No convincing patient differences between a midline and a transverse abdominal incision.

**Background:** A midline incision is commonly used for major abdominal procedures. A transverse incision has been championed by some as having advantages from a pain and pulmonary function standpoint. Whether a true advantage exists is difficult to assess.

**Objective:** To determine if any differences exist between a midline and transverse abdominal incision.

**Design:** Prospective, randomized clinical study.

**Participants:** 183 patients were randomized; 92 patients had a midline and 91 patients had a transverse incision.

**Methods:** Type of incision was blinded by using a large dressing that covered the abdomen for the first 2 days. All patients had an elective procedure. Primary outcome was patient's report of pain and amount of analgesic used by the patient. Pain assessment used a visual analog scale on postoperative day 2. Analgesic use was tabulated for the first 24 hours. Secondary endpoints included wound complications, surgical site infection, pulmonary complications, and incisional hernia at 1 year.

**Interventions:** Closure method used a running technique for both incisions.

**Results:** There was no difference in visual analog scales or pain medication use for the first 24 hours between the incision locations. Surgical site infections were noted more commonly in transverse incisions but no difference was noted in wound separation or dehiscence. Pulmonary complications also showed no difference. Incisional hernias occurred in 8 patients with a transverse and 13 with a midline incision, which was not a significant difference.

**Conclusions:** No significant clinical differences exist between a midline and transverse abdominal incision for major abdominal surgery.

**Reviewer's Comments:** A very challenging and interesting study attempting to answer a question that has been debated a long time. While it appears in our practice that transverse incisions are rarely used, they can be useful for many types of abdominal procedures. The findings indicate that no difference between the two incisions. However, some problems do exist with this well designed study. Incision location and size is not given. Amount of tissue incised could certainly alter pain responses from patients. The surgical site infection rate reached statistical significance favoring the midline wound which is discounted as chance. The authors use a sophisticated statistical analysis, yet when one of their endpoints is significant, they discount it. Not sure how they justify this approach. They do emphasize that the hernia rate at 1 year is higher for midline wounds but it is high for both incisions. Overall, this is a valiant attempt to answer an age-old question that has a lot of emotion instead of science. Actually, the authors' conclusions state this fact all too well as they suggest the incision type is a decision that is driven by surgeon preference. (Reviewer-John A. Weigelt, MD).

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Keywords: Abdominal Incision

Print Tag: Refer to original journal article
Mortality rates between teaching and non-teaching hospital for 7 major surgical procedures are similar throughout the year.

**Background:** A recent assessment of the American College of Surgeons--National Surgical Quality Improvement Program data revealed a higher mortality rate in July compared to other months for some surgical procedures in academic centers.

**Objective:** To determine if outcomes of surgical patients at teaching hospitals differ from outcomes at non-teaching hospitals throughout the year.

**Design:** Retrospective review of inpatient Center for Medicare and Medicaid files from 2003 to 2006.

**Participants:** 320,216 Medicare patients treated at a teaching hospital and 1,245,342 patients treated at a non-teaching hospital.

**Methods:** A teaching hospital was defined by membership in the Council of Teaching hospitals of the Association of American Medical Colleges. A resident-to-bed ratio was also calculated. Primary outcome was monthly mortality rates. Operative mortality was defined as a 30-day mortality rate. Risk adjustments were made using age, comorbidities, race, gender and socioeconomic status. Elective versus non-elective comparisons were also made.

**Interventions:** 7 procedures were reviewed including coronary artery bypass grafting, elective abdominal aortic aneurysm, carotid endarterectomy, colectomy for colon cancer, pancreatectomy, esophagectomy and surgical repair of fractured hip.

**Results:** Types of surgery did not vary month to month. There was no difference in mortality rates in July compared to the other months for teaching hospitals. The same was true for non-teaching hospitals except for hip fracture repair which had a lower mortality in July compared to the other months. When resident-to-bed ratios were examined, a higher mortality in July did occur at teaching hospitals with a ratio of 0.0 to 0.1. No difference existed when elective and emergent cases were analyzed.

**Conclusions:** Operative mortality rates are not higher in July compared to the rest of the year.

**Reviewer's Comments:** The July effect occurs when members of a training program advance to the next level and new physicians enter. Does this make the system less safe and vulnerable to poor outcomes? This debated topic has contradicting reports. One report says yes, yet this report says no. Different databases were used and thus it is highly likely that the differences could lie in the data themselves although one would think that mortality would be an endpoint both data sets could agree upon. Now we can let our bias select the study we wish to believe. I personally favor this study after observing this process for 30 years. In fact, I believe our country's training programs do adjust every July for everyone's new roles and patients' safety is paramount in everyone's minds and actions. (Reviewer-John A. Weigelt, MD).

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Keywords: Mortality, Teaching Hospitals

Print Tag: Refer to original journal article
Detecting Colon Cancer--Is CT a Better Option?

Diagnostic Accuracy of Computed Tomographic Colonography for the Detection of Advanced Neoplasia in Individuals at Increased Risk of Colorectal Cancer.

Regge D, Laudi C, et al:

JAMA 2009; 301 (June): 2453-2461

CT colonography offers a method to increase compliance with colon cancer screening.

**Background:** Screening for colon cancer with colonoscopy and polyp removal is credited with reducing colon cancer deaths. Unfortunately, screening compliance is poor. CT colonography is an appropriate alternative to colonoscopy to detect colorectal neoplasia. It is better tolerated than colonoscopy and may offer an alternative method of screening that could improve compliance.

**Objective:** To determine the accuracy of CT colonography in detecting colorectal neoplasia in asymptomatic at-risk patients.

**Design:** Multicenter prospective study.

**Participants:** 937 patients at increased risk for colorectal neoplasia.

**Methods:** Increased risk was defined as a family history in 373 patients, previous adenoma removed in 343, and positive fecal blood test in 221. All patients had CT colonography performed first. Findings from CT colonography were recorded in a sealed envelope and passed to the endoscopist. Lesion matching occurred after the colonoscopy was completed. Polyps ≥6 mm were recorded. Advanced polyps were ≥10 mm, 20% villous component, or high-grade dysplasia. Primary endpoint was to determine positive and negative predictive value of CT colonography compared to colonoscopy as the standard.

**Results:** Advanced neoplasia was found in 177 patients (19%). Rate ranged from 7.5% with a family history, 11.0% for previous adenoma and 50.0% for positive fecal blood test. Positive predictive value for all patients was 62% with a negative predictive value of 96%. Negative predictive value was 99% for the family history, 98% for previous adenoma, and 85% for positive fecal blood test.

