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Delayed Leiomyoma Degeneration After Microwave Endometrial Ablation

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BACKGROUND: Microwave endometrial ablation is an effective treatment for dysfunctional uterine bleeding. Patients with leiomyomata, including submucosal leiomyomata up to 3 cm, may also be treated with microwave endometrial ablation.

CASES: A 46-year-old woman with multiple leiomyomata and menometrorrhagia underwent microwave endometrial ablation. Two months after microwave endometrial ablation, she developed signs of peritoneal irritation. A negative laparoscopy excluded a thermal bowel injury. Imaging and clinical examination ultimately determined that her symptoms were due to leiomyoma degeneration. A 38-year-old woman with menometrorrhagia and leiomyomata underwent microwave endometrial ablation. Fifteen days after microwave endometrial ablation, she developed signs of peritoneal irritation. With a presumptive clinical diagnosis of microwave endometrial ablation degeneration, the patient was expectantly managed with pain medications and observation.

CONCLUSION: Fibroid degeneration may have a delayed presentation after microwave endometrial ablation. Thermal bowel injury must be excluded in a patient presenting with signs of peritoneal irritation after microwave ablation of the endometrium before diagnosing leiomyoma degeneration, which can be managed expectantly.

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Microwave endometrial ablation has been found to be an effective treatment for dysfunctional uterine bleeding.[1] Compared with first-generation endometrial ablative procedures, such as transcervical resection, microwave endometrial ablation is quicker and easier to perform.[2,3] Although other first- and second-generation endometrial ablation procedures exclude many patients with uterine leiomyomata, most patients with leiomyoma are candidates for microwave endometrial ablation, except those with submucosal leiomyomata greater than 3 cm. We present 2 patients who developed signs of peritoneal irritation because of delayed onset of leiomyoma degeneration after microwave endometrial ablation.

CASE 1

A 46-year-old woman with menometrorrhagia and multiple uterine leiomyomata (all < 3 cm) underwent a microwave endometrial ablation. Her preoperative evaluation included an endometrial biopsy and a pelvic ultrasound examination, which demonstrated the myometrial wall to be thicker than 10 mm in all areas. In the operating room, hysteroscopy demonstrated no areas of perforation after cervical dilation to 9 mm. The microwave applicator (Microsulis Medical, Waterlooville, Hampshire, UK) was inserted into the uterine cavity. The length of the applicator used to reach the uterine fundus matched the previously measured cavity length. The microwave applicator then treated the endometrial cavity with microwave energy, starting with the fundus, then the cornua, then the lower corpus, moving slowly back and forth in a coronal plane. Information on a computer screen regarding a treatment temperature band guided the speed of the procedure. The patient was discharged home with a prescription for ibuprofen 600 mg every 6 hours as needed.

Two months after the ablation procedure, the patient presented to the emergency room with complaints of increasing abdominal pain, nausea, and vomiting for 2 days. She denied vaginal bleeding or discharge. In the emergency room, she was afebrile and hemodynamically stable but in significant discomfort. She displayed rebound and guarding on abdominal examination. Her right adnexa and uterus were tender to palpation. All laboratory tests, including a white blood cell count, were within normal limits. Radiography of the abdomen showed no free air.

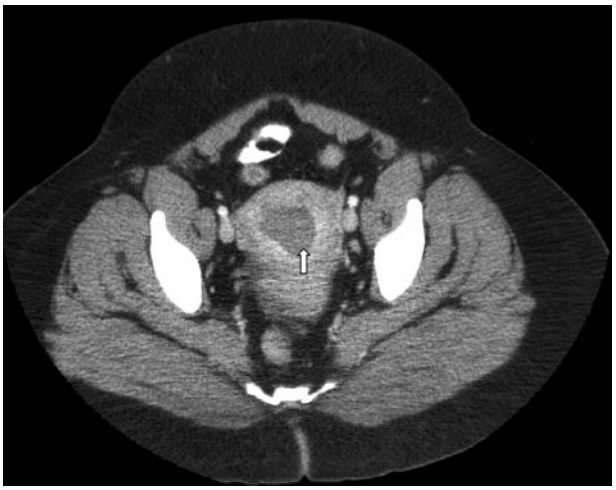

Fig. 1. CT image revealing a degenerating leiomyoma (arrow) seen as a hypodense area within the uterus, several weeks following microwave endometrial ablation.
Goldberg. Leiomyoma Degeneration. Obstet Gynecol 2005.

Computed tomography (CT) images of the abdomen and pelvis revealed a prominent midline hypodense structure in the pelvis, with a slightly enhancing rim and a low-density center, possibly representing a degenerating leiomyoma (Fig. 1).

Although leiomyoma degeneration was our suspected diagnosis, given the possibility of a delayed thermal bowel injury, the patient was taken to the operating room for a laparoscopy and hysteroscopy. The bowel appeared healthy, with no compromised areas. The uterus was enlarged, with a blanched appearance on the anterior uterine serosa in a T-shape, consistent with the prior ablation area. Hysteroscopy revealed the endometrial cavity to be normal in appearance. Given the lack of other findings, the patient's peritoneal symptoms were attributed to the degenerating leiomyoma visualized on the CT scan.

After pain relief from nonsteroidal anti-inflammatory medications, the patient was discharged home the next day. At a 4-week follow-up visit, she remained symptom free.

CASE 2

A 38-year-old woman with menometrorrhagia and uterine leiomyomata underwent microwave endometrial ablation with the same preoperative evaluation and surgical technique described above. A pelvic ultrasound examination described several intramural leiomyomata, all less than 3 cm.

