

optimal study or for a weak clinician to be able to support shoddy patient care methods with a casually arranged string of anecdotes. However, neither of these extremes should be regarded as the optimal method for training students and residents.

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*In reply:*

Elkins and his colleagues apparently misunderstood both my essay and the thrust of evidence-based medicine. Evidence-based medicine does not ignore everything but RCTs. Instead, it provides a framework for evaluating and incorporating evidence into practice. Nowhere did I state or even suggest that "evidence" is limited to results of RCTs, nor did I indicate that other types of studies (eg, class II and III evidence) are without merit. In Table 1, I displayed the U.S. Preventive Services Task Force rating system for evaluating evidence, including case reports, consensus conferences, and analytic studies.

The old, autocratic paradigm has outlived its usefulness.<sup>1</sup> The "system" referred to by Elkins and colleagues has a spotty record: "Our graduates come away possessed of a curious paradox: they are heavy with data and formulations that are the outputs of scientific effort but are themselves inadequately scientific in the rigorousness of their thinking, in the degree to which they have internalized the scientific method as a way of looking at things."<sup>2</sup> Moreover, they are unable to evaluate new technologies and procedures as they evolve.<sup>3,4</sup>

The "system" taught us to use total colectomy to treat epilepsy, renal capsule stripping to treat acute tubular necrosis, gastric freezing for ulcers, severe weight restriction to prevent preeclampsia, bloodletting to treat eclampsia, and measurement of urinary estriol excretion to monitor fetal well-being. All these technologies overgrazed on the "medical commons" too long because we physicians based our practice on recommendations of authorities rather than on scientific evidence.<sup>2,4</sup>

Evidence-based medicine is revolutionizing practice around the world. In North America, evidence-based guidelines from the Canadian Task Force on the Periodic Health Examination, the U.S. Preventive Services

Task Force, and the American College of Physicians have had a profound impact. Indeed, ACOG is now using the U.S. Preventive Services Task Force method to develop evidence-based practice guidelines (ACOG Practice Patterns. *Vaginal Birth After Previous Cesarean Birth*, no. 1, August 1995).

To suggest that more experienced clinicians are inherently better able to understand science strikes me as elitist. As I noted in my essay, science abhors authoritarianism (and has little use for age discrimination). With increased age, we tend to expect increased wisdom; sometimes, however, the years bring only a narrowing of the vision and a hardening of the arteries.

Perhaps most puzzling is the suggestion of Elkins and colleagues that I attempted to define "compassion" in the final paragraph of my essay. I did not. On the other hand, I did use the term several times to emphasize its importance. The notion that medical practice should be both scientific and compassionate can be unsettling to some; it is, however, a worthy goal.

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## VESICOUTERINE FISTULA: A RARE COMPLICATION OF VAGINAL BIRTH AFTER CESAREAN

*To the Editor:*

Miklos et al<sup>1</sup> recently described the occurrence of a vesicovaginal fistula during a trial of labor after cesarean. We believe that this complication could have been avoided altogether by the timely performance of a

repeat cesarean. It is disturbing to find that the only conclusions the authors have drawn from this case report are that "vesicouterine fistula can occur as a complication of vaginal delivery in patients with a history of cesarean delivery," this is only the second reported case of such a finding, and its cause "remains a matter of speculation."<sup>1</sup>

An elective labor induction was initiated despite an unfavorable cervix, a uterine scar, a 4600-g 41-week fetus, and a history of previous dysfunctional labor with a 3600-g infant. Then, thick meconium at early amniotomy was temporized by amnioinfusion, despite the additional pressure it might have imposed upon a uterus already stressed by scarring, macrosomia, and oxytocin. Cesarean delivery at this juncture probably would have been the wisest course. However, the authors dismissed ominous signals of uterine rupture (acute fetal bradycardia and massive hematuria<sup>2</sup>) and chose forceps over immediate laparotomy, risking shoulder dystocia, further maternal genitourinary trauma, and hemorrhage. Also, the source of massive hematuria in the presence of a "3-cm anterior lower uterine wall defect"<sup>1</sup> was not investigated for 9 days. An immediate postpartum assessment of lower urinary tract status initiated by intravesical methylene blue would have detected a posterior cystotomy.<sup>2</sup> Finally, a 4 × 2-cm traumatic bladder wall defect in direct proximity to the bacteria-rich meconium and lochia-filled postpartum uterine defect was managed initially by simple drainage in the hope of spontaneous closure. Although smaller, cleaner surgical cystotomies may close spontaneously, the nature of this specific injury dictates a prompt surgical repair precisely to decrease the possibility of vesicouterine fistula formation.<sup>3,4</sup>

A critical review of this case suggests that improper patient selection and stubborn commitment to vaginal delivery after previous cesarean are as likely to generate "rare complications" in developed countries as in developing ones.