**Conclusions:** CT colonography has a high negative predictive value in a group of patients at risk for colorectal neoplasia, but its success is dependent on why the test is being done.

**Reviewer's Comments:** The discussion of this article attempts to make the case that CT colonography will be better accepted by patients and thus screening compliance will improve allowing more patients to be examined. The logical outcome of better compliance should be a reduction in colon cancer cases and deaths. They also point out that CT colonography will be better used for a positive family history and previous adenoma surveillance, but not for patients with a positive fecal blood test. Based on the study findings, 55% of patients with a positive fecal blood test as the indication for screening would have required a colonoscopy defeating any cost effectiveness of CT colonography. The editorial that accompanies this article in the journal succinctly states the case. Are doctors and patients willing to trade accuracy for compliance? I wonder if, in the long run, this test would be complementary to colonoscopy or just additive. If the latter is the case, then we have once again succeeded in using technology to drive costs up instead of down. (Reviewer-John A. Weigelt, MD).

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Keywords: Colon Cancer Screening, Computed Tomographic Colonography

Print Tag: Refer to original journal article
MRI findings after inguinal herniorrhaphy in patient with pain are not specific.

**Background:** Pain after a groin herniorrhaphy is a problem in 5 to 10% of patients. At times, specific causes for the pain can be found, but more often than not, no specific cause is found and pain persists.

**Objective:** To determine if MRI can identify any findings that might explain persistent post herniorrhaphy pain.

**Design:** Prospective blinded clinical study.

**Participants:** 32 patients who had painful groins >1 year after their herniorrhaphy; 15 patients had pain free groins after their herniorrhaphy; 29 patients had unoperated groins that were pain free.

**Methods:** MRI studies were reviewed by 2 blinded observers. The blinding was related to whether or not the groin had been operated on and whether it was painful or not. A predefined list of possible MRI findings was used by the readers of the MRI scans. Primary outcome was interobserver agreement. Secondary outcome was correlating MRI findings with pain symptoms.

**Interventions:** All patients had an MRI of their groins. Significance was defined as \( P < 0.05 \).

**Results:** The time from operation was a median of 4.2 years for the painful groins and 4.4 years for the non-painful groins. Interobserver agreement was rated with kappa scores of 0.24 to 0.55 and agreement between observers ranging from 70 to 86%. Best agreement was for enlargement of the spermatic cord and contrast enhancement in the groin. MRI findings were more common in painful groins compared to unoperated groins. However, when comparing painful and pain-free operated groins, MRI findings were no different except for the presence of a hernia in the pain-free operated groins. All these hernias were not detected by physical exam.

**Conclusions:** MRI findings in the painful post-herniorrhaphy groin are not specific and interobserver concordance is not high.

**Reviewer's Comments:** Complaints of persistent pain after an inguinal herniorrhaphy is a problem that only seems to grow once it starts. Reassurance, medication, and nerve blocks are all used. Sometimes the pain resolves, but when it does not, both patient and physician begin searching for answers. MRI can be used to detect soft tissue problems and MRI has been suggested as being helpful in this situation. Unfortunately, data is lacking, hence this report. Results are not encouraging. No specific MRI findings were found in painful groins and the ability of 2 observers to agree on what they found, even with a list of choices, was poor. The authors try to leave us with a positive spin suggesting that more study may be helpful. A comment with the article suggests communication between surgeons and radiologists might improve these results. Communication is always good when a problem exists. Whether it is the answer to this vexing problem remains to be seen. (Reviewer-John A. Weigelt, MD).

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Keywords: Hernia Repair, Postoperative Pain, MRI, Pathology

Print Tag: Refer to original journal article
The rate of gastric outlet obstruction is 20 to 30% in patients undergoing only biliary bypass for unresectable pancreatic cancer.

**Objective:** To determine if existing literature supports the performance of gastrojejunostomy in patients with unresectable pancreatic cancer identified at exploration to prevent subsequent gastric outlet obstruction.

**Design/Methods:** A meta-analysis reviewed the published literature that reported upon outcomes related to gastrojejunostomy in the setting of unresectable pancreatic cancer. Studies were included if they compared patients undergoing both biliary bypass and gastrojejunostomy to those only undergoing biliary bypass.

**Results:** This analysis identified 3 studies - 2 randomized controlled trials (RCT) and 1 prospective study. In a study of 87 patients judged to be of low risk of duodenal obstruction, patients were randomized at exploration to a retrocolic gastrojejunostomy or to no prophylactic bypass. Overall postoperative morbidity was identical in the 2 groups as was the mean hospital length of stay. During long-term follow-up, about 1 in 5 patients in the non-bypass group required treatment for gastric outlet obstruction. Mean survival and delayed gastric emptying was identical in the groups. A second prospective study similarly found that almost 1 in 3 patients with only biliary bypass developed gastric outlet obstruction requiring treatment and that operative morbidity or mortality was not increased when double bypass was performed at the initial operation compared to biliary bypass alone. Lastly, an RCT from the Netherlands demonstrated a 6-fold reduction in gastric outlet obstruction when double bypass was performed compared to biliary bypass alone. Of biliary bypass patients, 20% required relaparotomy with gastrojejunostomy for the subsequent gastric outlet obstruction.

**Conclusions:** Double bypass should be performed in those patients who would be expected to have a prolonged survival as it provides improved palliation without added morbidity or mortality.

**Reviewer’s Comments:** I would have to agree with the conclusions of this review as there are a sufficient number of patients when the 3 studies are combined to conclude that there is no significant difference in morbidity or mortality when double bypass is performed compared to biliary bypass alone. The goal in these patients is to provide palliation without increasing surgical morbidity. If 20 to 30% of these patients have to undergo a second procedure in their remaining short life span then we would have failed to provide them with adequate palliation. Furthermore, there does not seem to be any added morbidity of the second bypass procedure therefore double bypass remains an important component of the palliative procedure. (Reviewer-Raminder Nirula, MD).

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Keywords: Pancreatic Cancer, Gastroenterostomy, Obstruction

Print Tag: Refer to original journal article
Catheter obstruction was only 3.6% in patients undergoing laparoscopically-placed peritoneal dialysis catheters.

**Objective:** To determine if laparoscopically-placed peritoneal dialysis catheters have greater longevity than traditionally placed catheters; also, to identify potential causes of catheter dysfunction and methods of correcting them at initial catheter placement through laparoscopic means.