After initially experiencing no postprocedure pain, on postoperative day 15 she developed increasingly severe cramping and pain, which led her to be evaluated in an emergency room. Similar to case 1, she had diffuse abdominal and uterine tenderness, along with rebound and guarding on physical examination. She was afebrile, with a normal white blood cell count. There were no specific findings on pelvic ultrasound examination or abdominal/pelvic CT scan. With a presumptive clinical diagnosis of leiomyoma degeneration, the patient was expectantly managed with nonsteroidal anti-inflammatory medications and observation. After several days her symptoms completely resolved.

COMMENT

With microwave endometrial ablation, cell destruction occurs to a depth of 6 mm, effectively destroying the basalis layer, minimizing the chance of regrowth of the endometrium. Targeted tissues are heated by microwaves to 70–80°C during the procedure. The advantages of microwave endometrial ablation, compared with other ablative techniques, are that it is safe, rapid, and simple to use.[2] Additionally, it may also be used on patients with distorted uterine cavities due to leiomyomata, including submucosal leiomyomata that are less than 3 cm in diameter.

In a randomized controlled trial comparing outcomes after transcervical endometrial resection and microwave endometrial ablation, there were few treatment failures and needs for hysterectomy in both groups that were followed postprocedure for 2 years. The effects on dysmenorrhea, amenorrhea, and menstrual flow were not statistically different between the 2 groups. A small number of women required diagnostic laparoscopy because of pelvic pain after both treatment methods, but information about these women was not included in the paper.[1]

Both of our patients were relatively asymptomatic after their microwave endometrial ablation procedures until their acute onsets, 2 weeks and 2 months postoperatively, of abdominal and uterine pain, most likely caused by leiomyoma degeneration. Although both displayed peritoneal signs, neither was febrile nor had an elevated white blood cell count. A clinical decision was made to perform a diagnostic laparoscopy in case 1 to rule out a thermal bowel injury. The patient in case 2 was merely observed, with this decision being made at a different institution. Both patients' pain soon resolved without further incident.

Leiomyoma degeneration may be caused by an interruption of its blood supply causing ischemia. Theoretically, the thermal effects of the microwave endometrial ablation procedure may have compromised the vascular web surrounding a leiomyoma, ultimately leading to its delayed degenerative changes. Although leiomyoma degeneration is a known cause peritoneal irritation, it is normally a diagnosis of exclusion.[4] In situations such as those experienced by these 2 patients after microwave endometrial ablation, it is crucial to initially exclude a thermal bowel injury. If the evaluation is negative and

the patient is diagnosed with leiomyoma degeneration, expectant management will typically suffice.

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Twin Pregnancy Complicated by Severe Hemolytic Disease of the Fetus and Newborn Due to Anti-G and Anti-C

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BACKGROUND: Hemolytic disease of the fetus and newborn caused by anti-G antibodies is rare, and in most previously reported cases, leads to a mild anemia. The RhG antigen is usually found in association with both RhD and RhC. We report a case of a twin pregnancy affected by both anti-G and anti-C alloantibodies leading to severe hemolytic disease of the fetus and newborn requiring multiple intrauterine transfusions and prolonged postnatal therapy.

CASE: A patient with a prolonged history of previously affected pregnancies due to anti-D and anti-C was subsequently found to be affected with anti-G instead. She required aggressive therapy during her pregnancy, initially with intravenous immune globulin and plasmapheresis until umbilical blood sampling and intrauterine transfusions were feasible.

CONCLUSION: Although hemolytic disease of the fetus and newborn due to anti-G antibodies is rare and usually mild, these pregnancies should be followed up closely and in utero therapy should be offered if necessary.

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See related case report on page 1180.

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Severe red cell alloimmunization due to documented antibodies produced in response to the RhG red cell antigen is rare. There are few case reports of anti-G in pregnancy causing significant hemolytic disease of the fetus and newborn. This may in part be due to the difficulty in distinguishing anti-G antibodies from a combination of anti-D and -C antibodies.[1] Most red cells that express the RhD or RhC antigen or both also express the RhG antigen.[2] To accurately distinguish between anti-G antibodies and anti-D and -C antibodies, the blood bank must perform a separate elution assay with maternal serum against indicator red cells negative for the RhD and RhC antigens but positive for the RhG antigen.

In this case report we present a woman who was initially thought to have produced anti-D and -C antibodies but was found to have anti-C and -G antibodies. The implications for the management of such a pregnancy are discussed.

CASE

The patient was a 34-year-old gravida 7 para 2–0–4–2 who presented for management of her twin pregnancy complicated by red cell alloimmunization thought to be due to anti-D and anti-C. She was sensitized during her first pregnancy, an ectopic gestation for which she did not receive Rhesus immune globulin (RhIG). Her subsequent pregnancies included 2 additional ectopic pregnancies and the delivery of 2 term infants with no evidence of active hemolytic disease of the fetus and newborn. In her sixth pregnancy a presumed anti-D titer of 1,024 was associated with hydrops fetalis and an intrauterine demise at 21 weeks of gestation.

Parental phenotypes were determined using serologic methods. The maternal red cell phenotype was A, Rh dce/dce; the paternal phenotype was O, Rh DCe/Dce. She was referred to our institution for therapy at 12 weeks and had ultrasonography that revealed viable diamniotic, dichorionic twins. The first antibody screen done at our institution returned with an anti-G antibody at a titer of 512. An anti-C antibody was present at a titer of 1,024 and here was no evidence of an anti-D.

As she had experienced an early second trimester perinatal loss secondary to hydrops, intravenous immunoglobulin