

Efficacy of Routine Postpartum Uterine Exploration and Manual Sponge Curettage

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Many physicians feel that manual exploration and sponge curettage of the uterus should be a routine part of all vaginal deliveries. Three hundred twenty uncomplicated routine vaginal deliveries (185 with exploration and sponge curettage, 135 without) were prospectively analyzed for differences in outcome with regard to postpartum hemorrhage, postpartum infection, and the patient's perception of pain.

Results revealed there to be no clinically or statistically significant difference between these two groups in postpartum bleeding, postpartum white blood cell counts, and postpartum fever during the three-day postdelivery hospitalization.

All patients were followed for six weeks. Five of 185 patients (2.7 percent) in the explored group returned for postpartum bleeding complications, one requiring hospital admission. Three of 135 (2.2 percent) returned for postpartum bleeding in the unexplored group, none requiring hospital admission. No patients in either group had complications with postpartum endometritis in the follow-up period. The patient's perception of pain was significantly higher in the explored and curettaged group as opposed to the unexplored group ($P < .0002$).

This study reveals that routine elective postpartum manual exploration and sponge curettage of the uterus is a painful procedure that is not clinically indicated for reducing the potential risk of postpartum hemorrhage or endometritis and is unnecessary following routine vaginal delivery.

Postpartum uterine exploration and manual sponge curettage is a routine procedure practiced by many physicians. This procedure is not universally performed, however, and some physicians question its utility. The literature justifying routine exploration and sponge curettage is relatively scant, primarily retrospective, and poorly controlled. Most studies reported¹ were done between 1950 and 1960 and were performed to prove the safety of exploration and sponge curettage of the postpartum uterus. These studies demonstrated the relative safety of this procedure, but failed to support this procedure's usefulness in clinically decreasing the incidence of postpartum hemorrhage and infection. Additionally, there have been no

studies that have considered the physician's or patient's subjective perception of pain associated with this procedure. It is amid this controversy over the value of elective postpartum exploration and sponge curettage that this study emerged. The study's aim was to answer the following four questions:

1. Does elective uterine exploration and sponge curettage affect the incidence of immediate and late postpartum hemorrhage?
2. Does elective uterine exploration and sponge curettage affect the incidence of postpartum endometritis?
3. What is the physician's and patient's perception of pain induced by uterine exploration and sponge curettage?
4. Is this procedure a necessary part of modern obstetrics?

METHODS

Martin Army Community Hospital (MACH) is a 345-bed teaching hospital serving the active-duty, retired, and de-

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pendent military population of approximately 100,000 people at Fort Benning, Georgia. The study population consisted of women (aged 16 to 38 years) at term (38 to 42 weeks' gestation), who delivered with membranes ruptured less than 24 hours, with vertex presentation, and with an uneventful spontaneous vaginal delivery. Women who delivered with the assistance of vacuum extraction, forceps, or oxytocin augmentation were excluded from this study. Other exclusion criteria included third- and fourth-degree perineal lacerations, cervical lacerations, multiple gestation, vaginal birth after cesarean section, and epidural anesthesia. Patients with preeclampsia, fever, the use of antibiotics during labor, or having diabetes mellitus of any type were disqualified from the study. Additionally, any woman who had an indication for postpartum exploration (adherent or retained placenta, atonic uterus) or who underwent postpartum tubal ligation was excluded from the study.

This study population, therefore, consisted of women who had normal spontaneous vaginal deliveries as rigorously defined to help eliminate possible confounding variables that might influence postpartum hemorrhage and fever and thus make it difficult to assess the impact of elective exploration and sponge curettage alone.

The study was conducted from July 14, 1986, to May 11, 1987. The patients were attended by residents and staff of the Family Practice Department and by staff members of the Obstetrical Department. Whether each patient had exploration and sponge curettage performed was based solely on the practicing habits of the delivering physicians.