**Methods:** Patients undergoing laparoscopic peritoneal dialysis catheter placement were followed for catheter dysfunction. Additional prophylactic procedures included tacking abundant omentum up to the anterior abdominal wall in cases where it was found to be filling the pelvis, laparoscopic adhesiolysis, colonic epiploectomy of long epiploic appendices, and colopexy in cases where it impeded flow.

**Results:** After a mean follow up of almost 2 years, 3.7% of 402 patients had experienced mechanical obstruction. The majority of these obstructions were remedied by laparoscopic means. Obstructions were predominantly due to epiploic appendices or adhesions. Pericatheter leak occurred in 2.6% of patients, the majority of which resolved spontaneously with a period of catheter rest. The authors compare their low rates of catheter flow dysfunction to rates of 10 to 17% for unassisted guide-wire or open surgical techniques.

**Conclusions:** Laparoscopic placement of peritoneal dialysis catheters with modification of potential causes of catheter dysfunction produces superior outcomes. **Reviewers Comments:** While this study lacks a comparison group to determine if the addition of prophylactic procedures truly reduces catheter dysfunction, their approach makes clinical sense since the cause of flow dysfunction frequently involves omental entrapment or adhesions. Compared to existing literature their results are superior; however, I wonder if they are cost effective. Based on existing data, 14 patients would need to undergo laparoscopic placement in order to prevent 1 case of catheter obstruction when compared to the traditional placement of these catheters. Does the cost of these 14 laparoscopic cases outweigh the cost and burden of undergoing a revision of the 1 case that would have been prevented? While their results show efficacy, it is our responsibility to demonstrate cost-effectiveness before employing expensive surgical alternatives to patients. (Reviewer-Raminder Nirula, MD).

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Keywords: Peritoneal Dialysis, Laparoscopy, Access

Print Tag: Refer to original journal article
Routine Use of Drains for Lap Cholecystectomy Should Be Avoided

Is There a Role For Drain Use in Elective Laparoscopic Cholecystectomy? A Controlled Randomized Trial.


Am J Surg 2009; 197 (June): 759-763

Routine use of drains for laparoscopic cholecystectomy offers no benefit and increases pain.

Background: There appears to be lack of consensus regarding routine use of drains for laparoscopic cholecystectomy, with up to 33% of surgeons routinely using drains.

Objective: To investigate routine use of drains after laparoscopic cholecystectomy.

Design: Randomized controlled trial.

Methods: All patients scheduled for elective laparoscopic cholecystectomy with an American Society of Anesthesiologists (ASA) Class III or less were eligible for inclusion in the trial. Exclusion criteria were acute cholecystitis, need for common bile duct exploration, need for other additional procedure, and contraindication to the laparoscopic approach. Just prior to the end of the procedure, patients were randomized to receive no drain or to receive a silicone drain placed through one of the 5 mm lateral ports; this drain was placed to gravity drainage into a colostomy bag. Postoperatively, the drain was removed at 24 hours unless there was bile or >100 cc of blood. For biliary leaks, the drain remained in place until the leak was completely sealed. For blood, the drain remained in place until the output was <100 cc in 24 hours. Primary endpoints were pain, measured on a visual analog scale at 24 hours; morbidity; and hospital length of stay.

Results: 565 patients were enrolled during a 5-year study period. Of patients, 284 were randomized to drain placement and 281 to no drain. Of patients in the no-drain group, 3 had drains placed due to surgeon concern about bile leak from an aberrant duct in 1 patient and non-secure cystic duct stump closure in 2 patients. Average age was 55 years, just over half of the group was female, and average body mass index (BMI) was 29. The majority of patients were ASA Class I, with <10% ASA Class III. Operative time was 44 minutes and conversion rate was 1.3%. There were no differences in demographics or operative variables between groups. There was no mortality and average hospital stay was 1 day (range, 1 to 9 days). Morbidity was 3.2% in the no-drain group and 4.2% in the drain group, not significantly different. Visual analog pain score was 5 in the drain group and 3 in the no-drain group, with a range of 1 to 8 in both groups; P <0.001.

Conclusions: The authors conclude that routine use of drains in laparoscopic cholecystectomy offers no benefit and increases postoperative pain.

Reviewer's Comments: Clearly, the use of drains does not prevent bile leaks; it is interesting that the only bile leaks in the no-drain group occurred in patients where drains were placed against protocol. The operating surgeon was able to identify those patients in whom bile leaks were likely to happen; although the numbers are small and not statistically significant, this is an argument for selective use of drains. (Reviewer-Karen J. Brasel, MD, MPH).

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Keywords: Laparoscopic Cholecystectomy, Drain

Print Tag: Refer to original journal article
Objective: To explore the relationship between obesity and pancreatic cancer with respect to incidence, age of onset, and outcome.

Methods: Patients with pathologically confirmed pancreatic ductal cancer were enrolled. Controls were recruited from spouses, non-genetically related relatives, and friends accompanying patients to clinic visits. Matching of cases and controls was by age, within 5 years; sex; and self-reported race. Demographic information was obtained via structured interviewer-administered questionnaire. This included height and weight for each decade beginning at age 14. Clinical information was abstracted from the patient’s medical record. Association of pancreatic cancer with potential risk factors was analyzed using multiple factor unconditional logistic regression adjusting for age, race, sex, smoking status, alcohol consumption, diabetes, and family history of cancer.

Results: 841 patients were recruited from 1002 eligible patients; 754 healthy controls were recruited. Average age was 61 years. Fewer controls were female, black, had a family history of cancer or diabetes, smoked cigarettes, or consumed alcohol. Using a body mass index (BMI) of 25 as the definition of overweight, patients had a longer period of being overweight than controls (4.11 decades compared to 3.89 decades, \(P=0.03\)). Mean BMI from age 14 to 59 years was 24.7 for patients and 23.7 for controls, \(P<0.001\). Being overweight from age 14 to 39 years and obese from age 20 to 49 years was significantly associated with an increased risk of pancreatic cancer regardless of diabetes status. The highest odds ratio (OR) was for obesity from age 30 to 39; OR 3.03 in individuals without diabetes. BMI from age 60 to 79 years and in the year prior to study enrollment were not associated with the risk of pancreatic cancer. OR for every 5 unit increase in mean BMI was 1.55 (95% CI, 1.32 to 1.84). This was greater in patients without diabetes, OR 1.66. This association was stronger in men and in smokers. Median age of diagnosis was 64 for patients with normal weight, 61 for overweight patients, and 59 for obese patients. Obesity from age 30 to 79 years and in the year prior to study recruitment was significantly associated with poorer survival. This was true even in patients with metastatic disease.

