

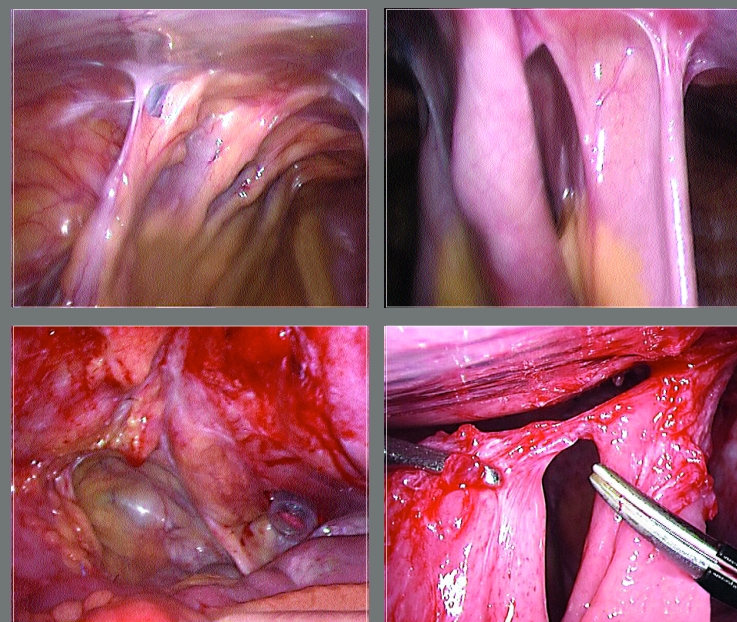
Don't Let Adhesions Happen to Your Patients

A guide to preventing this painful outcome that occurs in up to 93 percent of abdominal surgery patients.

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If nine out of 10 of your patients were developing post-op infections, would you change your antibiotic and infection control policies? Of course you would. And that's why it's astounding that more isn't done to prevent adhesions, which develop in up to 93 percent of patients after abdominal and pelvic surgeries. These sheets of fibrous scar tissue form and adhere to internal organs that aren't normally connected with equal frequency after both laparotomies and laparoscopies.

But your patients don't have to suffer from this painful and all-too-common outcome. Here's what you need to know about adhesions and their prevention.



Below the surface

Appearing as anything from thin sheets resembling plastic wrap to thick fibrous bands, adhesions can lead to bowel obstructions or blockages, chronic pain and infertility in women (when they develop around the reproductive organs), among other untoward outcomes. They reduce the quality of life for patients, sometimes leading to loss of workdays and productivity, and increase the risk, complexity and chance of complications in subsequent surgeries.

What's more, patients who require subsequent or secondary operations are not only at higher risk for more adhesions, but studies show that anywhere from 19

to 33 percent of patients will suffer adhesion-related bowel perforation during such subsequent and secondary operations. This leads again to a significantly higher risk of longer stays and more post-op complications such as leaks, wound infections and hemorrhages.

In short, it's a vicious circle, and not one you want to find

NOT A PRETTY SIGHT

Patients don't have to suffer the pain caused by sheets of fibrous scar tissue adhering to internal organs.



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yourself or your patients in the middle of. It's tough to avoid, though, as adhesions may develop after essentially any gynecological and abdominal procedure, including ovarian surgery, surgical treatment of endometriosis, myomectomy, adhesiolysis, reconstructive tubal surgery, colectomy, hernia repair, adhesiolysis for bowel obstruction, appendectomy, cholecystectomy, cancer surgery, and liver and spleen procedures.

You'd have a tough time eliminating the many factors that contribute to the formation of adhesions:

- **Trauma.** Surgery is trauma, and the body may form adhesions as a defense against that trauma as a normal part of the healing process.
- **Ischemia.** During surgery, the cutting of tissue, clotting of blood or tying of stitches can disrupt blood flow, resulting in ischemia, the reduction of blood flow to the tissues, and therefore contributing to adhesion formation.
- **Foreign bodies.** Stitches, lint from sponges and powder from surgical gloves are among the things that may find their way into the patient's body and cause inflammatory reactions, triggering adhesion formation.
- **Inflammation.** Endometriosis and pelvic inflam-

matory disease can cause inflammation that results in adhesion formation.

