



What's new in surgery

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The following represent additions to UpToDate from the past six months that were considered by the editors and authors to be of particular interest. The most recent What's New entries are at the top of each subsection.

ABDOMINAL WALL AND HERNIA SURGERY

Negative pressure wound therapy does not reduce infection after closed emergency laparotomy incisions (March 2025)

Negative pressure wound therapy (NPWT) provides continuous suction and reduces wound morbidities when applied to closed incisions ([figure 1](#)). It has been postulated that NPWT would benefit emergency surgeries more than elective surgeries. However, in a randomized trial of 840 adults undergoing emergency laparotomy, the rate of surgical site infection at 30 days was similar for patients receiving NPWT and those receiving the surgeon's choice of any simple wound dressing [1]. These data do not support routine use of NPWT in patients undergoing emergency laparotomy. (See "[Principles of abdominal wall closure](#)", section on '[Negative pressure wound therapy](#)'.)

ARTERIAL AND VENOUS ACCESS

Securing central venous catheter dressings (May 2025)

A central venous catheter (CVC) must be secured to the skin to stabilize it, but the optimal dressing is unclear. In a randomized trial of patients undergoing jugular CVC insertion, application of medical liquid adhesive (MLA) under the standard CVC dressing border resulted in fewer dressing failures due to lifting edges at seven days compared with a standard dressing alone (28 versus 50 percent) [2]. Skin complications were similar between the groups. While MLA improved catheter securement and dressing integrity, a larger trial is

needed to evaluate clinically important outcomes such as infection, catheter loss, and other complications. (See "[Routine care and maintenance of intravenous devices](#)", section on '[Device securement](#)'.)

Coated versus standard peripherally inserted central catheters (April 2025)

Whether specialized materials or coatings reduce complications from peripherally inserted central catheters (PICC) has been uncertain. In a randomized trial including over 1000 patients, those assigned to receive a [chlorhexidine](#) PICC had a higher complication rate than those assigned to a hydrophobic or standard polyurethane PICC (approximately 39, 22, and 22 percent respectively) [3]. The device failure rate was not significantly different among the three groups and was defined as the cessation of PICC function or the need to remove the PICC before completion of the intended therapy. The results of this trial support our practice of using standard PICCs. (See "[Central venous access: Device and site selection in adults](#)", section on '[Antimicrobial-impregnated catheters](#)'.).

BARIATRIC SURGERY

10-year outcomes of sleeve gastrectomy versus Roux-en-Y gastric bypass (May 2025)

Laparoscopic sleeve gastrectomy (SG) and Roux-en-Y gastric bypass (RYGB) are the two most common bariatric procedures; however, long-term comparative data are limited. In a randomized trial comparing the procedures, the mean percentage total weight loss was similar at >25 percent for both SG and RYGB after 10 years of follow-up [4]. However, reoperation for either insufficient weight loss or severe acid reflux was more common after SG (30 versus 6 percent). Given that both procedures produce durable weight loss, the choice may depend on patient preferences, individual risk assessment, and local expertise (See "[Outcomes of bariatric surgery](#)", section on '[RYGB and SG](#)'.)

Cost-effectiveness of bariatric surgery in individuals with diabetes (April 2025)

Although bariatric surgery has great benefits for managing diabetes in individuals with obesity, its cost-effectiveness is not clear. In a retrospective study of patients with diabetes who underwent Roux-en-Y gastric bypass (RYGB) or sleeve gastrectomy (SG), overall health care expenditures decreased by 30 percent in the postsurgical period [5]. No significant differences in expenditures were observed between RYGB and SG over 5.5 years, except during the first six months following surgery. This suggests that the cost of surgery is more than defrayed by the reduction in pharmacy costs once patients achieve improvement of remission of diabetes. (See "[Outcomes of bariatric surgery](#)", section on '[Cost-effectiveness](#)'.)

