Case discussion

Anastomotic leakage

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Basic data

• Name: 蘇XX ID: M101881671
• Age: 51 Y Gender: male
• Past history:
  – Hypertension, Peptic ulcer
• Social history:
  – smoking, alcohol drinking for years
• Occupation: fish vendor
Chief complaint

• LLQ abdominal pain with changes in bowel habits (scanty stool passage) for a long time
• Relief of large bowel obstruction due to acute diverticulitis by conservative treatment twice in the past.
• PE: no peritonitis, LAB: normal
2004/7/19 and 2006/3/6: Double-contrast lower GI series: multiple colonic diverticulosis and spasmatic segment at descending colon, probably due to inflammatory reaction (diverticulitis).

2004/7/18, 2006/1/9, and 2006/3/8: Colonoscopy and biopsy: chronic inflammatory ulcer and edema.
Differential diagnosis

- Chronic diverticulitis
  - recurrent episodes, abrupt onset, LLQ pain, fever, relieved by conservative treatment. 20% large bowel obstruction (5% stricture type, 2.6% with colon cancer)

- Colon cancer
  - progressive obstruction, hematochezia, body weight loss, mean age 60 year-old. 65% large bowel obstruction
Indications for elective operation

1. Two or more acute attacks of diverticulitis successfully treated medically
2. A single attack requiring hospitalization in a patient less than 40Y
3. One attack with evidence of contained perforation, colonic obstruction, or UTI
4. Inability to rule out a colonic carcinoma

1st operation on 2006/3/9

- Procedure: descending colon segmentectomy and primary anastomosis
- Op finding: stricture of descending colon, intestinal wall inflammation
- Contamination of the operation field due to poor bowel preparation.
- Pathology: diverticulitis with mesocolic abscess and stricture and hyperplastic polyps.
Clinical course

• POD1 ➔ *high fever* on cefazolin and gentamycin
• POD4 ➔ Flatus passage
• POD5 ➔ *high fever* and severe diffused abdominal pain with muscle guarding
  – 880 ml coffee ground drained by NG tube, J-P drainage: 2~3 ml clear ascites.
  – KUB showed ileus, WBC: 6.8K/ul (seg: 87%), CRP: 9
• POD6 ➔ on unasyn and amikacin
• POD7 ➔ re-operation
  – stool drained by J-P, WBC: 13K/ul, ARF (BUN/Cre: 41/1.9)
2nd operation on 3/16

- Pre-op diagnosis: anastomotic leakage
- procedure: exploratory laparotomy and Hartmann's procedure
- Op-finding: diffused peritonitis with anastomotic dehiscence and purulent ascites
- Pus culture: E. coli and enterococcus.
- Wound culture: no growth
Clinical course

• POD1 ➔
  – vital sign stable after sedation in SICU, mild fever, urine 810 ml/day (Cre=2.4) on ceftazidime + amikacin + metronidazole

• POD2 ➔ urine output: 5300 ml/day

• POD4 ➔ stool passage from colostomy
  – WBC: 12K/ul, CRP: 12, Cre: 1.1

• POD5 ➔ extubation and transferred to ward
  – On unasyn + amikacin
Discussion

- Q1: management of chronic diverticulitis
- Q2: risk factor of anastomotic leakage
- Q3: the need of prevention for high risk of anastomotic leakage
- Q4: detection of anastomotic leakage
- Q5: management of anastomotic leakage

Use pubmed database and search keyword: anastomotic leak/dehiscence, diverticulitis
Spectrum of disease and outcome of complicated diverticular disease

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Manuscript received August 18, 2003; revised manuscript August 21, 2003

Presented at the 55th Annual Meeting of the Southwestern Surgical Congress, Tucson, Arizona, April 27–30, 2003
Q1: management of chronic diverticulitis

• Resection and primary anastomosis for acute diverticulitis → acceptable morbidity and mortality.

• For high-risk anastomoses, a covering loop ileostomy and not a Hartmann’s procedure is preferred.

• Surgery → safe for the majority; resolution of symptoms.

