
Essentials of

Clinical
Gastro-
enterology

Second Edition

Gail L. Bongiovanni

ESSENTIALS OF CLINICAL GASTROENTEROLOGY

NOT FOR RESALE

Gail L. Bongiovanni, M.D.

Associate Professor of Clinical Medicine
University of Cincinnati College of Medicine
Cincinnati, Ohio

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Contributors

Gail L. Bongiovanni, M.D.

Associate Professor of Clinical Medicine
University of Cincinnati College of Medicine
Cincinnati, Ohio

Thomas A. Brasitus, M.D.

Professor of Medicine
University of Chicago School of Medicine
Chicago, Illinois

Peter H. R. Green, M.D.

Associate Professor of Clinical Medicine
College of Physicians and Surgeons of Columbia University
New York, New York

Arthur M. Magun, M.D.

Assistant Professor of Medicine
College of Physicians and Surgeons of Columbia University
New York, New York

Daniel K. Podolsky, M.D.

Associate Professor of Medicine
Harvard Medical School
Boston, Massachusetts

Thomas R. Prostko, M.D.

Fellow in Digestive Diseases
University of Cincinnati College of Medicine
Cincinnati, Ohio

Cheryl A. Skinner, M.D.

Fellow in Hematology/Oncology
University of Cincinnati College of Medicine
Cincinnati, Ohio

David J. Weber, M.D.

Assistant Professor of Medicine, Pediatrics, and Epidemiology
University of North Carolina School of Medicine
Chapel Hill, North Carolina

Robert E. Weesner, M.D.

Associate Professor of Clinical Medicine
University of Cincinnati College of Medicine
Cincinnati, Ohio

Foreword

The second edition of *Manual of Clinical Gastroenterology (Essentials of Clinical Gastroenterology)* continues the easy-to-read, outline format which was so successful in the first edition. Several new contributors have been added, each chapter has been completely rewritten, and references updated. The emphasis of this manual is a practical one stressing the approach to the patient, diagnosis, and management. Pathophysiology is briefly discussed but is up-to-date and reduced to its essence. Charts, figures, and tables emphasizing classification, differential diagnosis, algorithms for work-up, and therapies are abundantly used and will serve as a ready and convenient reference source to be repeatedly consulted by the busy student or practitioner.

As stated in the Foreword to the first edition, the *Essentials of Clinical Gastroenterology* will not substitute for more comprehensive medical texts, but in its outline format, each subject is covered with surprising breadth and depth. The *Essentials of Clinical Gastroenterology* will serve as a good source of information, as a useful outline of the work-up and treatment of the major problems in clinical gastroenterology and will well serve medical students, residents, fellows, and primary care physicians.

Ralph A. Giannella, M.D.

Mark Brown Professor of Medicine

Director, Division of Digestive Diseases

University of Cincinnati College of Medicine

Preface

Essentials of Clinical Gastroenterology is the second-generation combined efforts of the fellows and faculty members of the University of Cincinnati College of Medicine, the Massachusetts General Hospital, Columbia University College of Physicians and Surgeons, and the University of North Carolina at Chapel Hill. Continuing to support the goals of the first edition, *Manual of Clinical Gastroenterology*, the second edition serves to provide an introduction and a practical working foundation for the practice of clinical gastroenterology. For the student of medicine, it is hoped that *Essentials of Clinical Gastroenterology* will encourage future development in the study of digestive diseases.

Contributors have once again presented their updated topics in a clear concise format. Clinical diagnosis, management, and follow-up are outlined to provide a logical approach to daily care and an understanding of the basic pathophysiology of gastrointestinal disease. The authors have provided references to further educational growth for physicians at all levels of training.

I would like to thank all of the contributors for their efforts and their expertise. Each chapter has been critically revised and updated with emphasis on basic pathophysiology and evolving new concepts in diagnosis and management of digestive diseases.

My special appreciation to Margaret A. Doerflein for her continuous support and her editorial and organizational assistance throughout the preparation of the second edition and to Jay H. Lefkowitz, M.D., for his original art contributions (Figures 8-1, 8-2, and 8-4).