Conclusions: The authors conclude that overweight or obesity during early adulthood is associated with a greater risk of pancreatic cancer, a younger age of onset; obesity at an older age is associated with a lower overall survival.

Reviewer’s Comments: This study is reflective of a referral patient population, and may not be representative of all patients with pancreatic cancer. Nonetheless, the findings are robust and striking, and provide further evidence that the epidemic of obesity affecting our country has devastating health consequences. (Reviewer-Karen J. Brasel, MD, MPH).

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Keywords: Cancer, Body Mass Index, Age, Survival

Print Tag: Refer to original journal article
Predicting Ventilator-Associated Pneumonia Mortality Easier with New Score

Predicting Mortality in Patients With Ventilator-Associated Pneumonia: The APACHE II Score Versus the New IBMP-10 Score.

Mirsaeidi M, Peyrani P, et al:

Clin Infect Dis 2009; 49 (July): 72-77

New prediction rule as good as or better than APACHE II in limited dataset.

**Background:** Ventilator-associated pneumonia is the most common cause of infectious nosocomial mortality. **Objective:** To predict mortality, comparing a new score to the previous best predictor, the Acute Physiology and Chronic Health Evaluation II (APACHE II).

**Design/Methods:** This is a secondary analysis of data originally collected for the Improving Medicine through Pathway Assessment of Critical Therapy of Hospital-Acquired Pneumonia (IMPACT-HAP) trial, which was a retrospective, multicenter, observational study of patients with hospital-acquired pneumonia, ventilator-associated pneumonia, and health care-associated pneumonia who were treated at 4 academic institutions. From this dataset, 60 variables were abstracted from patients with ventilator-associated pneumonia, including demographic information, comorbidities, physical examination data, laboratory data, and findings from chest radiographs. A new mortality prediction rule was compared to the APACHE II score calculated on the day of pneumonia diagnosis.

**Results:** 178 patients with ventilator-associated pneumonia were included in the study. Mean age was 56 years (range, 16 to 93 years) and 116 patients were male. Average duration of hospitalization prior to diagnosis of pneumonia was 13 days. Ventilator-associated pneumonia was confirmed microbiologically in 80%. Prediction rule was derived using the presence of immunodeficiency, blood pressure <90 mm Hg systolic or <60 mm Hg diastolic, multilobar infiltrates on chest radiograph, platelet count <100,000/mm3, and duration of hospitalization prior to pneumonia diagnosis >10 days. Each variable was assigned 1 point; the score ranged from 0 to 5. The area under the receiver operating curve (ROC) curve for the new predictive score was 0.808, significantly greater than the area under the ROC curve for APACHE II of 0.743.

**Conclusions:** The authors conclude that the 5-point prediction rule, called by the authors the IBMP-10, is comparable to the APACHE II score in its ability to predict mortality in patients with ventilator-associated pneumonia.

**Reviewer's Comments:** The most important efforts in the area of ventilator-associated pneumonia continue to be in prevention. From a research and epidemiologic standpoint, it will likely be helpful to have a simpler tool than the APACHE II to predict mortality. Collecting data required for the APACHE II, as well as calculating the score, can take up valuable research personnel time. However, it is likely that the IBMP-10 will not hold up under further study. Prediction tools are most often derived from an initial dataset and validated in a second set; investigators often divide a single set in two to accomplish this task. These investigators evaluated the predictive tool using the same sample in which it was derived. (Reviewer-Karen J. Brasel, MD, MPH).

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Keywords: Mortality Prediction, Ventilator

Print Tag: Refer to original journal article
Laparoscopic Closure of Perforated Ulcer Appears to Be Best Option

Randomized Clinical Trial of Laparoscopic Versus Open Repair of the Perforated Peptic Ulcer: The LAMA Trial.

Bertleff MJ, Halm JA, et al:


Laparoscopic repair of perforated ulcer is feasible and associated with less postoperative pain.

**Background:** Incidence of perforated ulcer has declined with the *H. pylori* eradication and antiulcer medication. The management of perforated peptic ulcer (PPU) disease is surgical laparotomy with open repair.

**Objective:** To compare laparoscopic repair and open repair of perforated peptic ulcer.

**Design:** Prospective trial that occurred over a 7-yr period at 9 medical centers in the Netherlands.

**Methods:** Patients were randomized after informed consent was obtained. Open repair was performed under standard techniques including suturing with or without omental patch and peritoneal lavage with cultures. Laparoscopic repair was performed under standard pneumoperitoneum in the French position and four-port access was achieved. The technical aspects of the laparoscopic repair paralleled the standard open approach. In this unblinded trial, patients were followed postoperatively and discharged per the surgeon's discretion. Pain and routine perioperative outcomes were recorded and follow-up was maintained at regular intervals. Data were analyzed according to the intention-to-treat principle.

**Results:** There was a significantly longer median operative time in the laparoscopic group as compared to the open group. Postoperative analgesia and opiate usage based on visual analogue scores favored the minimally invasive approach. Pain scores at day 1, 3, and 7 were significantly lower in the laparoscopic group. Complications were similar as well as length of stay.

**Conclusions:** The need for surgery for PPU disease has declined enormously. Despite the lack of widespread acceptance of the laparoscopic approach to PPU, this trial included >100 randomized patients. There was an additional benefit to laparoscopy in diagnosing other pathology in a small percentage of patients requiring conversion or further laparoscopic surgery instead of the intended repair of PPU. Operative time appeared longer in the laparoscopic group as compared to the open group; that may represent the more technical demand to laparoscopic intracorporeal knot tying and early learning curve in managing these cases.

**Reviewer's Comments:** This study, as in other studies, demonstrated significant reduction in postoperative analgesia usage measured objectively with visual analogue scoring. These findings have been supported in other studies. Despite less postoperative pain, the length of stay between groups was comparable as well as other major postoperative complications. This study confirmed the safety and feasibility of laparoscopic repair of PPU for the experienced laparoscopic surgeon. This approach may result in better cosmetic outcome and less postoperative pain. However, length of stay and the incidence of complications postoperatively were similar between the laparoscopic and open groups. (Reviewer-Sam G. Pappas, MD).

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Keywords: Perforated Peptic Ulcer, Laparoscopic, Open Repair

Print Tag: Refer to original journal article
Serosal Patching May Reduce Pancreatic Stump Complications

Randomized Clinical Trial of Techniques for Closure of the Pancreatic Remnant Following Distal Pancreatectomy.

