

Pathogenesis, consequences, and control of peritoneal adhesions in gynecologic surgery: a committee opinion

Practice Committee of the American Society for Reproductive Medicine in collaboration with the Society of Reproductive Surgeons

American Society for Reproductive Medicine, Birmingham, Alabama

Postoperative adhesions are a natural consequence of surgical tissue trauma and healing and may result in infertility, pain, and bowel obstruction. Adherence to microsurgical principles and minimally invasive surgery may help to decrease postoperative adhesions. Some surgical barriers have been demonstrated effective for reducing postoperative adhesions, but there is no substantial evidence that their use improves fertility, decreases pain, or reduces the incidence of postoperative bowel obstruction. This document replaces the document of the same name last published in 2008 (Fertil Steril 2008;90[5 Suppl]:S144-9). (Fertil Steril® 2013;99:1550-5. ©2013 by American Society for Reproductive Medicine.)

Earn online CME credit related to this document at www.asrm.org/elearn

Discuss: You can discuss this article with its authors and with other ASRM members at <http://fertstertforum.com/goldsteinj-pathogenesis-peritoneal-adhesions-laparoscopy/>



Use your smartphone to scan this QR code and connect to the discussion forum for this article now.*

* Download a free QR code scanner by searching for "QR scanner" in your smartphone's app store or app marketplace.

Postoperative adhesions are a natural consequence of surgical tissue trauma and healing. Peritoneal adhesions may result in infertility, pain, or bowel obstruction and may increase the technical difficulty of subsequent abdominal or pelvic surgery. The purpose of this document is to review the epidemiology, pathogenesis, and clinical consequences of adhesion formation and to summarize available evidence regarding the effectiveness of various strategies for reducing postoperative adhesion formation.

EPIDEMIOLOGY AND IMPACT OF POSTOPERATIVE ADHESIONS

Studies conducted by the Surgical and Clinical Adhesions Research (SCAR)

Group have analyzed the records of surgical patients in Scottish National Health Service hospitals and helped to define the epidemiology and impact of postoperative adhesions (1, 2). Overall, approximately one-third of patients who underwent open abdominal or pelvic surgery were readmitted an average of 2 times over the subsequent 10 years for conditions directly or possibly related to adhesions or for further surgery that could be complicated potentially by adhesions; more than 20% of all such readmissions occurred during the first year after the initial surgery and 4.5% of readmissions were for small bowel obstruction (1, 2). Among open gynecologic procedures, ovarian surgery had the highest rate of readmissions directly related to adhesions (7.5/100 initial

operations) (2). In the Scottish experience, excepting laparoscopic sterilization procedures, open and laparoscopic gynecologic surgery was associated with comparable risk for adhesion-related hospital readmission (3). Another retrospective study of Canadian women admitted to the hospital with a diagnosis of small bowel obstruction after gynecologic procedures found that hysterectomy was a significant cause of adhesion-related small bowel obstruction and that laparoscopic supracervical hysterectomy was associated with a lower risk compared to abdominal hysterectomy (4). In two studies, the incidence of small bowel obstruction after abdominal hysterectomy ranged between 13.6 and 16.3 per 1,000 procedures (4, 5).

Postoperative adhesions increase operating times (6, 7) and the risk of bowel injury during subsequent surgery (8). Adhesions also have major financial implications. In the United States, adhesion-related health care costs exceed one billion dollars annually (9).

Received February 13, 2013; accepted February 14, 2013; published online March 6, 2013.

No reprints will be available.

Correspondence: Practice Committee, American Society for Reproductive Medicine, 1209 Montgomery Hwy., Birmingham, Alabama 35216 (E-mail: ASRM@asrm.org).

Fertility and Sterility® Vol. 99, No. 6, May 2013 0015-0282/\$36.00
Copyright ©2013 American Society for Reproductive Medicine, Published by Elsevier Inc.
<http://dx.doi.org/10.1016/j.fertnstert.2013.02.031>

PATHOGENESIS

Adhesions are the consequence of tissue trauma that may result from sharp, mechanical, or thermal injury; infection; radiation; ischemia; desiccation; abrasion; or foreign-body reaction. Such trauma triggers a cascade of events that begins with the disruption of stromal mast cells, which releases vasoactive substances such as histamine and kinins that increase vascular permeability. Fibrin deposits then form, containing exudates of cells, leukocytes, and macrophages (10). Healing occurs by a combination of fibrosis and mesothelial regeneration (11). Unlike skin wounds, which heal from the edges, the repair of peritoneal defects occurs from the underlying mesenchyme. As a result, both large and small peritoneal defects heal relatively quickly. Fibrinous exudates form within 3 hours after injury. Most fibrinous exudates are transient and are broken down by fibrinolysis within 72 hours. Trauma-induced local suppression of peritoneal fibrinolysis leads to early fibrinous adhesions (10) (Fig. 1). The invasion of fibroblasts and blood vessels soon follows, resulting in permanent vascular adhesions (10) (Fig. 1).

