Surgical methods for first trimester termination of pregnancy

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Dilatation and curettage, electric vacuum aspiration and manual vacuum aspiration are all safe and effective for first-trimester termination of pregnancy. Electric vacuum aspiration needs less time to perform than dilatation and curettage. Manual vacuum aspiration is associated with less pain than electric vacuum aspiration in cases of early terminations, but manual vacuum aspiration involves greater procedural difficulty compared with electric vacuum aspiration in cases of late terminations.

RHL Commentary by Balakrishnan S

1. INTRODUCTION

Each year an estimated 42 million women worldwide undergo an induced abortion (1). Even though medical abortion is becoming more common, surgical methods of termination of pregnancy are still widely used, especially in under-resourced settings. Surgical abortion is usually an option up to 14 completed weeks (98 days) of gestation. Three methods of surgical abortion are used for first-trimester termination of pregnancy: (i) dilatation and curettage (D&C;) – in which the cervix is dilated and a forceps or curette is inserted to remove the uterine contents; (ii) electric vacuum aspiration (EVA) – in which the cervix is dilated and a cannula of appropriate size is inserted and the uterine contents are removed by electric vacuum aspiration (sometimes curettage may also be performed at the end); and (iii) manual vacuum aspiration (MVA) – in which a handheld vacuum syringe and cannula are used to evacuate the uterus. All three methods can be performed under local anaesthesia. Pre-abortion cervical preparation by mechanical or medical means may be useful to reduce cervical or uterine trauma (2). With the broader aim of determining which method is best for different settings, this Cochrane review (3) sought to compare the safety and efficacy of the different surgical methods for termination of pregnancy in the first trimester.

2. METHODS OF THE REVIEW

The review authors searched the Cochrane Central Register of Controlled Trials and MEDLINE extensively for appropriate studies. All randomized controlled trials comparing D&C; EVA and MVA were considered for the review. Two of the authors independently selected the trials by evaluating them for inclusion criteria and methodological quality without consideration of results. The trials were included on the basis of adequate concealment of allocation, randomization and follow-up. Operator blinding was not possible due to the type of intervention.

Data extraction was then performed by two researchers independently. There were no differences between the reviewers in either the decision on inclusion or exclusion of studies or on data extraction. Data were
processed using RevMan software. The data extraction for the four Chinese publications was performed by one author. Trials were excluded if there were unexplained imbalances in the different groups at follow-up. Subgroup analysis was performed for early (<9 weeks) and late (>9 weeks) terminations. The primary outcome measures were excess blood loss, blood transfusion, uterine perforation, cervical injury, repeat evacuation, febrile morbidity, rehospitalization and death. The secondary outcomes were postoperative abdominal pain, woman’s preference, non-routine use of postoperative analgesia, uterotonic or antibiotics, duration of surgery and hospital stay greater than 24 hours.

3. RESULTS OF THE REVIEW

Eleven trials were included. Out of these trials seven were conducted in Europe and the USA in tertiary health centres or family planning clinics. Four were conducted in tertiary health centres in China. There were three comparisons.

3.1 EVA versus D&C;

There were two trials with 467 women. There were no statistically significant differences in increased blood loss, blood transfusion, febrile morbidity, repeat evacuation, rehospitalization, postoperative pain or therapeutic antibiotic use between the two groups. However, the duration of surgery was shorter with EVA compared to D&C; in both early and late abortions and was statistically significant. In the early abortion group the weighted mean difference (WMD) was -1.84 min and the 95% confidence interval (CI) (-2.542 to -1.138). In the late abortion group the WMD was -0.60 min, 95% CI (-1.166 to -0.034).

3.2 Flexible versus rigid aspiration cannula

There was only one trial in this group comprising 300 women. There were no statistically significant differences between the groups with regard to cervical injury, febrile morbidity, blood transfusion, therapeutic antibiotics or repeat evacuation.

3.3 EVA versus MVA

For this comparison, there were eight trials (four of which had been conducted in China) with 1575 women. Severe pain was less frequently reported with MVA compared with EVA in early terminations [relative risk (RR) 0.73; 95% CI 0.47–1.16], although the finding was not statistically significant. However, there were no statistically significant differences in cervical injuries, excessive blood loss, blood transfusion, febrile morbidity and repeat evacuation. One trial reported uterine perforation to be more common with EVA compared with MVA, but none of the other trials reported this result (RR 0.06; 95% CI 0.00–1.01). Only one trial reported on duration of surgery and it found no difference between the methods. There was also no difference in woman’s preference for a method, which was reported in the one trial.

4. DISCUSSION

All three methods were found to be safe and effective for first-trimester termination of pregnancy and complications with all of them were rare. Although the studies did not indicate whether overall any one method was superior to the other two, EVA was associated with a shorter duration of surgery than D&C.; Both rigid and flexible cannulas were comparable and MVA may be good for early abortions, but for late first trimester abortions EVA may be a better choice. MVA was associated with less pain than EVA for early terminations, but had more of procedural difficulty compared to EVA for late terminations.
4.1 Applicability of the results

The finding of this review apply to both developed and developing countries, since data were available from both settings. It must, however, be remembered that the sample sizes in individual studies were small. Identification of major complications and mortality would require much larger sample sizes to detect meaningful differences. Furthermore, the methodological quality of the trials was not very good, especially due to inadequate allocation concealment in most of the trials. Only one trial used computer generated random tables for randomization and sequentially sealed opaque envelopes for allocation concealment. The methods of randomization and allocation concealment were not described in the other studies. This could have caused serious selection bias, especially as the procedures could not be masked. Another problem is that in the trials the procedures were in all likelihood performed by experienced surgeons in tertiary centres, whereas in clinical practice junior staff often perform such procedures unsupervised, leading to more complications. The issue of co-morbid conditions, such as coexisting or prior pelvic inflammatory disease, was not addressed in the trials; such conditions can potentially alter the outcomes of surgical abortion procedures in practice.

4.2 Implementation of the interventions

The choice of method would depend on the setting and equipment available. Both MVA and EVA are ideal for under-resourced settings. MVA may have a definite role in early abortions as it is inexpensive and the equipment needs very little maintenance. Since the operating time is markedly less with EVA compared to D&C, it may be a better choice for late terminations. This may be particularly relevant when local anaesthesia is used in busy clinics and in low-resource settings.

4.3 Implications for research

Certain aspects of the procedures, such as the need for postoperative analgesia, long-term consequences and physicians preference, have not been addressed in this review; perhaps these could be included in future studies. Similarly, only one trial commented on woman’s preferences. This topic too could be studied in future research.

References


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