

# Smoking Raises Risk for Postrepair Mesh Erosion

*In a small study, detrimental effects were noted after abdominal sacrocolpopexy or sacrocolpoperineopexy.*

BY DAMIAN McNAMARA  
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HOLLYWOOD, FLA. — Women who smoke cigarettes are at more than four times greater risk for type 1 mesh erosion following abdominal sacrocolpopexy or sacrocolpoperineopexy, compared with those who do not smoke, according to data from a case-control study.

“Mesh erosion, although uncommon, can be quite distressing for patient and physician alike,” Dr. Joye Lowman said in an interview.

“We noticed that many patients in our population who developed mesh erosion were smokers.”

Detrimental effects of smoking on wound healing have previously been demonstrated by significant data in orthopedics, dentistry, and plastic and reconstructive surgery.

“We hypothesized that if smoking has been shown to impair healing after mastectomy, face-lifts, abdominoplasty, and spinal surgery, perhaps it impairs the healing of vaginal wounds as well,” said Dr. Lowman, who is a third-year fellow in female pelvic medicine and reconstructive surgery at Indiana University, Indianapolis.

No risk factors have been shown conclusively to increase mesh erosion risk because the number of cases of mesh erosion is small, with an overall incidence of 3.4% (Obstet. Gynecol. 2004;104:805-23), Dr. Lowman said.

Another challenge is that mesh erosion

can occur up to 2 years after an abdominal sacralcolpopexy (ASC).

In a previous study, researchers evaluated risk factors for mesh erosion after ASC and found a higher proportion of smokers in cases of mesh erosion, but the findings were not statistically significant (Obstet. Gynecol. 1998;92:999-1004).

To assess current smoking in a larger study, researchers retrospectively compared all cases of vaginal mesh erosion between October 2003 and June 2006. These 27 women were compared with 81 controls matched for age, menopausal status, hormone therapy use, and other factors.

All of the participants were treated at Urogynecology Associates in Indianapolis. The findings were presented at the annual meeting of the American Urogynecologic Society.

A total of seven cases (26%) and six controls (7%) reported current tobacco smoking. The risk of mesh erosion was significantly greater among the smokers, compared with nonsmokers (odds ratio 4.4).

“I was surprised that we detected such a large effect. To find an effect of this magnitude with a sample size of only 108 patients and an extensive match emphasizes the strength of this association,” Dr. Lowman said.

Erosion occurred a mean of 12 months after surgery. The most common presenting symptoms were vaginal discharge and spotting, which were reported by 96% of the participants who had mesh erosion. The type 1 propylene mesh included Soft-

Pro (Ethicon, Somerville, N.J.) and ProLite (Atrium Medical Corp., Hudson, N.H.). Dr. Lowman has no affiliation with the companies that manufacture these mesh products.

The association between smoking and mesh erosion remained significant when the six cases and four controls who had laparoscopic surgery were excluded (OR 8.0).

So what is the physiologic link between smoking and mesh erosion? Collagen synthesis is the most significant effect. Collagen is essential to optimal tensile strength of a healing wound. Nicotine’s antiestrogen effect is probably another significant effect. Vaginal atrophy and slower healing of vaginal wounds might ensue with lower estrogen levels.

Nicotine increases platelet aggregation; decreases microvascular prostacyclin levels, and inhibits fibroblast, macrophage, and red blood cell function. In addition, nicotine and carbon monoxide in cigarettes can increase cardiac workload and decrease tissue oxygen tension.

Physicians should counsel patients before an ASC or ASCP surgery of an increased risk of mesh erosion if they smoke, Dr. Lowman said.

“The effort must be made to reiterate the effects of smoking at every visit. We all know that smoking affects the heart



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and lungs. Broaden the discussion to include its affects on wound healing, skin—premature wrinkles, and bone—increased osteoporosis. Tell your female patients that smoking causes premature aging—that will get them motivated!”

Only 19% of participants with mesh erosion had successful medical management of their condition, defined as office excision or hormone therapy. The remaining patients were taken back to the operating room to excise the mesh vaginally.