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## In reply:

As mentioned in the manuscript, we did not participate in this patient's obstetric care. We accepted her as a referral approximately 14 days after delivery.

Drs. Pelosi are critical of the management of this patient as well as the conclusions drawn. However, none of the mentioned conditions (unfavorable cervix, uterine scar, 4600-g infant, 41-week fetus, or history of previous dysfunctional labor) are contradictions to an elective labor induction after a previous cesarean. According to the most recent ACOG guidelines,<sup>1</sup> there are insufficient data evaluating the safety of a trial of labor for women with an infant greater than 4000 g and a previous cesarean. Nguyen et al<sup>2</sup> reported similar vaginal delivery rates in women who delivered infants with birth weights greater than 4000 g (73%) and less than 4000 g (76%). There was also no significant difference in the morbidity between the two groups. With the exception of mild variable decelerations that subsided with an amnioinfusion and an episode of bradycardia that prompted forceps delivery, this patient's labor was uneventful. A review of her labor record revealed complete cervical dilation 6 hours after entering active labor. Polyhydramnios, fetal macrosomia, and twin gestation are three conditions in which the uterus is distended to a greater degree than it is in an uncomplicated singleton gestation. In these situations, trial labor has not shown an increase in the risk of uterine scar rupture. Therefore, the relatively small volumes of fluid used during most amnioinfusion should not compromise low segment, transverse uterine scars.<sup>3</sup> We agree that ominous signals of uterine rupture or dehiscence were present; however, the obstetrician chose to facilitate delivery with forceps, which resulted in a healthy, viable fetus. With an intact bladder and uterus, transient hematuria during labor and delivery is not uncommon. The patient subsequently contacted her obstetrician on her ninth postpartum day complaining of urinary incontinence.

Regarding management of the fistula, there have been documented cases of spontaneous closure of vesicouterine fistula and the literature<sup>4</sup> discourages early surgical intervention. Given the patient's postpartum

state, tissue vascularity, inflammation and necrosis, and the low morbidity associated with an indwelling Foley catheter, we chose continuous bladder drainage as our initial form of therapy.

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# VESICOUTERINE FISTULA: A RARE COMPLICATION OF VAGINAL BIRTH AFTER CESAREAN

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**Background:** Vesicouterine fistula is rare. We report a vesicouterine fistula that was the direct result of a vaginal delivery in a patient with a history of lower uterine segment cesarean delivery.

**Case:** A woman developed a vesicouterine fistula during vaginal delivery after a previous cesarean. An anterior uterine wall defect was noted immediately after the delivery. Continuous bladder drainage was unsuccessful in managing her fistula, and surgical correction was necessary.

**Conclusion:** Although rare, a vesicouterine fistula can occur as a complication of vaginal delivery in patients with a history of cesarean delivery. (*Obstet Gynecol* 1995;86:638-9)

Since 1908, there have been fewer than 200 cases of vesicouterine fistulas reported in the literature.<sup>1</sup> Although the reported causes of these fistulas are diverse, the majority resulted from surgical trauma during a lower segment cesarean delivery.<sup>2</sup> There is one previously published report<sup>3</sup> from Europe in which a vesicouterine fistula occurred spontaneously as a complication of vaginal birth after cesarean.

## Case Report

A 26-year-old white woman, gravida 2, para 1, with a gestational age of 41 weeks and 1 day, presented to the labor and delivery suite for labor induction. Her family and medical histories were unremarkable; her surgical history revealed an uncomplicated cesarean delivery for failure to progress 3 years earlier, which produced a 3600-g infant. The patient denied a history of gynecologic, genitourinary, or gastrointestinal problems.

Labor was induced by two applications of prostaglandin gel and intravenous (IV) oxytocin, with no major complications. Intermittent, mild, variable decelerations were noted on the fetal heart rate monitor during labor, and thick meconium was present at amniotomy. Amnioinfusion was performed, and the variable decelerations resolved. The first stage of labor progressed uneventfully; however, during the second stage, an episode of bradycardia occurred and the 4600-g infant was delivered with low forceps. Apgar scores were 9 and 9 at 1 and

5 minutes, respectively. Before the application of forceps, bladder catheterization produced 200 mL of grossly bloody urine. The intact placenta was delivered spontaneously without complications. The uterine cavity was explored gently, and a 3-cm anterior lower uterine wall defect was identified. A Foley catheter was inserted, and the hematuria was cleared over the next 12 hours. The catheter was removed before the patient was discharged. On the ninth postpartum day, the patient complained of continuous urine leakage. A Foley catheter was inserted, and the patient was referred to the urogynecology unit for evaluation.

