

Role of Mechanical Dilatation in Hysteroscopy

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Abstract

Background:

Hysteroscopy with sample of the tissue is the gold standard in the diagnosing of abnormal uterine bleeding. Operative hysteroscopy can then be performed as a therapeutic procedure in patients presenting with intrauterine abnormalities. Cervical dilatation poses a great challenge particularly in nulligravid, post-menopausal women and women with cervical stenosis. Difficulties encountered in dilating the cervix poses threat to complications such as cervical tears, creation of false track, hemorrhage and uterine perforation.

Objective:

The aim of this study is to review the role of mechanical dilatation in hysteroscopy using oral and vaginal misoprostol and laminaria.

Methods:

This study involves a retrospective analytical review and compares the role of oral and vaginal misoprostol and laminaria application in achieving cervical ripening before hysteroscopy. Its effects in cervical dilatation as well as the dosing, advantages and side-effects were also reviewed. There were twenty articles included in this study as extracted from electronic databases Cochrane Library, Medscape, Highwire Press and Google. Most of the articles assessed the cervical diameter by the largest number of Hegar dilators that could be inserted into the cervix without resistance. Subjective assessments of adverse effects and complications were recorded.

Conclusion:

Methods of cervical priming before hysteroscopy lessens the need of further cervical dilation pre-operatively, lessens the complications associated with the entry of the hysteroscope into the cervical os and offered acceptable side-effects.

Introduction:

Recent advances in fiberoptics, light sources, high resolution lenses, and endoscopic surgical instrumentation made hysteroscopy an important diagnostic tool as well as therapeutic tool for patients presenting with intrauterine diseases. Hysteroscopy permits direct visualization of the uterine cavity thus making it the gold standard in diagnosing abnormal uterine bleeding.

Operative hysteroscopy as well has gained popularity as a minimally invasive approach to intrauterine lesions (Siegler and Valle, 1988). However, a systematic review of diagnostic hysteroscopy in more than 26,000 women reported a failure rate of 4.2% for ambulatory hysteroscopy and 3.4% for in-patient procedures. Failed procedures were mainly attributed to technical problems, including cervical stenosis, anatomic and structural abnormalities and pain and intolerance. Flexible hysteroscopes used in this procedure range in diameter from 2.7-5mm; rigid hysteroscopes, from 1-5mm; and operative hysteroscopes can be as large as 8-10mm. The diameters of the telescope prerequisite the dilatation of the cervix to 10-11mm prior to insertion of the instrument. Ideally, hysteroscopy is performed with minimal or no cervical dilation. But this may not always be possible because the common complications encountered during the procedure are reported mainly to be related to the difficulty in entering the internal cervical os with the telescope especially in nulliparous and postmenopausal women. Complications reported are cervical tears, creation of false passages, and uterine perforation. Prevention of cervical injury and uterine perforation during termination of pregnancy has been demonstrated by pre-operative cervical ripening and may be achieved either mechanically, such as with osmotic dilators, or biochemically with prostaglandins. Misoprostol is a prostaglandin E1 analogue which is commonly used in obstetrics for induction of abortion and labor as well as postpartum to control bleeding (Bugahó et al., 1994). Misoprostol applied before hysteroscopy has reduced the need for cervical dilatation, facilitated hysteroscopic surgery and minimized cervical complications (Preutthipan and Herabutya, 1999). On the other hand, laminaria tents, made from the stems of *Laminaria japonica* (brown seaweed), are attractive natural substances that can cause cervical dilatation with minimal and no systemic side effects. They have been shown to be effective in inducing cervical priming prior to operative hysteroscopy (Ostrzenski, 1994). The aim of this work is to review several studies of the role of cervical dilatation in hysteroscopy.

Methods:

There were 19 reported randomized controlled trials that evaluated the efficacy of misoprostol on cervical ripening in gynecologic patients, after searching medical literature databases including Cochrane Library, Medscape, High wire Press and Google. One article evaluated the efficacy of laminaria tents. The search terms used included “mechanical cervical dilation”, “cervical ripening” and “hysteroscopy.” References from identified publications were manually searched and cross-referenced to identify additional relevant articles. The studies have shown different cervical responses and outcomes. Most of the studies compared the effect of misoprostol against placebo on different groups of women, such a nulliparous women and postmenopausal women. Patients received misoprostol either orally or vaginally. The dosages given in the studies varied from 200 and 1000 mcg given between 2-24 hours before the surgery, via oral, sublingual or vaginal route. One of the studies compared the effect of laminaria tents against placebo. The patients were randomly assigned into two groups. They underwent hysteroscopic procedure with a 5-10-mm hysteroscope during the follicular phases of their cycle. The cervical width was assessed by the largest number of Hegar dilators that could be inserted into the cervix without resistance. Subjective assessment of the ease of the dilatation to 9mm by the surgeon was also recorded. Adverse effects like pre-operative pain, mild lower abdominal pain and slight vaginal bleeding were recorded.

Discussion:

Recently, hysteroscopy has been used to investigate women presenting with abnormal uterine bleeding (Nagele et al, 1996). Hysteroscopy plus sampling the endometrial tissue increased the sensitivity and specificity for the detection of endometrial pathology when compared with blind endometrial biopsy alone. However, difficulty in cervical dilatation has been one of the major causes of failure of this procedure (Scottish Hysteroscopy Audit Group, 1995). The articles reviewed showed that vaginal misoprostol applied pre-operatively facilitates cervical priming and reduced the need for cervical dilation, facilitated the ease of diagnostic and operative hysteroscopy and minimized cervical complications. One article mentioned that both misoprostol and laminaria were equally effective. Nevertheless, misoprostol is superior over the laminaria due to easy application, cheap cost and convenience and better acceptability to the patient. Both oral and vaginal misoprostol showed no significant difference with respect to cervical opening, duration of dilation as well as the rate of complications. Most studies of dosing have involved the use of vaginal misoprostol administration with dosages of 200 microgram to 400 microgram given 9-12 hours before hysteroscopy showing the greatest benefit. One review showed that misoprostol application is safe and effective for cervical priming against placebo in premenopausal women but not in postmenopausal women. Misoprostol is a drug used for the treatment of peptic ulcer disease. The cost is cheap, self administration is easy and does not require hospital resources in application, other than information.

Conclusion:

In conclusion, methods of cervical priming and dilation before hysteroscopy negate the need of further dilating the cervix at the operation theater prior to the procedure. Among the methods offered in the market, misoprostol is highly superior in the cervical ripening before hysteroscopy due to cheap cost, easy to apply and mild side-effects.

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