

CHAPTER 1

INTRODUCTION

RATIONALE AND BACKGROUND

Fractional curettage (F/C) is a common operative gynecologic procedure to obtain endocervical and endometrial tissues differentially. The procedure comprises 2 major steps, endocervical and uterine curettage respectively. Since F/C involves manipulation of cervix and uterus, which are sensitive organs, the procedure causes pain and/or discomfort in most of the patients. Pain may occur from mechanical dilatation of the cervix during insertion of an instrument, and/or from uterine contraction induced by uterine curettage.

F/C may be performed without analgesia or anesthesia. However, when pain relief is required, local anesthesia is preferable to other methods because it is easy to performed, with lower risk, and less medical care cost than general anesthesia, although the latter is more effective in pain relief because it has analgesia, amnesia, and hypnotic effect.⁽¹⁾ Moreover, local anesthesia is appropriate for outpatient operation because neither extensive preoperative preparation, e.g. NPO, blood chemistry, etc, nor intensive postoperative monitoring is needed.

Paracervical block (PCB) is a local anesthetic method that has been used for minor gynecologic procedures since 1925.⁽²⁾ PCB, by infiltrating local anesthesia just lateral to the uterosacral ligament insertion at cervix, blocks the majority of nerve fibers supplying vagina, cervix and uterus. PCB is shown to be effective for pain reduction during F/C.^(3, 4) However, the pain intensity under PCB is still in moderate degree (pain score of 4-6 measured by 10-cm VAS). Patients suffering from pain at this degree may refuse to undergo F/C again even though the follow-up F/C is necessary in some of them. Therefore, lower level of pain would be beneficial not only for the patient satisfaction but also for the compliance of the treatment if repeated F/C is necessary.

The reason why PCB cannot totally alleviate pain during F/C can be partly explained by neuroanatomy of pelvic organs. Innervation of uterus and cervix comes from inferior hypogastric plexus, which forms uterovaginal plexus just lateral to uterosacral ligament, and enters uterus at the level of internal cervical os; however, many nerve fibers enter the upper part of uterus via different courses (APPENDIX I).^(5, 6) Therefore, PCB may be able to reduce pain from cervix and lower uterine segment but it may not be effective enough to reduce pain from uterine corpus and fundus.

Intrauterine anesthesia (IUA), by instillation of local anesthesia into uterine cavity, is another anesthetic method for pain relief during uterine instrumentation. IUA has theoretical action by blocking nerve ending in the uterine corpus and fundus. The effectiveness of IUA for pain relief in gynecologic procedure involving uterine cavity was demonstrated.⁽⁷⁻⁹⁾ Therefore IUA may be beneficial for pain relief during uterine curettage, a painful step of F/C.

It is logical to add IUA to PCB in order to enhance the anesthetic effect. With this combination, the pain impulse that conducts through uterovaginal plexus is blocked by PCB, whereas the impulse that bypasses the plexus is blocked by IUA. To date, IUA has never been used in F/C and there is no study combining IUA with PCB in other gynecologic procedures. If the combination of these 2 techniques is more effective than PCB alone, the combination may be an anesthesia of choice for F/C.

REVIEW OF LITERATURES

There are only a few literatures studying pain relief techniques in F/C even though it is a common procedure for diagnosing causes of abnormal uterine bleeding (AUB). This is because F/C used to be performed by the conventional dilatation and curettage (D&C) under general anesthesia.⁽¹⁰⁾ D&C is an aggressive procedure aiming to scrape off the entire endometrium, however it rarely reaches such purpose.⁽¹¹⁾ Nowadays D&C is replaced by less aggressive diagnostic procedures such as ultrasonography with or without intrauterine saline instillation, blind endometrial

biopsy, or hysteroscopy. Currently diagnostic hysteroscopy with or without endometrial sampling is a gold standard for evaluating causes of AUB because it has the highest diagnostic accuracy.⁽¹²⁾ Nevertheless hysteroscopy cannot be applied to all eligible patients. The limitation of hysteroscopy includes the requirement of competent physician to perform this procedure, the availability of instrument, the costs of instrument and procedure, and the pain related to the procedure. In developing countries, diagnostic curettage by F/C is still the method of choice when endometrial and endocervical tissues are mandatory for definite diagnosis of AUB. Neither expensive instruments nor physician expertise is required for this diagnostic procedure.

Since there are not many studies reporting the efficacy of pain relief methods during F/C, all literatures regarding local anesthesia in gynecologic procedures involving cervix and uterus are reviewed. A systematic review of such literatures is summarized in APPENDIX II (TABLE A, B, and C).

Hysteroscopy with or without endometrial biopsy can be performed without any anesthesia. The majority (70%-80%) of patients can tolerate the pain with an average score of 3-4 measured by 10-cm or 10-point scale.⁽¹³⁻¹⁷⁾ However, pain score during F/C with or without local anesthesia is usually higher than 3-4.^(3, 18, 19) Therefore anesthetic method that can reduce pain score to 3-4 would be clinically acceptable.

Randomized controlled trial of PCB in various procedures demonstrated inconsistent result varying from null.^(20, 21) to favorable effect^(3, 22, 23) PCB was shown to be effective for pain reduction during F/C in Thai population.^(3, 4) However, the pain level after PCB was still in moderate degree (pain score of 4-6 measured by 10-cm VAS).^(3, 4, 18, 19) The possible explanation is that PCB may relieve pain from cervix but not from uterus.⁽²³⁾

IUA has been used in outpatient hysteroscopy and endometrial sampling. Its safety was evidenced but its efficacy was still inconclusive, varying from null⁽²⁴⁻²⁶⁾ to favorable effect.⁽⁷⁻⁹⁾ IUA seemed to be effective in postmenopausal women, and when endometrial biopsy is performed by flexible instrument.⁽⁸⁾

Study using only IUA may not be able to demonstrate its anesthetic efficacy. This is because the uterine instrumentation has to be done through cervix. If the cervical pain is not blocked, and if the instrument causes pain more at the cervix than at the uterus, the anesthetic effect of IUA may not be revealed. During hysteroscopy, cervical dilatation causes the highest pain score and endometrial sampling causes the second highest pain.⁽²⁷⁾ Therefore study using large diameter rigid instruments, causing significant pain at cervix, could not demonstrate the benefit of IUA,⁽²⁴⁻²⁶⁾ whereas those using small flexible instruments could.^(7, 8) During F/C, pain is more during uterine curettage than during cervical curettage.⁽²⁸⁾ Therefore blocking of pain from both cervix and uterus should be beneficial for overall pain relief during F/C.

To date, there is no study combining PCB and IUA. One study used combination of topical cervical and intrauterine anesthesia (lidocaine spray).⁽²⁹⁾ It demonstrated that this combination reduced pain at the step of cervical grasping only but not at other steps. However, the authors used topical cervical anesthesia, which seemed to be an ineffective anesthetic method for gynecologic procedure.^(27, 29, 30) Therefore in this study we use infiltrating anesthesia (PCB), which has more evidences of effectiveness than topical anesthesia.

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