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103.11.12

ER-GS COMBINED MEETING

Basic Data

- Age: 81 y/o
- Occupation: retired
- Arrival time: DAY1 12:51
- Sent by EMT

Medical history

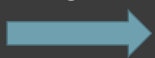
- **Endometrial cancer**, cT2N0M0, s/p radiation therapy for 30 times.
- Denied surgical history
- Denied food/drug allergy history

Chief complaint

- **Exacerbated abdominal pain** since last night

Initial vital sign

- Consciousness: E4V5M6
- SpO2: 95%
- Body temperature: 38.0°C
- Pulse rate: 119 bpm
- Respiratory rate: 20 times/min
- Blood pressure: 141/66 mmHg
- VAS: 7



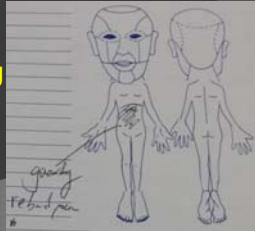
Triage: 3

Present illness

- Severe abdominal pain since the morning
- Mild abdominal pain had noted for a while.
- **No nausea/vomiting/diarrhea.**

Physical examination

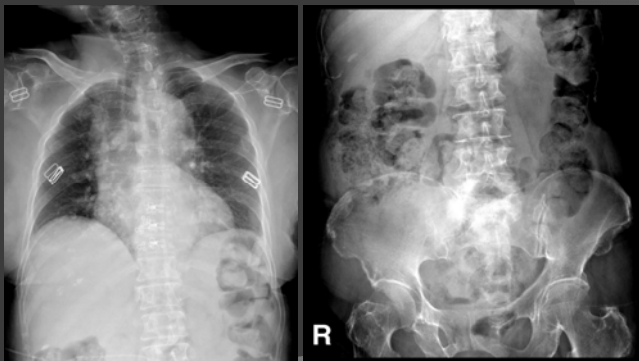
- Pale conjunctiva
- Bilateral clear breath sound
- Digital rectal examination:
Yellow stool, no tarry
- Abdominal pain:
**Epigastric muscle guarding
with rebounding pain**



Initial impression

- **Peritonitis**, cause?
- Endometrial cancer, cT2N0M0, s/p R/T

CXR and KUB

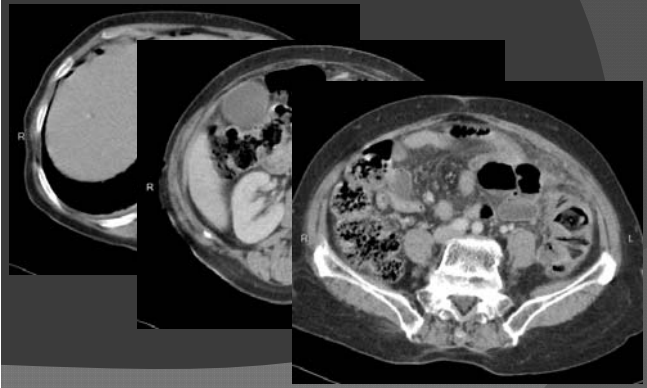


Lab data

WBC	25.5	x1000/uL	*H
Differential count			
Segmented Neutro.	84.0	%	*H
Lymphocyte	9.2	%	*L
Monocyte	4.5	%	
Eosinophil	0.0	%	
Basophil	0.0	%	
Atypical lymphocyte	1.0	%	
Band	1.6	%	
Metamyelocyte	0.0	%	
Myelocyte	0.0	%	
Promyelocyte	0.0	%	
Blast	0.0	%	
Nucleated RBC	0.0	/100WBC	
Platelet	402	x1000/uL	

PT	15.7	second
Normal control	10.4	second
INR	1.48	Ratio
APTT	33.5	second
Normal control	33.4	second
APTT ratio	1.00	
Glucose	89	mg/dL
GOT(AST)	11	U/L
Creatinine	0.77	mg/dL
eGFR	71.95	
Na	134	mmol/L
K	4.3	mmol/L
Lipase	6	U/L
Lactate	8.2	mg/dL

Abdominal CT



ER course

- 13:12 --- collected lab data, CXR & KUB
- 14:35 --- **WBC: 25500**, still **peritonitis** was noted → **DO abdominal CT**, started Abx: Invanz 1g and SABS 500mg
- 16:00 --- **Free air noted in CT**, consult GS
- 16:30 --- Radiology: Probably prior diverticulitis rupture from distal descending colon related **pneumoperitoneum, peritonitis and LLQ abscess**.
- 19:45 --- Patient was sent to OR

Surgical finding

- Pre-op Dx: R/O D-colon perforation
- Post-op Dx: D-S colon perforation s/p Hartmann's operation
- Finding: A 4cm perforated ulcerative lesion noted at D-S colon junction. With turbid ascites and pus collection.