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1

Approach to the Patient with Abdominal Pain

Gail L. Bongiovanni



I. EVALUATION OF THE PATIENT WITH ABDOMINAL PAIN

One of the most frequent complaints voiced by patients with gastrointestinal disease is abdominal pain. The patient may experience pain as a single symptom or may have it in conjunction with other signs and symptoms. The mere presence of abdominal pain will not necessarily permit early and accurate diagnosis, and therefore the evaluation may be ongoing. These initial recommendations are suggested:

A. Evaluate the general medical situation, emphasizing

1. Patient's general health and nutritional status
2. Blood pressure
3. Heart rate and rhythm
4. Respirations
5. Temperature

B. Outline the historical data base, determining

1. Age and sex
2. Present symptom complex
3. Recent or remote surgery or trauma
4. Past or current medical problems
5. Menstrual and sexual history
6. Relevant family history

C. Complete the description of pain, identifying

1. Whether pain is acute or chronic

2. How, where, and when pain began
3. Radiation of pain
4. Severity, frequency, and duration of pain
5. Signs and symptoms before, during, or after pain
6. Relationship of pain to meals, time of day, season, stress, body position, medications, and alcohol consumption
7. Factors that precipitate, aggravate, or alleviate pain
8. Changes in pain pattern since onset
9. Changes in associated signs and symptoms since onset
10. Prior history of similar symptoms
11. Total duration of pain since onset¹

D. Perform the physical examination

1. Observe for

- a. Body posture and degree of activity
- b. Vital signs including orthostatic pulse and blood pressure changes
- c. Nutritional status
- d. Evidence of recent trauma
- e. Jaundice, ecchymosis, petechiae
- f. Abdominal contour
- g. Abdominal scars, fistulas, masses, or visible peristalsis
- h. Stigmata of cirrhosis
 - (1) Gynecomastia
 - (2) Hair loss or abnormal distribution
 - (3) Palmar erythema
 - (4) Parotid gland enlargement
 - (5) Spider angiomas
 - (6) Testicular atrophy

2. Auscultate for

- a. Quality and quantity of bowel sounds²
- b. Abdominal bruits
- c. Thoracic or abdominal friction rubs
- d. Abdominal succussion splash

3. Percuss for

- a. Increased abdominal tympany
- b. Hepatic and splenic dullness
- c. Shifting dullness, abdominal fluid wave, or both

¹Acute abdominal pain lasting at least 6 h suggests a surgical problem.

²Auscultate prior to palpation to assess the true status of bowel sounds.

4. Palpate for³

- a. Peripheral lymphadenopathy
- b. Symmetry and strength of peripheral pulses
- c. Cutaneous hyperesthesia
- d. Subcutaneous crepitance over thorax, abdomen, or both
- e. Voluntary and involuntary muscle rigidity
- f. Organomegaly
- g. Superficial and deep masses
- h. Hernias
- i. Direct, rebound, and referred rebound tenderness

5. With masses, note

- a. Size, location, and contour
- b. Appearance of overlying skin
- c. Pulsations and bruits
- d. Resonance and consistency
- e. Tenderness
- f. Movement with diaphragm or other organ

6. Always include

- a. Visual inspection of the perirectal area, digital rectal examination, and stool test for occult blood
- b. Pelvic examination

E. Review basic laboratory data

- 1. Serum electrolytes
- 2. Blood urea nitrogen (BUN) and serum creatinine
- 3. Blood glucose
- 4. Hematocrit and hemoglobin, white blood cell count with differential, and platelet count
- 5. Serum amylase
- 6. Serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), total and direct bilirubin, alkaline phosphatase, and serum albumin
- 7. Urinalysis
- 8. Chest x-ray
- 9. Supine and upright x-rays of the abdomen⁴
- 10. ECG if patient has history of cardiac disease or is older than 40 years of age

³Abdominal palpation begins away from the area of maximal tenderness.

⁴If the patient is too ill to be in the upright position, right and left lateral decubitus films of the abdomen may also demonstrate free intraperitoneal air.

II. THE PATHOGENESIS OF ABDOMINAL PAIN

Table 1-1 is a guide to abdominal pain. Each organ is listed with the location of its primary and secondary sites of pain. The final column lists the location of referred pain.

- A. **Visceral or primary pain *originates from the involved organ itself.*** It occurs as a result of increased tension or stretch within the organ wall. Signs and symptoms from visceral pain usually occur early in the evolution of the disease. They are generally poorly localized and diffuse in quality.
- B. **Somatic or secondary pain *originates from stimulation of related muscles, ligaments, bones, nerves, and blood vessels.*** It is the result of ongoing irritation of these surrounding somatic structures caused by the initial inflammatory process. Somatic pain usually occurs later in the evolution of the disease and may be sharper and more localized than visceral pain. The more exact nature of somatic pain may signal the initial offending organ.
- C. **Referred pain *is felt at a distant site, one not principally involved in the initial disease process.*** The distribution of pain follows the same dermatome as the spinal root of the diseased organ. Referred pain often occurs when visceral pain is severe. Generally it is located far from the offending organ.

III. NONGASTROINTESTINAL CAUSES OF ABDOMINAL PAIN

Other organ systems may cause abdominal pain. The initial differential diagnosis should include these "other offenders." Often nongastrointestinal systems can be excluded as the cause for abdominal pain by simple tests (e.g., chest x-ray, urinalysis). Table 1-2 reviews other disorders to consider in the initial evaluation of patients presenting with abdominal pain.