COLORECTAL SURGERY

Transanal versus laparoscopic total mesorectal excision for mid- to low rectal cancer (April 2025)

Total mesorectal excision (TME) is essential for oncologic resection of the rectum. Transanal TME (TaTME) has technical advantages over transabdominal TME, but oncologic data are lacking. In a randomized trial of over 1000 patients with mid- to low rectal cancer undergoing sphincter-sparing resection, three-year disease-free survival, overall survival, and recurrence rates were comparable for TaTME and laparoscopic TME [6]. If corroborated by other ongoing trials, TaTME can become an alternative to transabdominal TME when it is favored by anatomic factors (eg, narrow male pelvis, obesity). (See "[Radical resection of rectal cancer](#)", section on 'Transanal TME'.)

Laparoscopic versus open resection of very low rectal cancer (February 2025)

Studies have compared the outcomes of laparoscopic versus open approaches to rectal cancer surgery, but data on very low rectal cancers are scarce. In a randomized trial of over 1000 patients with rectal cancer <5 cm from the dentate line, the three-year locoregional recurrence, disease-free survival, and overall survival rates were similar for both approaches [7]. These findings support the use of laparoscopic resection of very low rectal cancers without high-risk or threatened circumferential margins based on preoperative imaging by experienced surgeons. (See "[Radical resection of rectal cancer](#)", section on 'Laparoscopic versus open'.)

Lack of benefit from perioperative intravenous lidocaine infusion (February 2025)

Although intravenous [lidocaine](#) has been used to treat acute and chronic pain, its benefit in the perioperative setting is unknown. In a randomized trial of over 500 patients undergoing elective minimally invasive colorectal surgery, perioperative intravenous administration of lidocaine (1.5 mg/kg bolus at induction of anesthesia followed by 1.5 mg/kg/hour for 6 or 12 hours) did not improve return of gut function at 72 hours or postoperative pain control compared with placebo [8]. Given its potential toxicity, intravenous lidocaine should be used judiciously, rather than routinely in the perioperative setting. (See "[Measures to prevent prolonged postoperative ileus](#)", section on 'Local anesthetics'.)

Extended versus standard lymphadenectomy for right-sided colon cancer (January 2025)

The standard approach of colon cancer surgery is to remove the tumor-bearing segment along with the associated mesentery up to the origin of the named primary feeding vessel. A large multicenter trial (RELARC) involving 995 patients with right-sided colon cancers compared extended lymphadenectomy (removing lymph nodes beyond the primary feeding vessels) with the standard approach and found that extended lymphadenectomy did not improve three-year survival but incurred more vascular injuries [9]. We do not perform

routine extended lymphadenectomy in patients with colon cancer but will perform it selectively when clinically indicated. (See "[Surgical resection of primary colon cancer](#)", section on '[Regional lymphadenectomy](#)'.)

BREAST SURGERY

Role of sentinel lymph node biopsy in early breast cancer (December 2024)

Whether selected patients with low-risk early breast cancers can safely omit sentinel node biopsy (SLNB) is unclear. In a randomized trial including nearly 5000 patients with clinically node-negative invasive breast cancers ≤ 5 cm scheduled to undergo breast conserving surgery, the "no axillary surgery" group experienced the same five-year invasive disease-free survival rate as the SLNB group (92 percent) [10]. Most patients had T1 cancers. While outcomes from this trial are promising, we await longer-term outcomes before omitting SLNB in early breast cancer. (See "[Overview of management of the regional lymph nodes in breast cancer](#)".)

HEPATOBIILIARY AND PANCREATIC SURGERY

Endoscopic versus surgical treatment of painful chronic pancreatitis with a dilated duct (March 2025)

Painful, chronic pancreatitis characterized by a dilated duct can be treated endoscopically or surgically. In a randomized trial of 88 such patients, early surgery (Puestow, Frey, or Beger procedure) resulted in superior pain relief and patient satisfaction compared with endoscopic treatment at both 18 months and 8 years [11]. Patients who progressed from endoscopy to surgery had worse outcomes than those undergoing early surgery. Given these findings, surgeons and gastroenterologists should work collaboratively in such cases, rather than exhausting nonoperative therapies before considering surgery. (See "[Surgery for chronic pancreatitis](#)", section on '[Endoscopy versus surgery](#)'.)