Pathology

- Ulcers, perforated, with peritoneal reaction
- ulcer with transmural chronic and acute inflammatory cell infiltration and fibrosis in the colonic wall as well as perforation.
- No tumor is found.

Hospital course

DAY2 ---- 00:25 admitted to ICU after surgery
Abx: Claforan 1g Q12H + SABS
500mg Q8H, NPO w/ Smof & Bfluid

DAY5 ---- transferred to ordinary ward, shift
Abx to Ceftriaxone 2g Q12H

DAY11 ---- Try water

DAY12 ---- On liquid diet, shift Abx to
Cefmetazole 1g Q8H

DAY13 ---- On soft diet

Current diagnosis

- D-S colon perforation s/p Hartmann's operation
- Suspected stercoral ulcer

Discussion:

#Colon diverticulitis
#Stercoral ulceration

Colon diverticulitis

- Diverticula are small herniations through the wall of the colon.
- Estimated prevalence of diverticulosis is 2% to 5% in patients <40 years of age, 30% by age 60, and >70% by age 85.
- Approximately 70% will remain asymptomatic.
- Diverticular bleeding occurs in 5% to 15% of patients, and 15% to 25% of patients will develop diverticulitis.

Clinical Presentation

- **LLQ abdominal pain, fever, and leukocytosis.**
- Patients with a redundant sigmoid colon, or with right-sided disease may complain of **RLQ or suprapubic pain.**
- **Change of bowel habits**, diarrhea (30%) or constipation (50%).
- Nausea/vomiting (60%), anorexia (40%), and urinary symptoms (10%).

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Diagnosis

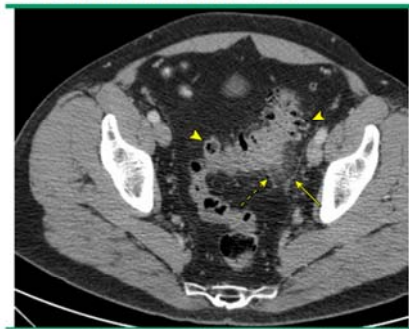
- Diverticulitis **can be diagnosed by clinical history** and examination alone.
- Diagnostic imaging is required to rule out other intra-abdominal pathology and evaluate for complications.
- **CT is the preferred imaging modality** for its ability to evaluate the severity of disease and the presence of complications.
- **CT with IV and oral contrast** has documented sensitivities of 97% and specificities approaching 100%.

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- CT findings suggestive of acute diverticulitis include the presence of **localized bowel wall thickening (>4 mm)**, an increase in soft tissue density within the pericolic fat secondary to inflammation or **fat stranding**, and the presence of **colonic diverticula.**

Uptodate - Clinical manifestations and diagnosis of acute diverticulitis in adults

Mild diverticulitis of the sigmoid colon on CT



A CT scan of the pelvis in a patient with mild acute diverticulitis. There is mild induration of the perisigmoid fat (arrow) and thickening of the sigmoid mesocolon (dashed arrow). Multiple diverticula are noted (arrowheads). CT: computed tomography.

UpToDate®

Complicated finding

- **Abscesses** are identified as fluid collections.
- Findings in patients with a **bowel obstruction** due to acute diverticulitis include the presence of dilated loops of bowel with air-fluid levels in proximity of an area with pericolic inflammation.
- **Extraluminal air collections** within organs other than the bowel and the abdominal wall are suggestive of a **fistula.**
- **In patients with peritonitis, free air can be seen.**

Uptodate - Clinical manifestations and diagnosis of acute diverticulitis in adults

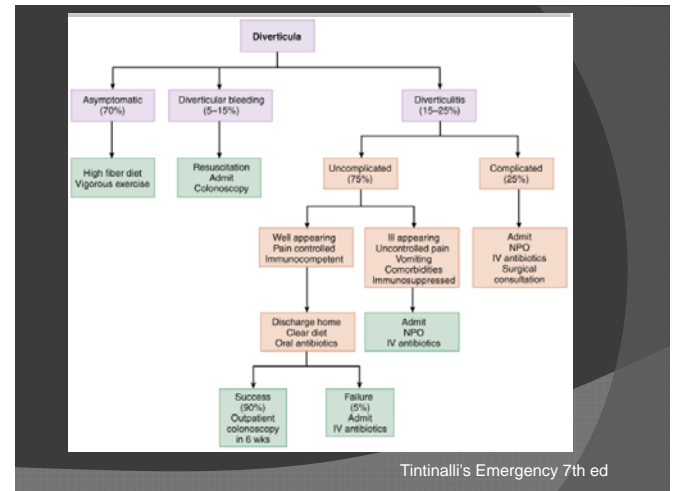
- **In 10% of cases, diverticulitis cannot be differentiated from carcinoma.** Therefore, all patients with diverticulitis should be referred for **follow-up colonoscopy** 6 weeks after resolution of the acute episode.