In this institution routine vaginal delivery consists of the following sequence of events:

The perineum is surgically scrubbed with a povidone-iodine preparation, and the patient is draped with sterile disposable sheets in the lithotomy position in the delivery room. Local anesthetic in the perineal midline or a pudendal block is performed with 1 percent lidocaine. The infant is then delivered with or without episiotomy. The placenta is delivered spontaneously and inspected, and oxytocin is administered (20 units in 1,000 mL of intravenous fluid). If it is the delivering physician's preference to explore the uterus, this procedure is then performed, without glove change, by the placement of the entire hand into the uterus. Some physicians prefer to use a povidone-iodine moistened gauze sponge when performing their exploration and sponge curettage, while others do not. Systematic examination of the anterior wall, fundus, and posterior wall is then performed prior to hand removal. The cervix and vagina are then inspected for lacerations and the episiotomy, if performed, is then repaired.

Immediately following delivery, all physicians completed a questionnaire on the performance or nonperformance of uterine exploration and sponge curettage and

TABLE 1. OBSTETRIC CHARACTERISTICS OF STUDY PATIENTS

Characteristics	Explored	Unexplored	P Value
Number of patients	185	135	NS
Mean age (yr)	23.7	23.9	NS
Primiparas (%)	48.30	40.60	NS
Multiparas (%)	51.60	59.30	NS
Mean parity	1.78	1.87	NS

NS—not significant

what their findings were, if any. Additionally, they rated on a Likert scale the degree of discomfort they believed the patient experienced during the procedure from 1 (minimal pain) to 5 (severe pain) if exploration was performed.

To quantitate blood loss and white blood cell count, all patients had complete blood counts (CBC) determined at admission to Labor and Delivery, in the recovery room, and at discharge on the third postpartum day. Additionally, all temperatures were recorded according to nursing protocol, and postpartum care was given in the usual fashion. On the day of discharge all patients in the study were given a patient questionnaire that included several questions about labor, delivery, and immediate postpartum events. Among these questions were several asking the patient to rate the experience from 1 (minimal pain) to 5 (severe pain) of delivery and of the ensuing uterine exploration and curettage, if that procedure had been performed. All patients were followed up in the ensuing six weeks by telephone call or review of hospital records to determine whether any complications developed, such as postpartum hemorrhage or endometritis, requiring further care.

Statistical analysis was performed by using chi-square analysis and the Student's two-tailed *t* test for independent samples.

RESULTS

Three hundred twenty uncomplicated routine vaginal deliveries were included in this study; 185 patients underwent manual exploration and sponge curettage, and 135 did not. The obstetric characteristics of this study population are listed in Table 1. The two study groups were similar with respect to age, but the unexplored group had a slightly higher number of multiparous patients. There were no statistically significant differences between these two groups.

The mean admission and discharge hemoglobin level, hematocrit level, and white blood cell count, as well as

TABLE 2. SUMMARY OF MEAN LABORATORY VALUES AND TEMPERATURE OF STUDY PARTICIPANTS

Values	Explored	Unexplored	P Values
Hemoglobin			
Admission	124.7 g/L	123.4 g/L	NS
Discharge	114.8 g/L	113.2 g/L	NS
Difference	9.9 g/L	10.2 g/L	NS
Hematocrit			
Admission	0.37	0.36	NS
Discharge	0.34	0.33	NS
Difference	0.03	0.03	NS
White blood cell count			
Admission	12.71 × 10 ⁹ /L	12.04 × 10 ⁹ /L	NS
Discharge	11.08 × 10 ⁹ /L	10.71 × 10 ⁹ /L	NS
Difference	1.63 × 10 ⁹ /L	1.33 × 10 ⁹ /L	NS
Temperature (°F)	98.09	98.08	NS

NS—not significant

TABLE 3. PERCENTAGE OF PATIENTS WITH SIGNIFICANT CHANGES

	Explored	Unexplored	P Values
Hemoglobin change > 20 g/L (admission-discharge)	21.90	27.60	NS
Hematocrit change > 6% (admission-discharge)	16.60	25.90	NS
White blood cell count elevation > 3.0 × 10 ⁹ /L (admission-discharge)	7.70	6.40	NS
Temperature > 99.6°F (at least one time in hospital)	13.40	13.20	NS

NS—not significant

the mean changes from admission to discharge in these values are displayed in Table 2. Also included in this table are the mean temperatures of these patients. All of these values showed no statistical significance ($P > .05$). To gain better insight into possible differences between the explored and unexplored groups, several different measurements were additionally studied, as demonstrated in Table 3. Thus, data support the impression that women who were unexplored had a tendency to bleed somewhat more than women who were explored and sponge curettaged. This difference, however, was not statistically significant ($P > .05$). There was no statistically significant difference in white blood cell count elevations and significant temperature elevations between the two groups.