Hypovolemic phlebotomy for liver resection (February 2025)

Hypovolemic phlebotomy before liver transection involves removing 7 to 10 mL/kg of whole blood from the patient without replacement with intravenous fluid before transection and then returning all of the blood after transection. In a randomized trial including 446 patients, hypovolemic phlebotomy reduced the 30-day transfusion rate compared with usual care (16 versus 8 percent), without significantly affecting severe or overall complication rates [12]. Hypovolemic phlebotomy should be considered a strategy to reduce blood loss during liver resection. (See "[Overview of hepatic resection](#)", section on '[Strategies to minimize blood loss](#)'.)

PERIOPERATIVE CARE

Suzetrigine, a first-in-class nonopioid analgesic, now available for acute pain (March 2025)

[Suzetrigine](#), a first-in-class nonopioid oral analgesic, has been approved by the US Food and Drug Administration for management of acute pain in adults and is now available. Suzetrigine is a selective inhibitor of the Na_v 1.8 voltage-gated sodium channel, which is expressed in the dorsal root ganglia and is involved in transmission of nociceptive signals to the spinal cord. In randomized trials of 303 patients who had acute pain after abdominoplasty and 274 patients after bunionectomy, suzetrigine (100 mg orally followed by 50 mg orally every 12 hours) reduced pain scores compared with [hydrocodone/acetaminophen](#) (5 mg/325 mg orally every six hours) or placebo [13]. Further study is required to determine the role of suzetrigine in acute pain management. (See "[Nonopioid pharmacotherapy for acute pain in adults](#)", section on '[Suzetrigine, a novel Nav1.8 inhibitor](#)'.)

VASCULAR AND ENDOVASCULAR SURGERY

Compression therapy for mixed arterial and venous leg ulcers (May 2025)

The optimal management of mixed arterial and venous leg ulcers (MAVLU) is uncertain. Compression therapy, which is the mainstay of management of venous leg ulcers, can aggravate ischemia and is generally contraindicated for patients with severe peripheral artery disease (PAD). However, modified compression therapy (MCT) may successfully treat MAVLU and moderate PAD. In a meta-analysis, among patients with an ankle-brachial index of 0.5 to 0.85, the pooled rate of ulcer healing using initial MCT was 75 percent [14]. However, 25 percent required rescue revascularization for complete ulcer healing. While these results support initial MCT for MAVLU and moderate PAD, these patients should be referred to a vascular specialist for further evaluation and possible intervention. (See "[Compression therapy for the treatment of chronic venous insufficiency](#)", section on '[Contraindications](#)'.)

Antithrombotic therapy following venous stenting (April 2025)

Postprocedural antithrombotic therapy is important to prevent early thrombosis and in-stent stenosis. In a randomized trial of patients with post-thrombotic syndrome undergoing venous stenting, primary patency of the treated site at six months was slightly higher for postprocedural [rivaroxaban](#) plus [aspirin](#) compared with rivaroxaban alone (95 versus 92 percent), although the difference was not statistically significant [15]. Additional trials comparing other anticoagulants and antiplatelet agents are needed to determine the

optimal antithrombotic regimen following venous stenting. (See ["Endovenous intervention for ilio caval venous obstruction"](#), section on 'Antithrombotic therapy'.)

Bleeding risk with direct oral anticoagulants (March 2025)

Direct oral anticoagulants (DOACs) are often preferred to [warfarin](#) since they do not require routine monitoring, but bleeding risks are uncertain. A new meta-analysis of data from randomized trials involving over 26,000 individuals prescribed a DOAC or low-dose [aspirin](#) reported that bleeding risks with DOACs were similar to low-dose aspirin, which carries a small increased risk [16]. However, clinicians should use caution when comparing bleeding risks between DOACs from different trials, as trial populations may differ and data from direct comparisons are limited. (See ["Risks and prevention of bleeding with oral anticoagulants"](#), section on 'Drug class'.)

OTHER SURGICAL SPECIALTIES

No role for tranexamic acid during open radical cystectomy (February 2025)

Radical cystectomy can result in significant blood loss and has the highest transfusion requirement among all non-cardiac operations. Prophylactic [tranexamic acid](#) (TXA) reduces blood loss during some types of surgery, but in a randomized trial of 386 patients undergoing open radical cystectomy for bladder cancer, TXA administered both before the incision and during surgery did **not** reduce 30-day blood transfusion rate, blood loss, or intraoperative blood transfusion rate compared with placebo [17]. Based on these findings, prophylactic TXA should not be used for open radical cystectomy. (See ["Radical cystectomy"](#), section on 'Operative morbidity and mortality'.)