Tintinalli's Emergency 7th ed 2011

Treatment

- **Uncomplicated diverticulitis** is isolated to inflammation of the diverticula.
- **Complicated diverticulitis** includes diverticular inflammation and complications, including **phlegmon**, **abscess**, **stricture**, **obstruction**, **fistula**, or **perforation**.

Tintinalli's Emergency 7th ed 2011



Tintinalli's Emergency 7th ed

Medical treatment

- The current recommended antimicrobial coverage is **trimethoprim/sulfamethoxazole** or **ciprofloxacin** and **metronidazole** targeting aerobic gram-negative rods and anaerobic bacteria.
- Unfortunately, these agents do not cover enterococci, and the **addition of ampicillin to this regimen for nonresponders** is recommended.
- Alternatively, single-agent therapy with a third-generation penicillin such as **IV piperacillin** or **oral penicillin/clavulanic acid** may be effective.
- The usual course of antibiotics is **7-10 days**.

Harrison's Principles of Internal Medicine 18th Edition

Box 95-4 Oral Antibiotic Therapy for Uncomplicated Diverticulitis

- Trimethoprim-sulfamethoxazole, one double-strength tablet bid, and metronidazole 500 mg q6h or
- Ciprofloxacin 750 mg bid and metronidazole 500 mg q6h or
- Amoxicillin-clavulanate extended-release, 1000/62.5 mg, two tablets bid

All oral regimens should be taken for 7 to 10 days.

From Gilbert DN, Moellering RC Jr, Eliopoulos GM, Chambers HF, Saag MS (eds): The Sanford Guide to Antimicrobial Therapy, 41st ed. Sperryville, Va: Antimicrobial Therapy, Inc, 2011.

Box 95-5 Intravenous Antibiotic Coverage for Bowel Flora

Mild to Moderate Infection

- Ticarcillin-clavulanate 3.1 g IV q6h or
- Ciprofloxacin 400 mg IV q12h and metronidazole 1 g IV q12h

Severe Infection

- Ampicillin 2 g IV q6h and metronidazole 500 mg IV q6h and (gentamicin 7 mg/kg q24h or ciprofloxacin 400 mg IV q12h)
- Imipenem 500 mg IV q6h

From Gilbert DN, Moellering RC Jr, Eliopoulos GM, Chambers HF, Saag MS (eds): The Sanford Guide to Antimicrobial Therapy, 41st ed. Sperryville, Va: Antimicrobial Therapy, Inc, 2011. IV, intravenously.

Rosen's Emergency Medicine 8th Ed

Surgical intervention

Indications for operative management for acute diverticulitis

Absolute

- Complications of diverticulitis
- Peritonitis
- Abscess (failed percutaneous drainage)
- Fistula
- Obstruction
- Clinical deterioration or failure to improve with medical therapy
- Recurrent episodes
- Intractable symptoms
- Inability to exclude carcinoma

Relative

- Symptomatic stricture
- Immunosuppression
- Right-sided diverticulitis
- ? Young patient

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Constipation

Constipation

Causes of secondary constipation

Cause	Example
Organic	Colorectal cancer, extraintestinal mass, postinflammatory, ischemic, or surgical stenosis
Endocrine or metabolic	Diabetes mellitus, hypothyroidism, hypercalcemia, porphyria, chronic renal insufficiency, panhypopituitarism, pregnancy
Neurological	Spinal cord injury, Parkinson's disease, paraplegia, multiple sclerosis, autonomic neuropathy, Hirschsprung disease, chronic intestinal pseudo-obstruction
Myogenic	Myotonic dystrophy, dermatomyositis, scleroderma, amyloidosis, chronic intestinal pseudo-obstruction
Anorectal	Anal fissure, anal strictures, inflammatory bowel disease, proctitis
Drugs	Opiates, antihypertensive agents, tricyclic antidepressants, iron preparations, antiepileptic drugs, anti-Parkinsonian agents (anticholinergic or dopaminergic), barium
Diet or lifestyle	Low fiber diet, dehydration, inactive lifestyle

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Clinical manifestations

- Unsatisfactory defecation
- Infrequent stools
- Difficulty with stool passage.
- In older adults, constipation may be associated with **fecal impaction** and **fecal incontinence**.
- Fecal impaction can cause **stercoral ulceration, bleeding, and anemia**

Management

- Lifestyle modification
- Diet and fiber
- Laxatives
- Stool softeners, suppositories, and enemas

Stercoral ulcer

Colorectal Disease

Systematic Review

A systematic review of stercoral perforation

S. Chakravarty*, A. Chang and J. Nunoo-Mensah

Article first published online: 29 AUG 2013

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Colorectal Disease
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Table 1 All studies of stercoral perforation since 1998.