Oláh A, Issekutz A, et al:

Br J Surg 2009; 96 (June): 602-607

Stapled distal pancreatectomy alone resulted in a higher rate of postoperative complications. However, the rates of clinically significant postoperative pancreatic fistula requiring re-intervention were similar between the two groups.

Background: Postoperative pancreatic fistula after distal pancreatectomy is a major source of morbidity sometimes requiring prolonged hospital stay and re-operative intervention. Several authors have reported various techniques of parenchymal transection and pancreatic stump closure in an attempt to decrease the postoperative leak rate and its attendant consequence.

Objective: To compare leak rates after distal pancreatectomy with either stapled closure versus stapled closure with the addition of a jejunal serosal patch.

Design/Methods: This was a prospective randomized trial comparing stapled alone versus stapled with jejunal serosal patch remnant closure following distal pancreatectomy in a series of 70 patients. Primary end-point of the study was overall postoperative pancreatic fistula rate and rate of postoperative intra-abdominal fluid collections.

Results: Stapled closure alone as compared to stapled closure and serosal patch resulted in a higher rate of postoperative complications. However the rates of grade B and C, clinically-significant postoperative pancreatic fistula requiring re-intervention were similar between groups. Furthermore, median length of stay and rate of re-intervention between groups were similar. Conclusions: This study demonstrated that stump closure followed by jejunal serosal patch resulted in a significant reduction in overall pancreas-related complications, but not Grade B and C pancreatic fistulas. All apparent fistulas in the jejunal serosal patch group closed within 8 weeks. Recent meta-analyses have favored stapled distal pancreatectomy in possibly reducing the risk of postoperative pancreatic fistula. Some studies have contradicted these findings and optimal management of the pancreatic remnant remains unknown. Several newer studies have used other techniques of pancreatic transection and remnant management including serosal patch as a possible means of improving outcomes after distal pancreatectomy. Mobilization of the proximal jejunum and its use as a serosal patch was employed in this study and rates of overall postoperative fistula and postoperative fluid collections were improved. However, the study failed to show a significant reduction in higher-grade (B and C) fistulas that are the clinically relevant ones and often require intervention.

Reviewer’s Comments: While it appears that some type of staple line will likely lead to lower leak rate as compared to no further treatment, the precise means to reduce the clinically significant leak rate remains elusive. (Reviewer-Sam G. Pappas, MD).

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Keywords: Jejunal Serosal Patch, Distal Pancreatectomy

Print Tag: Refer to original journal article
Expanding Indications for Resecting Colon Metastatic Lesions in the Liver

Long-Term Survival After Liver Resection for Colorectal Liver Metastases in Patients With Hepatic Pedicle Lymph Nodes Involvement in the Era of New Chemotherapy Regimens.

Oussoultzoglou E, Romain B, et al:
Ann Surg 2009; 249 (June): 879-886

Extrahepatic porta hepatis lymph node involvement may no longer be a contraindication for potentially curative liver resection for colorectal liver metastases.

Background: Hepatic pedicle lymph node (HPLN) involvement appears to be the single most significant negative prognostic indicator adversely affecting survival in patients with colorectal liver metastases (CRLM). The impact of newer chemotherapeutic strategies combined with hepatectomy and regional lymphadenectomy for CRLM is not known.

Objective: To evaluate the impact of HPLN involvement on survival after resection for CRLM in the era of new chemotherapy drugs.

Methods: Patients at high risk for HPLN involvement were reviewed from a prospectively maintained database. Of patients who underwent liver resection in the presence of suspected HPLN involvement, 54 were included. No patient received neoadjuvant chemotherapy prior to consideration of surgical resection. Patients underwent standard metastatic work-up prior to resection. Routine statistical methods were employed to evaluate outcomes.

Results: 45 patients were evaluated in this study with a median age of 58.4 years. Most patients (29) had unilobar metastases whereas the remaining patients had bilobar metastases. Median follow-up was 25.5 months. HPLN involvement was localized to area 1 in 17 patients, area 2 in 10, and both in 18 patients. Overall 3- and 5-year survival rates were 29.7 and 17.3%, respectively. Of patients, 3 had prolonged survival >30 months. Statistical analysis that preoperative carcinoembryonic antigen level, curative intent liver resection, involvement to uninvolved lymph node ratio of the HPLN nodes, and postoperative adjuvant chemotherapy were independent risk factors for prolonged survival.

Conclusions: This study demonstrated prolonged survival in patients with extrahepatic area 1 and 2 HPLN involvement that was previously a contraindication to major hepatectomy in patients with liver metastases from colon cancer. This supports the routine use of lymphadenectomy in select patients at high risk for extrahepatic lymph node involvement. Selective lymphadenectomy may not only favorably affect the involved-to-uninvolved lymph node ratio but also may help assign patients to receive postoperative adjuvant chemotherapy. Most importantly, this study demonstrated that prolonged survival, and in some cases apparent cure, is achievable in patients with extrahepatic disease from CRLM.

Reviewer's Comments: The results of the above study support aggressive approaches with apparent extrahepatic lymph node involvement in patients with colorectal liver metastases. These results require further validation but would suggest that area 1 or 2 extrahepatic lymph node involvement in patients with CRLM should no longer be considered a contraindication to potentially curative surgical resection. (Reviewer-Sam G. Pappas, MD).

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Keywords: Colorectal Liver Metastases, Extrahepatic Lymph Node

Print Tag: Refer to original journal article
Chemotherapy--The Early Bird Gets the Worm!

Etiology of Delays in the Initiation of Adjuvant Chemotherapy and Their Impact on Outcomes for Stage II and III Rectal Cancer.

Cheung WY, Neville BA, Earle CC:

Dis Colon Rectum 2009; 52 (June): 1054-1063

Certain demographic factors such as age and race can affect access to care and contribute to delay in postoperative therapy.

Background: The use of neoadjuvant and adjuvant chemotherapy has become the mainstay in the management of early stage rectal cancer because of significant survival benefits. Several factors may contribute to delays in the provision of the appropriate pre- and postoperative chemotherapy.

Objectives: To examine the rates and causes of adjuvant chemotherapy delays in rectal cancer and to evaluate consequences of delays on overall rectal cancer outcomes.