Discomfort as perceived by the patient and the physician both immediately after delivery and during the overall delivery process is depicted in Figure 1. These values re-

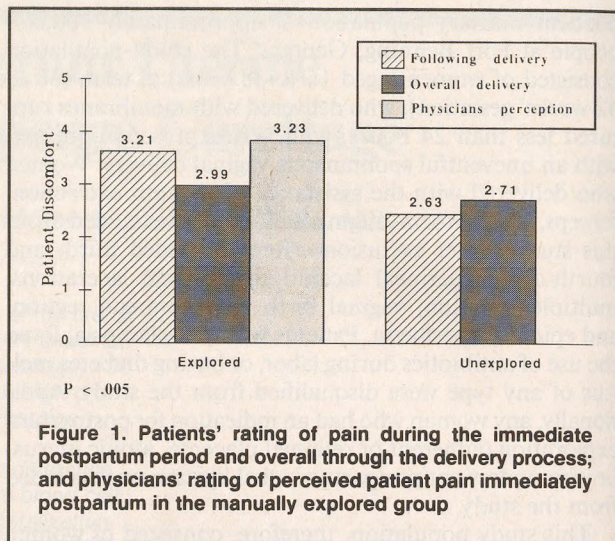


Figure 1. Patients' rating of pain during the immediate postpartum period and overall through the delivery process; and physicians' rating of perceived patient pain immediately postpartum in the manually explored group

flect that the physicians' and patients' ratings of pain during the immediate postpartum period in the explored group were very similar (3.21 and 3.23, respectively) and demonstrate that women undergoing intrauterine exploration and sponge curettage describe greater pain during the postpartum period than women who do not have this procedure (3.21 and 2.63, respectively) ($P < .005$).

All patients were subsequently followed for six weeks. During this postpartum period five of 185 patients (2.7 percent) in the explored group returned to be seen for postpartum bleeding complications, and one required hospital admission. Three of 135 patients (2.2 percent) returned for postpartum bleeding in the unexplored group. None of these patients required admission. No patients in either group had complications of postpartum endometritis in the six-week period after delivery.

DISCUSSION

A review of the existing literature on postpartum uterine exploration and sponge curettage is of interest. Most of the studies¹⁻⁵ were done in the 1950s or 1960s^{6,7} and were done primarily to show that exploration and curettage of the "sterile" uterus was a safe procedure. These studies¹⁻⁹ arrived at similar conclusions, well elaborated by Hawkins,³ who stated that routine exploration of the uterus (1) reduces the number of patients who return to the hospital for bleeding from retained placenta, (2) affords better pelvic examination motion, (3) does not appreciably increase morbidity, and (4) appears safe for all physicians to use. Additionally, Thierstein et al⁴ in their study of 3,000 consecutive patients undergoing routine third-stage

uterine exploration as compared with 1,000 patients without exploration concluded that (1) postpartum morbidity was higher in the nonexplored group, (2) blood loss was less in the explored group, (3) morbidity in the explored group was reduced because of removal of all placental tissue which could later become necrotic and harbor infection, (4) blood loss was decreased by exploration and internal massage, creating improved muscle tone in the uterus, (5) uterine pathology (fibroids, rupture, septae) are found by uterine exploration, and (6) the advantages of third-stage uterine exploration outweigh the disadvantages, and that this procedure will eventually be essential to good obstetrics.

Unfortunately, these early studies were done retrospectively without proper control for possible confounding variables and failed to demonstrate the clinical efficacy of routine exploration because of deficiencies in experimental design or statistical analysis of results.⁹ Blanchette,⁹ who in a prospective study done in 1977 compared 100 patients who had elective exploration with 100 patients who did not, found less febrile morbidity and blood loss in the manually explored group. This difference, however, was not statistically significant, and he concluded this procedure was at least a safe procedure. He did not question whether it was necessary, however. The only study to date that has questioned the need for exploration and sponge curettage was done by Packin¹⁰ in 1975. In his study 115 women underwent intrauterine exploration and sponge curettage compared with 96 women who did not. He found no significant difference in postpartum bleeding or major complications and believed the procedure need not be employed routinely. No further studies on this topic have been done in America since 1977.

