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Successful Pregnancies After Removal of Intratubal Microinserts

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BACKGROUND: Patients with intratubal microinsert sterilization later may request reversal.

CASE: Each patient underwent mini-laparotomy and removal of intratubal microinserts. One patient underwent unilateral tubotubal anastomosis and unilateral tubouterine implantation through a cornual uterine incision. The other patient underwent bilateral tubouterine implantation through a posterior transfundal uterine incision. The first patient became pregnant 4 months after surgery, had an uncomplicated pregnancy, and underwent an elective cesarean delivery at term. The second patient became pregnant 8 months after surgery and had a pregnancy complicated by unexplained abdominal pain at 34 weeks of gestation that resulted in early cesarean delivery.

CONCLUSION: Proximal tubal occlusion from intratubal microinserts can be corrected surgically and can provide patients an alternative to in vitro fertilization.

Intratubal microinsert sterilization (Essure, Conceptus, Inc.) is becoming a prevalent form of female sterilization. Previous sterilization research has revealed that as many as 20% of women will regret their sterilization.[1] Women who regret their sterilization

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and who would like to conceive have two options: in vitro fertilization and sterilization reversal. Successful pregnancies resulting from in vitro fertilization after intratubal microinsert sterilization have been described.[2] Based on a literature search of the entire PubMed database up to August 2011 (using the key words "Essure" and "pregnancy"), these are the first two reports of successful pregnancy after surgical outpatient reversal of intratubal microinsert sterilization.

CASES

A 37-year-old woman, gravida 0, desired pregnancy and surgical correction of her intratubal microinsert sterilization. She had undergone intratubal microinsert sterilization 5 years previously, and bilateral tubal occlusion had been confirmed by hysterosalpingogram. Sterilization reversal was performed through a transverse mini-laparotomy incision. Incisions were made into the isthmic section of each tube, and the intratubal microinsert coils were removed. A polypropylene (Prolene, Ethicon, Inc.) stent easily passed into the uterine cavity through the left intramural isthmic section of the tube but not the right. Each tube was estimated to be 9.5 cm in length. Owing to easy passage of the tubal stent within the left fallopian tube, a primary tubotubal anastomosis was performed. A retention suture was placed in the tubal mesosalpinx using absorbable monofilament, and an isthmic–isthmic tubotubal anastomosis was performed with interrupted sutures of nonabsorbable monofilament. A right tubouterine implantation was performed through a cornual uterine incision. The isthmic muscularis of the proximal section of each tubal segment was widened by incising at the 3 and 9 o'clock positions to create an anterior and a posterior tubal flap. Patency of each tube was confirmed by insertion of a polypropylene stent through each tubal segment. The proximal end of each stent then was inserted into the uterine cavity. A double-armed absorbable suture was placed through the anterior tubal flap, and a second double-armed suture was passed through the posterior tubal flap. The proximal portion of the isthmic tubal segment was placed into the uterine cavity adjacent to the mucosal lining. The anterior and posterior tubal flaps were sutured against the uterine mucosa by placing the double-armed suture through the anterior and posterior uterine muscularis, respectively. Each suture was tied against

the anterior and posterior uterine serosa to anchor the tube into the uterine cavity. The cornual incision was closed with absorbable monofilament. Estimated blood loss was 50 mL, and operative time was 70 minutes. The patient became pregnant 4 months after surgery. Her pregnancy was uncomplicated, and she underwent an elective cesarean delivery at 41 weeks of gestation.

A 26-year-old woman, gravida 3 para 3, desired pregnancy and correction of intratubal microinsert sterilization. One year before her request for sterilization reversal, she had undergone intratubal microinsert tubal occlusion, and bilateral proximal occlusion was confirmed by hysterosalpingogram. Bilateral tubouterine implantations were performed through a transverse mini-laparotomy incision. Incisions were made into the isthmic section of each tube. The intratubal microinsert coils were removed intact. A polypropylene stent could not be passed into the uterine cavity through the intramural isthmic section of either tube. A posterior transverse uterine incision was made across the width of the uterus at the level of the utero-ovarian ligaments. Each fallopian tube was transected at the tubouterine junction, leaving approximately 8 cm of healthy distal tube remaining on each side. The isthmic muscularis of the proximal section of each tubal segment was widened by incising at the 3 and 9 o'clock positions to create anterior and posterior tubal flaps. Patency of each distal tubal segment was confirmed by insertion of a polypropylene stent through the isthmic lumen of each tubal segment until each stent exited the fimbrial end of each tube. The proximal end of each stent then was inserted into the uterine cavity. A double-armed absorbable suture was placed into the anterior and posterior tubal flaps, and the proximal section of the isthmic portion of each tube was placed even with the mucosal lining. The anterior and posterior tubal flaps were sutured against the uterine mucosa by placing the double-armed sutures through the anterior and posterior aspects of the uterus, respectively. Each suture was tied against the anterior and posterior uterine serosa to anchor the tube into the uterine cavity. The intramural portion of the tube was secured against the intramural myometrium using several interrupted sutures of absorbable monofilament. The tubal stents were removed from the fimbrial end of each tube, and the uterine incision was closed with absorbable monofilament. Estimated blood loss was 125 mL, and operative time was 124 minutes. The patient became pregnant 8 months after surgery. Her initial pregnancy was uncomplicated; however, she experienced 1 week of unexplained abdominal pain, which required cesarean delivery at 34 weeks of gestation. At the time of delivery, the uterus was without evidence of rupture and thin omental adhesions to the area of the transfundal incision were present.