Study	Year	No. of patients	Mean age (years)	Chronic constipation	Surgery	Hartmann's procedure	Resection and primary anastomosis	Mortality	CT scan performed
Wu [15]	2011	10	77.1	8	10	Not mentioned	Not mentioned	7	10
Nam [22]	2010	8	74	8	8	7	1	2	8
Huang [10]	2006	5	60.2	5	3	3	2	1	1
Hoffman [23]	2005	4	70	4	4	4	No	4	4
Elkaddad [24]	2005	3	61	3	3	3	No	Nil	1
Mansoor [25]	2002	2	48.5	1	2	2	No	Nil	2
Maurer [2]	2000	7	59	5	0	7	No	Nil	No
Oakeful [26]	2011	1	79	1	1	1	No	Nil	No
McHugh [27]	2011	1	17	1	1	1	No	Nil	No
Monsieba [38]	2011	1	39	1	1	1	No	Nil	1
Lin [29]	2011	1	76	1	Not operated	Not operated	Not operated	1	No
Craft [30]	2011	1	70	1	Not operated	Not operated	Not operated	1	No
Park [31]	2010	1	80	1	1	1	No	Nil	No
Sharma [32]	2010	1	67	0	1	1	No	Nil	1
Hsiao [33]	2010	1	75	0	1	1	No	Nil	No
Ucel [34]	2009	1	106	1	1	1	No	Nil	1
Yano [35]	2008	1	77	1	1	1	No	1	1
Tsai [36]	2008	1	81	1	1	1	No	Nil	No
Arora [37]	2007	1	75	1	1	1	No	1	Yes
Landy [5]	2006	1	25	1	1	1	No	Nil	No
Tesic [38]	2002	1	67	1	1	1	No	Nil	No
Patel [39]	2002	1	45	0	1	1	No	Nil	No
Easdaylos [40]	2001	1	62	1	Not operated	Not operated	Not operated	1	No
Tokunaga [11]	1998	1	60	0	1	No	1	Nil	No

Table 2 Patients with stercoral perforation before and after 1998.

Characteristic	Since 1998	Including those before 1998
No. of cases	56	137
Age (years)*	73 (4-106)	62 (4-106)
Male:female	1:1.5	1:1.3
Chronic constipation	84%	80.86%
Mortality	34%	
Site of perforation		
Rectosigmoid	13 (23.6%)	23.7%
Sigmoid	35 (63.6%)	50.4%
Rectum	4 (7.3%)	6.7%
Descending colon	3 (5.5%)	5.9%
Transverse colon	0	5.9%
Cecum	0	5.2%
Others	0	2.2%

*Values are expressed as n, n (%) or median (range), unless specified otherwise.

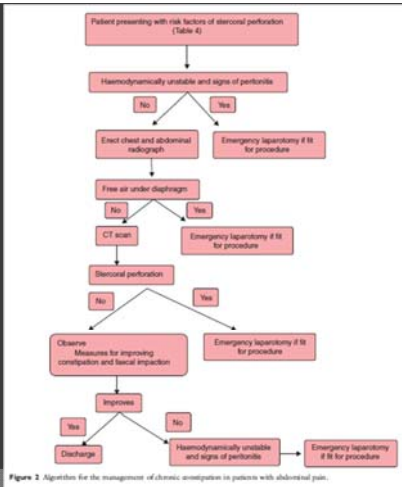
Table 3 Characteristics of stercoral perforation identified by CT scan.

CT findings	Values* n (%)
Diagnostic features present	28 (90)
Faecal impaction	26 (84)
Extraluminal faeces	4 (13)
Extraluminal air	19 (61)
Subphrenic gas	28 (90)
Pericolic stranding	17 (55)

*Total n = 31.

Table 4 Risk factors for stercoral perforation.

Chronic constipation
Elderly patient, nursing home resident
Evidence of faecal impaction
Increasing abdominal pain unexplained by constipation alone



Etiology of intestinal perforation

- Trauma
- NSAID use
- peptic ulcer disease, acute appendicitis, acute diverticulitis, and inflamed Meckel diverticulum.
- Endoscopy
- Endoscopic biliary stent
- Bacterial infections (eg, typhoid fever)
- Inflammatory bowel disease
- intestinal ischemia (eg, ischemic colitis)
- Malignancy
- Radiotherapy for intra-abdominal lesion
- Necrotizing vasculitis
- Foreign body

Medscape: Intestinal Perforation,
Updated: Apr 23, 2013

Thanks for attention!!!