Various methods, no guarantees

Although there's no way to eliminate the risk of adhesions completely, there are steps you can take to reduce the likelihood of adhesion formation. The most effective prevention methods involve meticulous surgical technique and the use of some type of physical barrier to separate tissue surfaces while they heal.

Good surgical technique is the first step and comprises many difficult actions:

- **Achieving hemostasis.** Inadequate hemostasis results in fibrin deposits, promoting adhesion formation.
- **Maintaining vascularity.** Limiting ischemia supports fibrinolysis.
- **Moistening tissues.** Frequently irrigate and use moist sponges to prevent desiccation of tissue. Ringer's lactate or other irrigating solutions also eliminate residual talc, lint or blood clots that may provide a nidus for a foreign body reaction, inflammation and adhesion formation.
- **Avoiding dry sponges.** Don't use gauze and dry sponges because they may damage the peritoneal surface and leave a foreign body behind.
- **Minimizing tissue handling.** Manipulating tissue increases the possibility of vascular and tissue damage. When direct manipulation of the peritoneum is necessary, use either atraumatic instruments or fingers, keeping cutting and coagulating to a minimum.
- **Using fine, non-reactive sutures.** Using the smallest size of suture composed of synthetic material minimizes foreign body reactions.
- **Avoid peritoneal grafts.** Grafting decreases vascularity and increases the risk of peritoneal trauma.

Adhesion formation accounts for

- 49 to 74 percent of small bowel obstructions;
- 15 to 20 percent of infertility cases; and
- 20 to 50 percent of chronic pelvic pain cases.

Just How Common Are Adhesions?

- Studies have found that 93 percent of patients who'd undergone at least one previous abdominal surgery developed adhesions.
- This number increases in patients who underwent multiple or major procedures.
- Studies have found that just 10.4 percent of patients who'd never undergone a previous abdominal operation had developed adhesions.
- The incidence of adhesions has increased with the rise in gynecological procedures — it's been shown that between 60 and 90 percent of women suffer from adhesions post-operatively. — **Daniel Kruschinski, MD**

- **Minimizing foreign bodies.** They may damage the peritoneal surface, lead to inflammation and ultimately result in adhesion formation.

Remember, using laparoscopy, which decreases trauma and blood loss, in conjunction with these techniques gives you the best possible shot at reducing the chance of adhesions.

Various drugs, including fibrinolytic agents, anticoagulants, anti-inflammatories and antibiotics have been evaluated in an effort to reduce adhesions; to date, no well-controlled study has documented the efficacy of these drugs. Mechanical separation is also an option, and the use of a barrier between raw tissue surfaces appears to be one of the most promising methods of adhesion prevention, because barriers keep them apart. However, many of the current intra-abdominal instillates and endogenous tissues used for this purpose have yet to be proven effective in various studies.

Showing promise

The method I've found most effective for combating adhesions — in addition to the combination of glassless laparoscopy, which uses the AbdoLift

instead of CO₂, and good surgical technique — is applying a gel to the organs surrounding the surgical site just before the end of the procedure. The product I use and have had great success with, SprayGel, is manufactured by Confluent Surgical and is currently in clinical trials in the United States (see “Your Options for Fighting Adhesions” below for other liquids and films available to try).

Because adhesions begin to form as soon as three hours after the end of a procedure and continue to form for up to about seven days post-op, I perform a second-look laparoscopy on my patients on day seven. If I find that any adhesions have formed during this critical period, I can sweep them away easily and apply more SprayGel if needed. I've done this on several hundred patients and it greatly reduces the need for subsequent surgery: In my practice, about 90 percent of patients are adhesion-free after that second laparoscopy.

