Vasectomy occlusion techniques for male sterilization

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Key findings

This updated review comparing effectiveness, safety, accessibility and costs of different vasectomy occlusion techniques found:

- No statistically significant differences in failure to achieve azoospermia when vas occlusion with clips was compared with the conventional vasectomy technique
- Time to azoospermia following vasectomy with or without vas irrigation was not statistically different, although median number of ejaculations to azoospermia was significantly lower when euflavine was used for irrigation compared to irrigation with water
- Vasectomy with fascial interposition was associated with less contraceptive failure compared to vasectomy without fascial interposition. However, fascial interposition was associated with more surgical difficulties although there were no statistically significant differences with the occurrence of side effects
- The intra-vas device was less likely to achieve azoospermia at 3 and 12 months compared to no-scalpel vasectomy although more men were satisfied with the intra-vas device coupled with fewer side effects
- No data on cost analysis regarding vasectomy techniques
- Unavailability of high quality trials regarding other vasectomy techniques

Evidence included in this review

This review included six randomized controlled trials (1946 participants) comparing the effectiveness, safety, acceptability and costs of vasectomy occlusion techniques for male sterilization. One trial compared clips versus usual cutting of the vas. Three trials assessed vasectomy with vas irrigation (two comparing water irrigation versus no irrigation and one trial comparing irrigation with water versus irrigation with the spermicide euflavine). One trial assessed vasectomy with and without fascial interposition, and other trial compared an intra-vas device versus non-scalpel vasectomy.

Quality assessment

All but one of the trials included in this review were of low quality methodology and underpowered, with high risk of bias. The quality and adequacy of reporting were generally poor for most of the included trials.
Clinical implications

The interpretation and applicability of these findings should be considered with caution as most of the trials included in the review were under powered and had poor quality with significant risk of bias. Until new good quality evidence is available, it is expected that clinicians continue to perform any of the vasectomy techniques based on their clinical discretion and experience.

Further research

The paucity of good evidence regarding male sterilization suggests the need for large randomized trials with high quality methodology and adequate power to help address the concerns regarding the effectiveness, safety and acceptability of vasectomy techniques. Such trials should consider the inclusion of special areas such as cost analysis, expertise of surgeons, standardization of follow-up protocols and semen analysis methods, recanalization and evaluation of vasectomy success and failure.

Cochrane review


Abstract

Vasectomy is an increasingly popular and effective family planning method. A variety of vasectomy techniques are used worldwide, including vas occlusion techniques (excision and ligation, thermal or electrocautery, and mechanical and chemical occlusion methods), as well as vasectomy with vas irrigation or with fascial interposition. Vasectomy guidelines largely rely on information from observational studies. Ideally, the choice of vasectomy techniques should be based on the evidence from randomized controlled trials (RCTs).

The objective of this review was to compare the effectiveness, safety, acceptability and costs of vasectomy techniques for male sterilization.

In February 2014, we updated the searches of CENTRAL, MEDLINE, POPLINE and LILACS. We looked for recent clinical trials in ClinicalTrials.gov and the International Clinical Trials Registry Platform. Previous searches also included EMBASE. For the initial review, we searched the reference lists of relevant articles and book chapters.

We included RCTs comparing vasectomy techniques, which could include suture ligature, surgical clips, thermal or electrocautery, chemical occlusion, vas plugs, vas excision, open-ended vas, fascial interposition, or vas irrigation.

We assessed all titles and abstracts located in the literature searches. Two reviewers independently extracted data from articles identified for inclusion. Outcome measures include contraceptive efficacy, safety, discontinuation, and acceptability. Peto odds ratios (OR) with 95% confidence intervals (CI) were used for dichotomous outcomes, such as azoospermia. The mean difference (MD) was used for the continuous variable of operating time.

Six studies met the inclusion criteria. One trial compared vas occlusion with clips versus a conventional
vasectomy technique. No difference was found in failure to reach azoospermia (no sperm detected). Three trials examined vasectomy with vas irrigation. Two studies looked at irrigation with water versus no irrigation, while one examined irrigation with water versus the spermicide euflavine. None found a difference between the groups for time to azoospermia. However, one trial reported that the median number of ejaculations to azoospermia was lower in the euflavine group compared to the water irrigation group. One high-quality trial compared vasectomy with fascial interposition versus vasectomy without fascial interposition. The fascial interposition group was less likely to have vasectomy failure. Fascial interposition had more surgical difficulties, but the groups were similar in side effects. Lastly, one trial found that an intra-vas was less likely to produce azoospermia than was no-scalpel vasectomy. More men were satisfied with the intra-vas device, however.

For vas occlusion with clips or vasectomy with vas irrigation, no conclusions can be made as those studies were of low quality and underpowered. Fascial interposition reduced vasectomy failure. An intra-vas device was less effective in reducing sperm count than was no-scalpel vasectomy. RCTs examining other vasectomy techniques were not available. More and better quality research is needed to examine vasectomy techniques.


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