Methods: 13 cancer registries that participate in the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program were used in the analyses data. Patients aged ≥65 years diagnosed with primary rectal cancer and who received adjuvant chemotherapy care ≤1 year after curative considered for study inclusion. To analyze access to care, patients were classified into 2 groups: patients who had known contact with a medical oncologist before curative resection (group A) and patients who did not demonstrate such established access (group B). Covariates and disease characteristics were recorded for analysis. Data were analyzed using standard statistical analytic techniques. A total of 6059 patients were available for review in this study, had surgery, and received subsequent chemotherapy for stage II or III rectal cancer. Median interval between surgery and adjuvant chemotherapy was similar between groups A and B at 46 and 42 days, respectively. Median overall survival was worse among patients who received chemotherapy 3 or 4 months after curative resection as compared to patients who received it <3 months after potentially curative resection. Prolonged postoperative stay independently predicted delay in adjuvant therapy in both groups. Black and older patients had greater odds of delay in postoperative therapy within their own group which represented a covariate disparity among the group B patients. The results of the study indicate that certain demographic factors such as age and race can affect access to care and contribute to delay in therapy. This is consistent with the results of other studies that have demonstrated inferior outcomes associated treatment delays of >3 months postoperatively. Prolonged postoperative length of stay was strongly associated with late initiation of adjuvant chemotherapy.

Reviewer's Comments: In this study, postoperative recovery was a more important driver of adjuvant therapy delays. Advanced age and black race were less powerful but still significant predictors of delay in therapy and inferior postoperative oncologic outcomes. (Reviewer-Sam G. Pappas, MD).

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Keywords: Rectal Cancer, Adjuvant Chemotherapy

Print Tag: Refer to original journal article
Stenting of renal artery stenosis has little positive effect on renal function.

**Background:** Stent placement for bilateral renal artery stenosis or stenosis with a solitary kidney is a recommendation aimed at preserving renal function. While the goal of preserving renal function is great, the ability of renal artery stents in achieving this goal is questionable.

**Objective:** To determine the efficacy of renal artery stents in preserving renal function in patients with atherosclerotic renal artery stenosis.

**Design:** Randomized clinical trial.

**Participants:** 140 patients were randomized: 76 were treated with medication and 64 to stent placement.

**Methods:** Included patients had to have a creatinine clearance of <80 mL/min per 1.73 m2 and renal artery stenosis. Stenosis was defined as a 50% reduction in renal artery diameter within 1 cm of the aorta. Patients were followed at 1, 3 and then every 3 months for 2 years. Serum creatinine and blood pressures were measured at each visit. Primary endpoint was renal function deterioration of ≥20% decrease from baseline of creatinine clearance. Secondary endpoints included procedural complications.

**Interventions:** Both groups received medication to modify atherosclerotic risk factors and control blood pressure. Stents were placed across stenoses with success defined as a <50% stenosis.

**Results:** 16 medication-only patients (22%) and 10 stent patients (16%) met the primary endpoint of reduced renal function at a mean of 10 months. Mortality was no different between groups. The cause of mortality was different. There were 2 procedural related deaths. There was also 1 groin hematoma requiring surgical treatment with subsequent death, 2 femoral false aneurysms, and 1 patient with renal failure requiring dialysis after repeated renal angiography.

**Conclusions:** Stent placement did not improve or preserve renal function in patients with renal artery stenosis any better than medication and was associated with procedural morbidity and mortality.

**Reviewer's Comments:** Data in this report are being emphasized in many different circles. The rush to stent renal artery stenosis in the hopes that renal function will be preserved is a house of cards. Data from a larger trial (ASTRAL) support these findings. No clinically significant benefit accrues after revascularization of a kidney with renal artery stenosis from atherosclerosis. At this time, an aggressive approach to renal artery stenosis seems to be a classic case of technology triumphing over common sense. (Reviewer-John A. Weigelt, MD).

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Keywords: Renal Artery Stenosis, Stent

Print Tag: Refer to original journal article
Spontaneous abdominal abscess in Crohn's patients may best be treated by percutaneous drainage.

**Background:** A complication of Crohn's disease is a spontaneous abdominal abscess secondary to bowel perforation. Intestinal fistula is another sequela of these abscesses. Management clearly must include abscess drainage. While surgical drainage is often used, percutaneous drainage should not be forgotten.

**Objective:** To evaluate outcomes associated with surgical and percutaneous drainage of spontaneous abdominal abscesses in patients with Crohn's disease.

**Design:** Retrospective review.

**Participants:** 94 patients were reviewed; 48 had percutaneous drainage (51%) and 46 had initial surgical drainage (49%).

**Methods:** Postoperative abscesses were excluded. Data selected from a prospective Crohn's disease database included demographics, comorbidities, nutritional parameters, medications, location of abscess, and complications of the procedures. Success was defined as resolution of the abscess. Cost effectiveness and quality-of-life outcomes were also calculated.

**Results:** Percutaneous drainage was successful in 31 (65%) patients and all had delayed elective surgery. Of these patients, 9 had surgery with the drain in place secondary to a persistent enterocutaneous fistula. Of patients, 17 had failed percutaneous drainage requiring surgical drainage. Failure was associated with steroid use, jejunoileal disease, and multiple or multiloculated abscesses. Fistula formation or presence was not associated with increased failure rates. Use of surgery initially did not increase septic complications compared to surgery after successful percutaneous drainage. Initial surgery did increase the need for a stoma. Cost analysis favored percutaneous drainage as did patient assessment of their quality of life.

**Conclusions:** Percutaneous drainage is more cost effective and favored by patients compared to initial surgical drainage of a spontaneous Crohn's abdominal abscess.

**Reviewer's Comments:** Spontaneous Crohn's abdominal abscesses are usually managed by surgical drainage. This approach achieves source control and allows fistulas to be rapidly identified and repaired—hopefully definitively. Use of percutaneous drainage offers the advantage of source control and, if successful, an elective operation follows. This type of management was successful in 65% of patients. Median time to success was 43 days with a range of 8 to 240 days; 240 days seems excessive, but an explanation is not found in the report. Surgical therapy outcomes were no different whether surgery was done early versus after percutaneous drainage. Cost analysis is interesting and I find it a little difficult to believe especially when the range of treatment is so wide for percutaneous drainage and the persistent fistula rate after percutaneous drainage. Quality of life may be driven by the stoma formation. This is an interesting way to look at a very complex problem. (Reviewer: John A. Weigelt, MD).

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Keywords: Abdominal Abscess, Crohn's Disease

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High mitotic rates in a gastrointestinal stromal tumor are a poor prognostic sign.

**Background:** Gastrointestinal stromal tumors (GIST) remain the most common mesenchymal tumor of the gastrointestinal tract. These tumors were classified as a smooth muscle tumor until recently. They are now identified as arising from the interstitial cell of Cajal. They tend to invade locally and they are unique in having a mutated protein involving a tyrosine kinase receptor (C-kit).