That means only 10 percent developed pain after surgery and had third-look laparoscopies; most of the time, adhesions were the cause (there were other reasons for pain, such as adnexal tumor, in some cases). But the pain scores for adhesion

Your Options for Fighting Adhesions

Adept

The FDA gave the go-ahead to this liquid adhesion reduction solution, developed by Innovata and licensed to Baxter, in August. Indicated for use intraperitoneally to reduce post-surgical adhesions in patients undergoing gynecological laparoscopic adhesiolysis. That makes the 4% icodextrin solution, which has been used for this purpose in Europe since 2000, the first and only approved fluid-base approach as well as the only one with approval for laparoscopic use, according to Baxter.

In three U.S. clinical trials involving 548 patients undergoing gynecological laparoscopic surgery with a follow-up laparoscopy, 45.4 percent of patients were defined as a “clinical success,” compared to 35.6 percent of patients in the control group. Clinical success was defined as a decrease in the number of adhesions between the first and second laparoscopies. Patients in the Adept group had significantly ($p=0.016$) fewer sites with adhesions at second-look compared to first-look adhesiolysis laparoscopy, says the company.



Interceed

This lightweight, tissue-like film can be placed at the surgical site in open gynecologic pelvic surgery to reduce the incidence of post-op pelvic adhesions, says Gynecare, a division of Ethicon. Interceed does this by protecting and separating the surfaces where adhesions are likely to form; it is then absorbed by the body as healing occurs, says the company. Studies demonstrate that Interceed significantly enhances good surgical technique by reducing adhesion formation by 50 percent compared to the use of good technique alone, according to Gynecare.



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patients were reduced in both grade and severity when compared with the initial surgeries, and subsequent surgery for adhesions is usually less extensive and does not involve the same amount of dissection that led to the formation of adhesions in the first place.

Tackle the problem

Adhesions are incredibly painful and afflicted patients may see doctor after doctor to seek a cure for them. Undergoing any surgery is rife with risk and many patients are mutilated and deformed by laparotomies that should be avoidable — and that create new adhesions.

We're learning more about how to combat adhesions and we would be remiss if we didn't do everything we can to prevent them in our abdominal and pelvic surgery patients. **OSM**

ON THE WEB

For more on Dr. Kruschinski's work in preventing adhesions, visit www.adhesions.de

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Seprafilm

This adhesion barrier is applied directly to the site of surgical trauma after laparotomy to separate tissue and help reduce the incidence, extent and severity of post-op pelvic and abdominal adhesions. Composed of sodium hyaluronate and carboxymethylcellulose, Seprafilm remains at the placement site for up to seven days,



maintaining a barrier effect while normal tissue repair takes place; as the repairs occur, Seprafilm is slowly resorbed into the body, says the manufacturer, Genzyme.

A randomized, double-blind controlled trial of Seprafilm in major abdominal surgical procedures (colectomy and ileal pouch-anal anastomosis with diverting-loop ileostomy) found

that 51 percent of patients who received Seprafilm (n=85) were adhesion-free, compared with 6 percent of patients who did not (n=90). Adhesions were also denser in patients who didn't receive Seprafilm. A randomized, double-blind controlled trial of Seprafilm in myomectomy found that the incidence, extent and average area affected by adhesions were significantly less in patients who received Seprafilm (n=59) compared with those who did not (n=68). — **Stephanie Wasek**

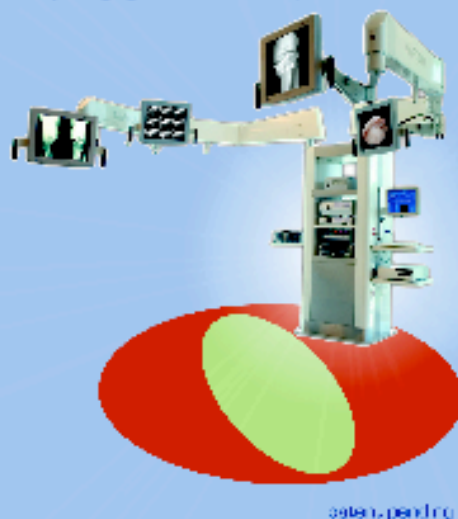


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