COMMENT

These two cases demonstrate that tubal occlusion caused by newer methods of hysteroscopic tubal sterilization can be corrected surgically and that natural pregnancy is possible. Patients who come to our center for treatment frequently regret their sterilization procedures and have either failed or declined in vitro fertilization. Patients undergoing tubal reparative surgery are advised of the increased risk of ectopic pregnancies associated with tubal surgery and of the increased risk of uterine rupture after tubouterine implantation.[3] With future pregnancies, patients are advised to have early serum measurement of human chorionic gonadotropin levels, with methotrexate treatment, if indicated, to minimize the risk of ectopic pregnancy and to undergo elective cesarean delivery at term to minimize the risk of uterine rupture.

Proximal tubal occlusion due to other etiologies can be corrected surgically with tubouterine implantation. The first reports of tubouterine implantation were described in the late 19th century.[4] The first successful tubouterine implantation resulting in pregnancy was described by Turck in 1909.[5] Since surgical correction of proximal tubal occlusion by tubouterine implantation first was described, other small case series have followed and have demonstrated conception rates ranging from 13.5% to 56%.[6,7] In comparison, the pregnancy success rate of in vitro fertilization using fresh nondonor eggs averages approximately 36.9% per cycle.[8]

Between January 2009 and January 2011, we performed 19 hysteroscopic sterilization reversals with the surgical techniques described in this case report on patients ranging in age from 26 to 41 years. Patients self-reported pregnancy and were contacted by phone 12 months after surgery to confirm either pregnancy or tubal patency status. Of these 19 patients, five reported pregnancy. Three patients delivered between 34 and 41 weeks of gestation (two cases are described here, and the other one has been published previously[9]), and two patients reported miscarriage. Of these, one patient reported miscarriage of an intrauterine pregnancy diagnosed by ultrasonography and the other patient reported two miscarriages of unknown location. Of the 14 patients not reporting pregnancy, four reported hysterosalpingogram X-ray results that demonstrated patency of at least one tube and six reported hysterosalpingogram X-rays results that demonstrated bilateral tubal blockage.

Intratubal microinsert sterilization can be removed, and the proximal tubal occlusion can be corrected with tubouterine implantation. With the increasing prevalence of hysteroscopic proximal tubal occlusion, there may be a greater role for tubouterine implantation to correct these newer methods of sterilization and to provide patients with an alternative to in vitro fertilization. Larger prospective studies on tubouterine implantation in the correction of hysteroscopic tubal occlusion are necessary to evaluate the overall safety of the procedure and to compare pregnancy success rates of modern tubouterine implantation with those of in vitro fertilization.

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Schistosomiasis
An Unusual Finding of the Cervix

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BACKGROUND: Schistosomiasis remains a major threat to women's health in many resource-poor countries and is being seen with increasing frequency in developed countries among immigrants and tourists who have a history of freshwater exposure in endemic areas.

CASE: A 28-year-old asymptomatic African immigrant presented with an abnormal Pap test result showing rare atypical squamous cells. Colposcopy examination showed pale-yellow, finely granular cervical lesions. Calcified *Schistosoma hematobium* eggs were identified by histology but were absent in urine and stool specimens. Praziquantel treatment was initiated promptly, avoiding significant morbidity.

CONCLUSION: The differential diagnosis of female genital schistosomiasis should be considered for patients who have a history of residence in or travel to endemic areas, including asymptomatic patients and patients presenting a long time after exposure.

(Obstet Gynecol 2012;119:472–5)
DOI: 10.1097/AOG.0b013e31822da6a4

Schistosomiasis, or bilharziasis, is a neglected tropical disease that afflicts more than 200 million people worldwide,[1] predominantly caused by the trematodes *Schistosoma mansoni*, *Schistosoma japonicum* and *Schistosoma hematobium*. It is the third most socioeconomically devastating parasitic disease after malaria and intestinal helminthiasis. Forty million women of childbearing age are infected worldwide.[1] Fortunately, these waterborne parasites are not found in the natural environments in the United States because of the lack of suitable snail intermediate hosts. However, with increased numbers of immigrants from and tourists to endemic areas, several female genital schistosomiasis cases have been reported in this country.[2–5] Furthermore, the actual number of female genital schistosomiasis cases in the United States potentially could be higher for the following reasons: schistosomiasis is not a reportable disease, female genital schistosomiasis can be asymptomatic for a long time after exposure, and the worm can live for up to 30 years. Here we report a case of cervical schistosomiasis due to *S hematobium* in a healthy, asymptomatic African immigrant in New England.

CASE

Five years after immigrating to the United States, a 28-year-old South African woman, gravida 0, presented for colposcopy examination owing to rare atypical squamous cells on Pap test and positive human papillomavirus (HPV) testing by DNA hybrid capture (Qiagen). Gynecologic history was significant for irregular menses, occurring approximately every 3 months, which were more regular when she was in her late teens. The patient was otherwise healthy and asymptomatic. Colposcopy examination revealed numerous pale-yellow, cottage cheese–textured, 0.1-cm granular cervical lesions at the 8 o'clock and 3 o'clock positions, which were biopsied. Two endocervical curettings also were performed. Histologic examination of the specimens showed multiple calcified, degenerated *S hematobium* eggs in a fibrotic stroma and an unremarkable overlying squamous epithelium (Fig. 1A). The *S hematobium* eggs were oval-shaped, roughly 150×50 micrometers, exhibiting a characteristic terminal spine (Fig. 1B, arrow). The endocer-