**Objective:** To identify prognostic factors in patients with GISTs.

**Design:** Retrospective review of prospectively collected data.

**Participants:** 47 patients with GISTs.

**Methods:** Demographics, tumor location, size of tumor, type of resection, histology, and C-kit presence were retrieved. Primary outcome was tumor recurrence and mortality. Correlation between outcomes and tumor characteristics was attempted. Multivariate analysis was used to identify significant correlations.

**Interventions:** All patients had surgical resection of the GIST.

**Results:** Most common symptom was pain in 34% of patients; anemia was present in 42%. The stomach was the most common site (64%). Of patients, 45% were treated by partial gastrectomy and 26% had a small bowel resection. Low-grade tumors were <5 cm and had <5 mitotic figures per high powered field (HPF). Intermediate-grade was a tumor <5 cm and 6 to 10 mitoses per HPF or 5 to 10 cm with <5 mitoses per HPF. High-grade lesions were size >10 cm or mitoses >10 per HPF or >5 cm with >5 mitoses per HPF. Recurrence-free survival at 2 and 5 years was 100% for low, 68% for intermediate, and 45% for high risk tumors. On multivariate analysis, only the mitotic count and not size was shown to be a significant predictor of poor outcome.

**Conclusions:** High mitotic rates in GIST tumors are negative prognostic factors.

**Reviewer's Comments:** Size and number of mitoses are the factors that are usually identified as altering the prognosis of GIST patients. The larger the tumor and the more mitoses, the worse the prognosis is. I am not sure that we should abandon size as a prognostic factor based on this study since only 6 tumors studied were >10 cm were in this group of 47. Univariate analysis did show size to be a significant factor. Additionally, Fletcher classification, which includes size, did correlate with recurrence-free survival. Overall, I would still use the 10/10 approach to indicate a poor prognosis for a GIST patient: size >10 cm and >10 mitoses per 50 HPF. (Reviewer: John A. Weigelt, MD).

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Keywords: GIST Tumors, Surgery

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Objective: To describe the technique and experience of performing a pure natural orifice transluminal endoscopic surgery (NOTES) cholecystectomy without laparoscopic assistance.

Methods: Initially, 3 patients underwent laparoscopically-assisted NOTES procedures performed primarily transvaginally but with transabdominal laparoscopic assistance. Pneumoperitoneum was carried out through an abdominal needle in the first 3 patients. The first patient had a transabdominally placed 5 mm port for retraction as well. In the second and third patients, a separate colpotomy was made for placement of a 5 mm articulating retractor. The fourth patient underwent a pure NOTES procedure with pneumoperitoneum being created via a transvaginal trocar placed through a colpotomy instead of transabdominally.

Results: The patient undergoing a pure NOTES procedure appears to be the first done in the United States. All patients were discharged without complications at 1 month follow up.

Conclusions: Pure transvaginal NOTES can be accomplished safely in humans using a 2-colpotomy technique and a reticulating retractor.

Reviewer's Comments: While laparoscopy has certainly revolutionized our approach to a variety of surgical problems I’m still trying to determine the benefit and role of NOTES. The authors report an average pain score after surgery of 4 on a scale of 1 to 10 which is likely comparable to that of laparoscopy. Furthermore, patients reported no pain at 2 weeks postoperatively which is typically the case for most laparoscopic cholecystectomies. The cosmetic advantage goes without saying but what will the implications of the transvaginal route be on fertility and dyspareunia? Most women I talk to shudder at the idea of the transvaginal approach. (Reviewer-Raminder Nirula, MD).
Objective: To determine if using Polymyxin B hemoperfusion to bind endotoxins in intra-abdominal sepsis improves patient outcomes through reducing circulating endotoxin.

Design: Prospective, multicenter randomized controlled trial over a 3-year period in Italy conducted among 10 centers. Patients were included if they had severe sepsis or septic shock secondary to intra-abdominal sepsis. Patients were randomized within 6 hours of their surgery to standard treatment that followed the Surviving Sepsis Campaign guidelines or to standard treatment plus polymyxin B hemoperfusion. Hemoperfusion was performed twice over a 24-hour period. Primary endpoint was hemodynamic stability achieved within 72 hours.

Results: At 72 hours, mean arterial pressure (MAP) significantly increased from 76 to 84 with a reduction in inotropic use in the polymyxin group. The conventional therapy group showed no significant increase in MAP or reduction in inotropic support at 72 hours. Organ function and PaO$_2$ to FiO$_2$ ratio improved in the treatment group. The 28-day crude mortality was 32% in the treatment group and 53% in the control group. This led to the study cessation before the projected enrollment given the significant improvement observed.

Conclusions: Polymyxin B hemoperfusion significantly improved organ function, hemodynamics, and mortality in patients with sepsis secondary to intra-abdominal infection.

Reviewer’s Comments: This was a well-designed trial that clearly shows a benefit of polymyxin B hemoperfusion therapy over standard-of-care. In European trials of sepsis, however, their control group mortality frequently is higher than that observed in the United States (US). In this study, the control group was to have undergone treatment based upon the Surviving Sepsis Campaign guidelines and yet mortality was still 53%. In most US studies, mortality for this group would be approximately 30 to 40%. Therefore, if this treatment were to be compared to a control group in the US, it may not have yielded a significant improvement in mortality. The reason for the disparity in outcomes from sepsis trials between the US and Europe may be related to differences in patient populations, time of presentation, treatment differences, or severity of illness. Still, these results are compelling enough to spur on a randomized trial in the US to determine if this therapy should become part of our practice for severe intra-abdominal infection leading to sepsis. (Reviewer-Raminder Nirula).
Objective: To determine if the guideline of performing laparoscopic cholecystectomy within 2 weeks of an episode of gallstone pancreatitis is feasible and cost effective in the British Health Care system.

Design: Retrospective analysis.

Methods: Patients admitted with gallstone pancreatitis over a 2-year period were analyzed in terms of readmission for gallstone related symptoms or pathology, timing of surgery, and severity of illness. Costs were obtained from regional trusts. Costs to accommodate the 2-week target of laparoscopic cholecystectomy for these patients were determined to compare against the costs for readmissions.

Results: Of 153 patients with gallstone pancreatitis, 86% had no further admissions prior to surgery. About half of patients who had a readmission prior to cholecystectomy had severe pancreatitis during their initial admission. Median time to surgery was just over 5 months. Age was similar in patients requiring readmission compared to those who did not. Estimated cost for providing operative services to accommodate all of these patients to achieve the 2-week goal was essentially the same as the cost to manage those patients readmitted while awaiting their surgical procedure along with the remainder of patients.