Urine was seen coming from the cervix with coughing. Cystoscopy revealed a 4 × 2-cm defect in the posterior bladder wall above the trigone. An IV pyelogram confirmed bilateral ureteral patency. In an attempt to allow spontaneous closure of the fistula,<sup>2</sup> the bladder was drained with a Foley catheter over the next 4 weeks. A second cystoscopy revealed a bladder defect measuring 2 × 1 cm. Because the fistulous tract did not close spontaneously, the patient was scheduled for surgery. She wished to maintain her fertility. At laparotomy, the bladder was separated from the uterus with sharp dissection. The uterus was closed in two layers using a running suture of 2-0 Vicryl (Ethicon, Cincinnati, OH). After the excision of the fistulous tract, the bladder was closed in two layers using a 3-0 chromic suture. The operation was completed by interposing an omental graft between the bladder and uterus. The bladder was drained with a Foley catheter for 14 days, after which time cystoscopy revealed a well-healed bladder mucosa.

## Discussion

Vesicouterine fistula is a rare entity, accounting for approximately 4% of all urogenital fistulas.<sup>4</sup> The most common predisposing event associated with a vesicouterine fistula in developed countries is a previous lower segment cesarean delivery.<sup>2,3</sup> This is only the second reported case of such a fistula occurring during vaginal birth after cesarean delivery.

It could be argued that the vesicouterine fistula we encountered may not have been caused by the trauma of labor, but instead by either the placement of an intrauterine pressure catheter, the operative delivery, or transcervical palpation of the uterine scar. Whether it was caused directly or indirectly remains a matter of speculation. Uterine rupture can occur at any stage of labor and, theoretically, a bladder injury could occur simultaneously at the site of severe bladder adherence.

Increases in both the cost and rate of cesarean deliveries have led many institutions to mandate a trial of labor for most patients with a history of lower segment cesarean delivery. Vaginal birth after cesarean is generally regarded as safe and has lower maternal and perinatal mortality rates than repeat cesarean delivery. Although vesicouterine fistula formation is a rare complication of vaginal birth after cesarean, it should be

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presented during the consenting process as a potential risk and be considered in the differential diagnosis of postpartum urinary incontinence.

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## RECURRENT CHORIOAMNIONITIS AND SECOND-TRIMESTER ABORTION BECAUSE OF AN ENTEROUTERINE FISTULA

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**Background:** Chorioamnionitis, a common cause of second-trimester abortion, is usually secondary to an ascending infection. Recurrent chorioamnionitis with second-trimester abortion secondary to an occult enterouterine fistula has not been reported previously.

**Case:** A 26-year-old Indian woman, para 0-0-2-0, presented with two spontaneous second-trimester losses. Her third pregnancy carried to 24 weeks, but she delivered after the development of pneumonia, bacteremia, preterm labor, and chorioamnionitis. The patient passed melena containing blood clots after the delivery. After the last pregnancy, laparoscopy and laparotomy revealed an ileal-uterine fistula and a foreign body (necrotic cartilage). The blind loop of bowel was resected and the fistulous tract excised.

**Conclusion:** Our patient's recurrent pregnancy wastage was caused by chorioamnionitis secondary to an enterouterine fistula resulting from foreign body ingestion. A complete reversal of this problem is anticipated. (*Obstet Gynecol* 1995;86:639-41)

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Chorioamnionitis, a common cause of second-trimester abortion, is most often the result of ascending infection. We report a patient with recurrent chorioamnionitis, bacteremia, and second-trimester abortion because of an otherwise occult enterouterine fistula. In the absence of a history of uterine instrumentation, the apparent cause of this fistula was inadvertent ingestion of a piece of cartilage.

### Case Report

A 26-year-old Indian woman, para 0-0-2-0, with a history of two second-trimester pregnancy losses associated with chorioamnionitis and bacteremia, was referred at 12 weeks' gestation for consultation. The patient was in good health until her first pregnancy. At 18 weeks' gestation, she developed abdominal pain followed by malaise, fever, and chills; she spontaneously aborted. Blood cultures grew *Escherichia coli* and placental pathology showed acute inflammation. During her postpartum course, she had acute renal failure requiring hemodialysis. She was treated in the intensive care unit and recovered completely.

The patient was asymptomatic until she conceived a second time. At 19 weeks' gestation, she again developed abdominal pain, malaise, fever, and chills, and had a second spontaneous abortion. Blood cultures grew *E coli*, and placental pathology showed acute chorioamnionitis.

When the patient became pregnant a third time, she was referred for consultation. Aside from her previous second-trimester pregnancy losses, her past medical history was notable only for a positive tuberculin skin test with a normal chest x-ray 1 year earlier, for which she had taken isoniazid for 6 months. Her physical examination was normal.

At 24 weeks' gestation, the patient developed abdominal pain, a temperature of 103F, chills, dyspnea, and pleuritic chest pain. A chest x-ray revealed a right lower-lobe pulmonary infiltrate. Blood cultures grew gram-negative rods and gram-negative cocci later identified as *E coli* and *Bacteroides*