• earlier operative intervention → preventing recurrent and virulent attacks
• Mortality rate:
  – Elective V.S. emergent: 4.4% ~12% V.S. 22.6%~27%

• Anastomotic leak rate
  – Diverticulitis with peritonitis: 6.3%~19.3%
  – Diverticulitis with obstruction: 1.7%~16.1%
  – Left side V.S. right side: 13.8% V.S. 5.1%
Anastomotic Dehiscence After Resection and Primary Anastomosis in Left-Sided Colonic Emergencies

Sebastiano Biondo, M.D., David Parés, M.D., Esther Kreisler, M.D., Juan Martí Ragué, M.D., Domenico Fraccalvieri, M.D., Amador Garcia Ruiz, M.D., Eduardo Jaurrieta, M.D.

Department of Surgery, Hospital Universitario de Bellvitge, University of Barcelona, Barcelona, Spain
Factors Associated with Clinically Significant Anastomotic Leakage after Large Bowel Resection: Multivariate Analysis of 707 Patients

Arnaud Alves, M.D., Yves Panis, M.D., Ph.D., Danielle Trancart, Jean-Marc Regimbeau, M.D., Marc Pocard, M.D., Ph.D., Patrice Valleur, M.D.

Department of Surgery, Lariboisière Hospital, 2 rue Ambroise Paré, 75475 Paris CEDEX 10, France

Published Online: February 4, 2002
Smoking and alcohol abuse are major risk factors for anastomotic leakage in colorectal surgery.

Department of Surgical Gastroenterology K, Bispebjerg University Hospital, Copenhagen Hospital Corporation, Denmark.
Q2: risk factor of anastomotic leakage

• General factors:
  – Obesity
  – Smoking
  – Alcohol abuse
  – preop leukocytosis
  – postop blood transfusion
• **Local factors:**
  – Intraoperative septic conditions
  – Colocolic anastomosis
  – Bowel obstruction
  – Difficulties encountered during anastomosis (anastomotic level and tension and blood supply)
  – Contamination of the operative field
Q3: prevention of anastomotic leakage

- Primary anastomosis V.S. Hartmann’s procedure
- Primary anastomosis with or without adjunctive procedures (protective temporary stoma, intraoperative colonic lavage)
- Risk patients and intraoperatively difficult anastomosis ➔ primary loop enterostomies
Early detection of anastomotic leaks after colorectal surgery by measuring endotoxin in the drainage fluid.
Early postoperative contrast radiology in the assessment of colorectal anastomotic integrity.

University Department of Surgery, Western Infirmary, Glasgow, UK.

Publication Types:
- Clinical Trial
- Randomized Controlled Trial
Q4: detection of anastomotic leakage

- No clinically useful tools of early detection
Management of anastomotic leakage after nondiverted large bowel resection.

Department of Surgery, Lariboisiere Hospital, Paris, France.
Leakages after surgery of the lower gastrointestinal tract

[Article in German]

Chirurgische Universitätsklinik und Poliklinik der RWTH Aachen. swillis@ukaachen.de
Q5: management of anastomotic leakage

1. fever (> 38 degrees C) on day 2
2. absence of bowel action on day 4
3. diarrhea before day 7
4. collection of more than 400 mL of fluid through abdominal drains from day 0 to day 3
5. renal failure on day 3
6. leukocytosis after day 7
• Limited leakages without clinical signs
• Larger anastomotic failure with intra-abdominal abscesses or peritonitis
• Severely ill patients with feculent peritonitis
Conclusion

1. Early operation to treat diverticulitis
2. Acceptable leakage rate of anastomosis
3. Prevention for high risk of leakage
4. Early diagnosis by clinical manifestations
5. Healing depends more on the patient than on any aspect of surgical technique
感謝
一般外科魏昌國醫師
張群明學長
• 1. 找的問題太general, 不夠specific
• 2. 找的paper不能代表病人的狀況, 不能拿一般的leak rate來評估病人
• 3. 外科醫生應該要自己評估病人的情形, 來決定開刀的方式, 不可以把leak 推到病人的身上, healing不好是醫生自己要知道的.
• 4. 可以先找textbook才不會浪費時間