stated that data extraction was carried out in duplicate, but did not state whether this was true for study selection, so reviewer error and bias could not be ruled out. The quality of the studies was not assessed due to limited available evidence, so it was not possible to determine the robustness of the findings. Given the limited available data on patient characteristics and methodological procedures, it was unclear whether patients were comparable at baseline and whether it was appropriate to combine the studies. The authors’ conclusions appear to reflect the evidence, but given the limited evidence available, uncertainty regarding quality of the studies and potential bias with the review process, it is difficult to determine the reliability of their conclusions and they should be interpreted with caution.

Implications of the review for practice and research
Practice: The authors stated that surgeons should advise patients that device-related complications can occur with these procedures, were not rare and might necessitate surgical intervention under anaesthetic.

Research: The authors stated that well-conducted long-term RCTs were required to compare vaginal mesh procedures with traditional surgical procedures for apical prolapse. Further research should also assess functional outcomes following these procedures and the effect they have on prolapse symptoms and quality of life. Validated tools should be used to assess prolapse symptoms at baseline and post-surgical intervention.

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