Nonoperative management of appendicitis in children (January 2025)

For children with early appendicitis, the role of nonoperative management with antibiotics (NOM) has been debated. In a multicenter trial of 846 children with appendicitis, 34 percent of children assigned to NOM required an appendectomy within one year. Approximately one-half of these patients required appendectomy at the index admission, of whom 35 percent had perforated appendicitis [18]. For children assigned to prompt appendectomy, 7 percent had normal pathology and 6 percent had perforation. Based on this first randomized trial of NOM in children with early appendicitis, we continue to perform appendectomy for most of these patients. However, NOM may be an option for selected children after shared decision-making ([algorithm 1](#)). (See ["Acute appendicitis in children: Management"](#), section on 'Nonoperative management'.)

Laparoscopic repair of intestinal malrotation without volvulus in children (January 2025)

Laparoscopic repair is an option for children who have malrotation without volvulus, but, compared with laparotomy, it has been associated with a higher risk of postoperative volvulus. However, in a retrospective study of 226 such children with malrotation, laparoscopic repair and laparotomy were both associated with a low rate of postoperative volvulus (≤ 1 percent) [19]. These data suggest that laparoscopic repair in these patients may have fewer postoperative complications than previously believed, particularly when performed by an experienced surgeon in an older child without comorbidities. (See ["Intestinal malrotation in children"](#), section on 'Laparoscopic repair'.)

OTHER GENERAL SURGERY

Standard versus extended lymphadenectomy for bladder cancer (January 2025)

The optimal extent of pelvic lymphadenectomy for bladder cancer is debated. In a recent randomized trial including nearly 600 patients with cT2-4a N0-2 bladder cancer, extended lymphadenectomy resulted in more lymph nodes removed, more severe complications, and more deaths within 90 days compared with standard lymphadenectomy [20]. However, rates of nodal metastasis, five-year disease-free survival, and overall survival were similar. Based on these data, we suggest standard lymphadenectomy for localized muscle-invasive bladder cancer. (See ["Radical cystectomy"](#), section on 'Lymphadenectomy'.)

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GRAPHICS

Negative pressure wound therapy



Negative pressure wound therapy. The foam insert (sponge) is placed within the wound and covered by a clear, vapor-permeable, plastic dressing. Continuous subatmospheric pressure (suction) applied through the tube causes fluid to flow out of the wound (arrows).

Graphic 50588 Version 5.0

Management of early appendicitis in children

Child can verbally describe their symptoms and has a reliable, reproducible abdominal examination?

Inset 1: Comparisor

This algorithm applies to children with a diagnosis of acute appendicitis. Appendectomy remains the treatment of choice for most children with acute, uncomplicated appendicitis. When performed by a pediatric surgeon or surgeon with pediatric expertise, NOM may be an option for selected children who can verbally describe their symptoms, can be reliably examined, meet strict criteria, and after shared decision-making between the managing surgeon and the parent/primary caregiver.

IV: intravenous; NOM: nonoperative management; US: ultrasound; WBC: white blood cell count.

* Nonoperative management should only be performed by a surgeon with pediatric expertise.

¶ Antibiotic choices are not standardized. Refer to Inset table 2 for sample choices. Refer to UpToDate content on the management of appendicitis in children for other appropriate antibiotic regimens.

Δ Lower rates of initial failure or recurrence are associated with using strict criteria for nonoperative management.

◇ These are sample choices for low- to moderate-risk community-acquired infections. For the full complement of suitable regimens, refer to the appropriate UpToDate content on management of appendicitis in children. Doses shown are for patients with normal kidney function; some agents require adjustment for kidney impairment; refer to pediatric drug monograph(s) included within UpToDate.

§ Amoxicillin-clavulanate is a reasonable option if the community rate of *Escherichia coli* resistance is <10%.

Adapted from:

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