Whether to perform routine postpartum uterine exploration and sponge curettage has become controversial over the last ten years. In the *Standards of Obstetric and Gynecologic Services*, produced by the American College of Obstetricians and Gynecologists,¹¹ postpartum uterine exploration or sponge curettage is not mentioned as a procedure that should or should not be performed.

This study of 320 uncomplicated routine vaginal deliveries, unlike all but one study done previously, demonstrates that there is no statistical or clinical difference in outcome between patients who undergo intrauterine exploration and sponge curettage and those who do not. In clinically similar groups and eliminating confounding variables, the amount of blood loss as measured by the difference between admission and discharge hemoglobin and hematocrit values was not statistically or clinically significant. The data demonstrate that women who had exploration and sponge curettage did bleed somewhat less than the unexplored group, but this difference in amount of bleeding was not statistically significant. Similarly, there were no statistical differences between the explored and unexplored group in regard to changes in white blood cell counts, fever, and subsequent development of endome-

tritis. Additionally, follow-up through the six-week postpartum period did not reveal substantial differences between the two groups in relation to postpartum hemorrhage, and no case of postpartum endometritis developed in either group.

This study demonstrates that the performance of endometrial exploration and curettage is a painful procedure when practiced under pudendal or midline anesthesia and that the perception of postpartum discomfort in general is higher in women who underwent exploration and sponge curettage than those who did not.

Seventeen of 185 patients (9 percent) who underwent exploration were found to have retained membranes or placental fragments in this study. This finding compares with the incidence of retained membranes and placental fragments in other studies that range from 3.9 percent to 8.3 percent.^{2,4,6,8} In the older studies¹⁻⁵ these retained membranes were felt to be causative, in part, of both postpartum hemorrhage and potential postpartum endometritis. There is no proof, however, that removal of this membranous material will decrease the risk of delayed hemorrhage due to subinvolution.¹⁰ Some authors have proposed that this material may actually promote regeneration of the endometrium.¹ Finding fragments of membrane is not uncommon. Finding unsuspected fragments of placenta, however, is less common, and routine inspection of the delivered placenta will usually indicate whether the placenta is intact. There have been no cases of documented hemorrhage or infection merely from the retention of fragments of membrane.⁷ Surprisingly, in this study, a succenturiate lobe of a placenta was found during one routine exploration, and one was passed spontaneously in a woman who was unexplored. It is difficult to know whether this retained succenturiate lobe of the placenta would have led to bleeding or infection in this woman. Certainly in the case of the unexplored woman it passed spontaneously without complication.

As with many of the prior studies, this one also is relatively small, which makes it difficult to make sweeping conclusions concerning the results. This study also has potential biases in asking physicians to rate the pain of exploration. In addition, those patients who were explored were, for the most part, explored by less experienced physicians (interns or residents) under the request and supervision of the obstetric staff. Those women who were unexplored were largely cared for by staff family physicians. The continuity of the antenatal care may have influenced the patient's perception of pain, both overall and in the immediate postpartum period.

CONCLUSIONS

The data in this study support that there are no clinically or statistically significant differences in postpartum hemorrhage or endometritis in women who do or do not undergo uterine exploration and sponge curettage. Addi-

tionally, the performance of exploration and sponge curettage is painful to the recent parturient and adds nothing to her eventual outcome. This examination would often be performed just as the mother was getting ready to bond with her newborn and would often interfere with this important process. Previous studies have documented that the postpartum uterus can be safely explored and curettaged, although painfully, with little fear of complication. Data supported by this paper, however, demonstrate that the lack of routine exploration and sponge curettage will not lead to increased postpartum complications. Therefore, postpartum uterine exploration and sponge curettage should be a procedure that all physicians who practice obstetrics have in their armamentarium, and know how to do when it is judged to be necessary. It is not, however, a procedure that needs to be done routinely following uncomplicated spontaneous vaginal delivery.

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