World Journal of Laparoscopic Surgery, May-August 2008;1(2):20-22

Role of Mechanical Dilatation of Cervix in Hysteroscopy

Monique Directo Javier

Diplomate of Philippines Obstetrical and Gynecological Society, Cebu, Philippines

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.[1] Flexible hysteroscopes used in this procedure range in diameter from 2.7-5 mm; rigid hysteroscopes, from 1-5 mm; and operative hysteroscopes can be as large as 8-10 mm.[2,3] 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.[3] 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.[4] Prevention of cervical injury and uterine perforation during termination of pregnancy has been demonstrated by pre-operative cervical ripening[5,6] and may be achieved either mechanically, such as with osmotic dilators,[7] or biochemically with prostaglandins.[8] 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 (Bugaho 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 japomica (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.[9-28] 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 9 mm 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.

REFERENCES

1. Clark TJ, Volt D, Gupta JK, Hyde C, Song F, Khan KS. Accuracy of hysteroscopy in the diagnosis of endometrial cancer and hyperplasia: a systematic quantitative review. JAMA. 202; 288: 161-62.
2. American College of Obstetricians and Gynecologists. ACOG Technology assessment in obstetrics and gynecology, number 4, August, 2005: hysteroscopy. Obstet Gynecol. 2005; 106: 439-42.
3. Guido R. Stovall D Hysteroscopy Version 14.3. Uptodate (cited February 15, 2007).
4. Bradley LD. Complications in hysteroscopy: prevention, treatment, and legal risk. Curr Opin Obstet Gynecol 2002; 14: 409-15.
5. Grimes DA, Schulz KF, Cates WJ Jr. Prevention of uterine perforation during curettage abortion. JAMA 1984; 251: 2108-11.
6. Schulz KF, Grimes DA, Cates W. Measures to prevent cervical injury during suction curettage abortion. Lancet 1983; 1: 1182-84.
7. Lichtenberg ES. Complications of osmotic dilators. Obstet Gynecol Surv 2004; 59: 528-36.
8. Blanchard K, Clark S, Winikoff B, Gaines G, Kabani G, Shannon C. Misoprostol for women's health. Obstet Bynecol 2002; 99: 316-32.
9. Yu D, Li T-c, Xia E, Huang X. A prospective, randomized, controlled trial comparing vaginal misoprostol and osmotic dilator in achieving cervical ripening before operative hysteroscopy. Gynecological Surgery 2006; 3: 186-89.
10. Aslan G, Yuce MA, Gucer F. A comparison of vaginal and oral routes in misoprostol administration for cervical priming before hysteroscopy: a prospective randomized double-blind study. Jinekoloji Ve Obstetrik Dergisi 2004; 18: 145-49.
11. Fung TM, Lam MH, Wong SF, Ho LC. A randomized placebo-controlled trial of vaginal misoprostol for cervical priming before hysteroscopy in postmenopausal women. BJOG 2002; 109; 561-65.
12. Thomas JA, Leylans N, Durand N, Windrim RC. The use of oral misoprostol as a cervical ripening agent in operative hysteroscopy: a double blind, placebo controlled trial. Am J Obstet Gynecol 2002; 186: 876-79.
13. Preutthipan S, Herabutya Y. A randomized controlled trial of vaginal misoprostol for cervical priming before hysteroscopy. Obstet Gynecol 1999; 93: 427-30.
14. Ngia SW, Chan YM, Liu KL, Ho PC. Oral misoprostol for cervical priming in non-pregnant women. Hum Reprod 1997; 12: 2373-75.
15. Preutthipan S. Herabutya Y. Vaginal misoprostol for cervical priming before operative hysteroscopy, a randomized controlled trial. Obstet Gynecol 2000; 96: 890-94.
16. Fernandez H, Alby JD, Tournox C, Chauveaud-Lambling A, de Tayrac R, Frydman R, et al. Vaginal misoprostol for cervical ripening before operative hysteroscopy in premenopausal women: a double-blind, placebo controlled trial with three dose regimens. Human Reprod 2004; 19: 1618-21.

17. Darwish AM, Ahmad AM, Mohammad AM. Cervical priming prior to operative hysteroscopy: a randomized comparison of laminaria versus misoprostol. Hum Reprod 2004; 19: 2391-94.
18. Atay V, Duru NK, Pabuccu R, Ergun A, Tokac G, Aydin BA. Vaginal misoprostol for cervical dilatation before operative office hysteroscopy. Gynael Endoscopy 1997; 6: 47-49.
19. Ngai SW, Chan YM, Ho PC. The use of misoprostol prior to hysteroscopy in post-menopausal women. Hum Reprod 2001; 16: 1486-88.
20. Perrone JF, Caldito G, Mailhes JB, Tucker AN, Ford WR, London SN. Oral misoprostol before office endometrial biopsy. Obstet Gynecol 2002; 99: 439-44.
21. Thomas JA, Leynard N, Durand N, Windrim RC. The use of oral misoprostol as a cervical ripening agent in operative hysteroscopy; a double blind placebo controlled trial. Am J Obstet Gynecol 2002; 186; 876-79.
22. Bisharah M, Al fozan H, Tulandi T. a randomized trial of sublingual misoprostol for cervical priming before hysteroscopy. J Am Assoc Gynecol Laparosc 2003; 10: 390-91.
23. Bunnasathiansri S, Herabutya Y, O-Prasertsawat P. Vaginal misoprostol for cervical priming before dilatation and curettage in post-menopausal women; a randomised controlled trial. J Obstet Gynaecol Res 2004; 30: 221-25.
24. Barcaite E, Bartusevicius A, Railaite DR, Nadisaukiene R. Vaginal misoprostol for cervical priming before hysteroscopy in perimenopausal and postmenopausal women. Int J Gynaecol Obstet 2005; 91: 141-45.
25. Choksuchat C, Cheewadhadnaraks S, Getpook C, Wootipoom V, Dhanavoravibul K. Misoprostol for cervical ripening in non-pregnant women: a randomized double-blind controlled trial of oral versus vaginal regimens. Hum Reprod 2006; 21: 2167-70.
26. Oppegaard KS, Nesheim B-I, Istre O, Qvigstad E. Comparison of self-administered vaginal misoprostol versus placebo for cervical priming prior to operative hysteroscopy using a sequential trial design. BJOG 2007; 114: 769.
27. Crane JM, Healy S. Use of misoprostol before hysteroscopy: a systematic review. J Obstet Gynaecol Can 2006; 28: 373-79.
28. Darwish AM, Ahmad AM, Mohammad AM. Cervical priming prior to operative hysteroscopy: a randomized comparison of laminaria versus misoprostol. Hum Reprod 2004; 19: 2391-94.