The sample size may have been too small to detect any effect of smoking on time to diagnosis of erosion or the success rate of medical management, a possible limitation of the study.

Other factors that might reduce the risk of mesh erosion, including use of hormone therapy and perioperative antibiotics, are areas for future research, Dr. Lowman said. ■

## Antibiotics May Not Aid Plasma Cell Endometritis in Silent PID

BY DIANA MAHONEY  
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BOSTON — Antimicrobial therapy does not clear plasma cell endometritis in many women who have or are at risk for asymptomatic gonorrhea, chlamydia, or bacterial vaginosis, Dr. Harold C. Wiesenfeld reported at the annual meeting of the Infectious Diseases Society for Obstetrics and Gynecology.

Histologic endometritis—defined as the presence of at least five neutrophils in the superficial endometrial epithelium per 400x field and at least one plasma cell per 120x field of endometrial tissue—is common in women with lower genital tract infection who do not have signs or symptoms of acute pelvic inflammatory disease (PID), but there are conflicting data regarding whether treatment for the histologic diagnosis is warranted,

said Dr. Wiesenfeld of the University of Pittsburgh.

To determine the effect of antibiotic therapy on the clearance of plasma cell endometritis, Dr. Wiesenfeld and colleagues conducted a nested analysis of women enrolled in a larger observational cohort investigation of subclinical PID and infertility. Women between the ages of 15

**‘Our key finding was that 16 of these 40 women—40% of them—had persistent plasma cell endometritis at 12 weeks following antibiotic therapy.’**

and 30 years were eligible for study enrollment if they had clinical evidence of mucopurulent cervicitis (purulent cervical discharge), if they were recently diagnosed with gonorrhea or chlamydia and were not yet treated, if they were diagnosed with bacterial vaginosis, or if they reported sexual contact with a male diagnosed with gonorrhea,

chlamydia, or nongonococcal urethritis.

Women who had signs and symptoms of acute PID were excluded.

The study participants—all of whom underwent a thorough history, gynecologic exam, microbiologic evaluation of the lower genital tract, and endometrial biopsy—were randomly assigned to a treatment regimen comprising either ceftriaxone, metronidazole, and doxycycline or ceftriaxone, metronidazole, and azithromycin.

For the purposes of the current analysis, “those women with endometritis on the initial biopsy were asked to come back 12 weeks after treatment to undergo a second endometrial biopsy,” reported Dr. Wiesenfeld.

Of 382 women enrolled in the larger study with adequate initial endometrial samples, 61 had plasma cell endometritis on enrollment.

“Of these 61 women, 40 had a second evaluable endometrial biopsy specimen and were included in our analysis,” said Dr. Wiesenfeld. The mean age of the nested cohort was 24 years and 77% of the women were African American.

Based on the result of the second endometrial biopsy, “Our key finding was that 16 of these 40 women—40% of them—had persistent plasma cell endometritis at 12 weeks following antibiotic therapy,” said Dr. Wiesenfeld.

“We compared those women who cleared the endometritis with antibiotic therapy and those who did not and found no statistical differences in age, race, insurance, previous pregnancy status, smoking, douching prior to enrollment or during the trial, or interim antibiotic use since the trial.”

Additionally, infection status at time of enrollment did not impact clearance. “There was no difference [in postantibiotic

clearance] among those women who had gonorrhea, chlamydia, or both organisms or bacterial vaginosis or trichomoniasis,” Dr. Wiesenfeld noted.

“Looking at endometrial microbiology, we did not find any correlation between upper genital tract microbiology and presence of endometritis at 12 weeks,” he said, nor did they observe any differences associated with degree of plasma cell infiltrates on initial biopsy or with antibiotic regimen.

“The fact that plasma cell endometritis persisted in 40% of these women following antibiotic therapy with no identifiable variables that predicted failure raises questions about the importance of identifying plasma cells in the endometrium,” Dr. Wiesenfeld stated.

Before therapeutic decisions can be made based on plasma cell endometritis, “we really need to define the role of plasma cells in the endometrium,” he concluded. ■