CONSEQUENCES OF ADHESION FORMATION

The most important potential consequences of adhesion formation are infertility, bowel obstruction, and abdominal/pelvic pain.

Infertility

Adhesions may affect fertility adversely by distorting adnexal anatomy and interfering with gamete and embryo transport. The only study to assess adhesiolysis and infertility was a small retrospective review. Among infertile women with otherwise unexplained infertility diagnosed with adnexal adhesions at laparoscopy, pregnancy rates (PR) were 32% at 12 months and 45% at 24 months after subsequent

adhesiolysis by laparotomy compared with 11% at 12 months and 16% at 24 months in women left untreated (12). In women followed for an average of 49 months after tubal surgery, term PRs were inversely correlated with adhesion scores as assigned using the American Society for Reproductive Medicine classification system for adnexal adhesions (13).

Bowel Obstruction

Adhesions are the most common cause of postoperative small bowel obstruction (5). In a series of 552 patients with bowel obstruction, intra-abdominal adhesions were judged responsible in 74% of cases (14).

Abdominal/Pelvic Pain

The relationship between adhesions and pelvic pain is unclear. Although nerve fibers have been identified in pelvic adhesions, their prevalence is no greater in patients with pelvic pain than in those without pelvic pain (15). Moreover, there is no relationship between the extent of adhesions and the severity of pain. It generally is accepted that adhesions may cause visceral pain by impairing organ mobility (16, 17). A study of patients with chronic pelvic pain randomized to laparotomy with adhesiolysis or laparotomy alone found that adhesiolysis was effective only in those having dense adhesions involving the bowel (18). A randomized, controlled multicenter trial observed that laparoscopic lysis of mild abdominal adhesions relieved abdominal or pelvic pain, but to no greater extent than sham surgery (19). Clearly, the impact that lysis of bowel or adnexal adhesions may have on abdominal and pelvic pain cannot be confidently predicted.

REDUCTION IN ADHESION FORMATION

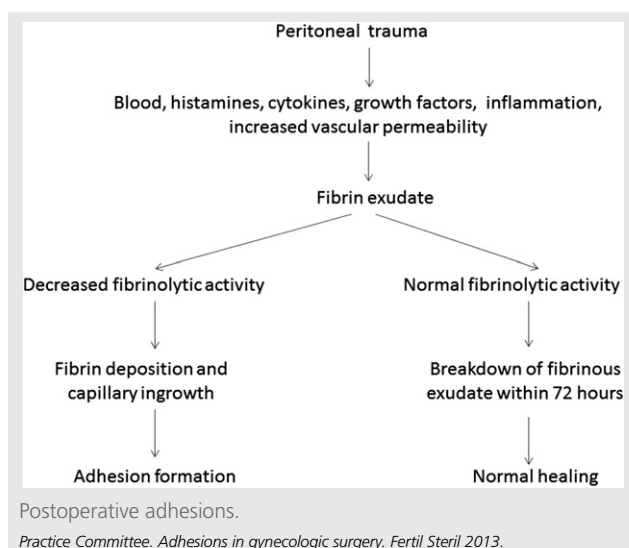
All surgeons must be familiar with the risks and consequences of postoperative adhesions. Theoretically, formation of adhesions might be reduced by minimizing peritoneal injury during surgery, by preventing the introduction of reactive foreign bodies, by reducing the local inflammatory response, by inhibiting the coagulation cascade and promoting fibrinolysis, or by placing barriers between damaged tissues.

Surgical Technique

Formation of postoperative adhesions often may be minimized by careful surgical technique with adherence to microsurgical principles, which includes gentle tissue handling; meticulous hemostasis; excision of necrotic tissue; minimizing ischemia and desiccation; the use of fine, nonreactive suture materials; and prevention of foreign-body reaction and infection (20, 21).

Postoperative adhesions have been observed in up to 94% of patients after laparotomy (22, 23). Laparoscopy does not necessarily result in fewer adhesions than laparotomy; the extent of tissue injury, not the surgical approach, is the determining factor (24, 25). Risk for the development of de novo anterior abdominal wall adhesions likely is lower after

FIGURE 1



Download English Version:

<https://daneshyari.com/en/article/6182401>

Download Persian Version:

<https://daneshyari.com/article/6182401>

[Daneshyari.com](https://daneshyari.com)