Conclusions: Implementing a dedicated operating room theatre to accommodate a 2-week target for cholecystectomy following gallstone pancreatitis is cost neutral and could potentially decrease the rate of hospital readmissions.

Reviewer’s Comments: While it makes intuitive sense that performing cholecystectomy in a timely manner would reduce readmissions after gallstone pancreatitis, this analysis is somewhat oversimplified. It is not clear whether their cost analysis truly accounts for the contingencies necessary for operating on these patients in a 2-week time frame. Patients with gallstone pancreatitis have a higher rate of conversion-to-open cholecystectomy and since a very small number of patients in their study were actually operated on within this window, the fact that they had no conversions to open is meaningless. Converting to open increases the procedure cost, length of hospital stay and risk of subsequent complications. What about the risk of common duct injury when trying to do a lap chole in the setting of recent pancreatitis? The costs of one such complication are tremendous and would negate their findings. A more in-depth cost analysis taking these factors into account needs to be performed. (Reviewer-Raminder Nirula, MD).

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Keywords: Gallstone Pancreatitis, Laparoscopic Cholecystectomy, Timing, Cost

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Intensive glucose control improves cardiovascular health without increasing all-cause mortality.

Background: The information about intensive glucose control continues to confuse. A reduction of infectious complications at the expense of all-cause mortality, as well as differing effects in differing populations has caused many to rethink glucose control strategies.

Objective: To determine if intensive glucose control in diabetic patients is beneficial.

Design/Participants: Meta-analysis of randomized controlled trials only including outpatients who had long-term (almost 5 year) follow-up.

Methods: Medline, Cochrane Central, and Embase were searched for all English-language articles published from January 1970 to January 2009 relating to diabetes and vascular outcomes. The search was restricted to randomized, controlled trials. Inclusion criteria were then applied; these were random assignments to intensive glucose control versus standard regimen, a primary endpoint that included cardiovascular events and conducted in an outpatient setting.

Results: From 11 trials, 16 articles were identified; 6 of these trials were subsequently excluded for lack of inclusion of cardiovascular outcomes in the primary endpoint, including patients with impaired glucose tolerance rather than diabetes, lack of a standard comparative treatment, and use of a composite endpoint. Therefore, 5 randomized controlled trials met inclusion criteria. Intensive treatments included oral and injectable regimens; target hemoglobin A1C levels achieved 6.6%, while the target of standard therapy achieved 7.5%. Average follow-up was approximately 5 years. There were 1497 nonfatal myocardial infarctions in the 33,040 participants, 2318 coronary heart disease events, 1127 stroke events, and 2892 deaths in 163,000 person-years of follow-up. Intensive glycemic control resulted in a 17% reduction in nonfatal myocardial infarction, a 15% reduction in coronary heart disease events, and had no effect on stroke events or all-cause mortality.

Conclusions: The authors conclude that intensive glucose control for diabetics in the outpatient setting reduces coronary events without an increased risk of death.

Reviewer's Comments: Recent reports have suggested that intensive glucose control in the inpatient setting may be of questionable benefit—improving some outcomes while increasing all-cause mortality. Benefits may be more pronounced, and the mortality concerns lessened, in surgical patients. However, understanding the pathophysiology and reasons for potentially conflicting results is important. Long-term intensive glucose control appears to be beneficial—improving cardiovascular outcome without worsening all-cause mortality. The relationship between long-term and short-term control likely needs further understanding, and the rate and extent of reduction may be an important aspect in patients in whom short-term intensive control is considered. (Reviewer-Karen J. Brasel, MD, MPH).

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Keywords: Glucose Control, Diabetes, Insulin

Print Tag: Refer to original journal article
Anal fistulae in patients with Crohn's disease have much poorer outcome than in patients with cryptoglandular abscesses.

**Background:** Anal fistulae are commonly seen in patients with Crohn's disease. There are a variety of treatment options, ranging from least to most invasive.

**Objective:** To report on surgical outcomes in a single-institution series of patients with fistulae secondary to Crohn's disease.

**Methods:** Records of patients operated on for fistula in ano from May 1995 to January 1996 were reviewed. Patients without Crohn's disease, those with HIV, pouch fistulae, rectovaginal fistulae, cryptoglandular fistulae, and those age <18 years were excluded. Primary outcome was fistula recurrence, assessed by phone; risk factors for recurrence were gender, use of a seton, use of infliximab, previous operation for fistula, history of segmental bowel resection, and smoking. Functional assessment was evaluated using the Vaizey scale and a colorectal functional outcome scale by mail survey.

**Results:** 362 patients were operated on for anal fistulae during the study period; 61 had Crohn's disease. Of patients, 24 were treated with chronic seton drainage; these patients had either proctitis or active Crohn's disease. Of patients with low fistulas, 28 underwent fistulotomy; 9 of these were treated by seton drainage prior to fistulotomy. Of patients with high fistulas, 9 were treated by advancement flaps; 3 of these were treated initially with seton drainage. Follow-up ranged from 13 to 140 months, with a median of 80 months. Of patients, 10 had recurrent fistulae; 5 with low fistulas treated with fistulotomy, and 5 with high fistulas treated with advancement flaps. None of the potential risk factors investigated was significantly associated with recurrence. Incontinence was reported in ≥50% of patients regardless of treatment. Functional outcome was significantly worse in patients with Crohn's disease compared to patients with fistula in ano without Crohn's disease.

**Conclusions:** The authors conclude that surgical outcome in patients with fistula in ano secondary to Crohn's disease is both disappointing and significantly worse than in patients with cryptoglandular abscess.

**Reviewer's Comments:** Slightly fewer than half of the patients in the current series had active Crohn's disease; because of known poor outcome of definitive fistula treatment in this setting, these patients had chronic setons placed as treatment of fistula in ano. Despite excluding these patients from the group that underwent definitive surgical treatment, the results of surgical treatment were quite disappointing. This suggests either that patient selection could (and should) be improved, that adjunctive surgical and/or nonsurgical treatment should be used, or that this is the baseline functional result that should be expected in this patient population. Average follow-up in this series was quite long; it may be that recurrence is inevitable over time and series with better outcomes only report short follow-up. Proper patient education as well as patient selection, and likely multimodal therapy will be key to optimal outcome. (Reviewer-Karen J. Brasel, MD, MPH).

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Keywords: Fistula In Ano, Crohn's Disease

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