IV. ABDOMINAL PAIN IN EVOLUTION

Abdominal pain is often pain in evolution. Despite obtaining all pertinent information, occasionally an early diagnosis cannot be made. Therefore, the following suggestions are offered:

Table 1-1. Organ-specific abdominal pain

Organ	Visceral pain	Somatic pain	Referred pain
Esophagus	Substernal at level of lesion	Same	Into back; suprasternal notch with lower esophageal disease
Stomach	Midepigastrium	Same + LUQ*	Toward back
Duodenum	Midepigastrium	Same	Toward back
Small intestine	Periumbilical	Over site of lesion	Rare
Appendix	Periumbilical	RLQ*	Rare
Proximal colon	Periumbilical + R† flank for ascending colon	Over site of lesion	Rare
Distal colon	Hypogastrium + L† flank for descending colon	Over site of lesion	Rare
Rectum	Central pelvis	Same	Midsacral region
Liver	RUQ*	Same	Rare
Spleen	LUQ	Same	Rare
Gallbladder	Midepigastrium	RUQ	Interscapular area; inferior angle of R scapula; R shoulder
Pancreas	Midepigastrium + LUQ	Same	Into back
Uterus, tubes, + ovaries	Hypogastrium + groin	Over site of lesion	Groin; inner thighs
Cervix	Central pelvis	Same	Midsacral area
Bladder	Hypogastrium	Suprapubic area	Groin
Prostate + urethra	Central pelvis	Same	Distal end of urethra; midsacral back
Kidney	Costovertebral area	Over site of lesion	Rare
Renal pelvis + ureter	Costovertebral area	Over site of lesion	Groin; scrotum; labia
Testis	In affected testis	Over affected testis	Umbilical area
Thoracic + abdominal aorta	None	Back, in the midline	Rare
Heart	Substernal area	Same	Shoulder + arms; neck; jaw; epigastrium

*LUQ...left upper quadrant; RLQ...right lower quadrant RUQ...right upper quadrant; LLQ...left lower quadrant.

†R signifies right; L signifies left.

Table 1-2. Nongastrointestinal causes of abdominal pain

Cardiovascular-Pulmonary System	
Angina pectoris	Pericarditis
Aortic dissection	Pleuritis
Aortic rupture	Pneumonia
Empyema	Pneumothorax
Mitral valve prolapse	Pulmonary embolus
Myocardial infarction	Pulmonary infarction
Myocarditis	Rheumatic heart disease (acute)
Endocrine-Metabolic System	
Acute intermittent porphyria	Hypercalcemia
Addisonian crisis	Hyperosmolar states
Diabetic ketoacidosis	Hyperlipidemia I, IV, and V
	Uremia
Genitourinary System	
Ectopic pregnancy	Pyelonephritis
Endometriosis	Ruptured ectopic pregnancy
Endometritis	Ruptured ovarian cyst
Epididymitis	Seminal vesiculitis
Mittelschmerz	Testicular torsion
Pelvic inflammatory disease	Torsion or degeneration of uterine fibroid
Prostatitis	Tubo-ovarian abscess
	Ureteral obstruction
Neuromusculoskeletal System	
Abdominal epilepsy	Osteomyelitis of the spine
Abdominal wall hernia	Spinal cord tumors
Ankylosing spondylitis	Spondylolisthesis
Herniated intervertebral disc	Tabes dorsalis
Herpes zoster	Tietze's syndrome (costochondritis)
Intramuscular hematoma	
Osteoarthritis	
Miscellaneous	
Angioneurotic edema	Periarteritis nodosa
Familial Mediterranean fever	Sickle cell crisis
Insect bites and venom	Splenic infarction
Lead poisoning	Systemic lupus erythematosus
Leukemia	

- A. Repeat observation and examination of the patient, noting
1. Vital signs

2. Volume requirements

3. Urine output
 4. Pain medication requirement⁵
 5. Changes in the location or quality of pain
 6. Development of peritoneal signs (see page 8)
 7. Misleading changes due to iatrogenic intervention
- B. Repeat pertinent laboratory and x-ray studies.**
- C. Obtain necessary cultures and begin antibiotic therapy where indicated.**
- D. Keep patients NPO (nothing by mouth) until a diagnosis is made or the need for immediate surgery is excluded.**
- E. Maintain patient's fluid volume and electrolyte balance with intravenous solutions.**
- F. Seek early surgical consultation.**
- G. Prophylactically prepare for surgery by checking**
1. Blood bank sample
 2. Prothrombin time (PT), partial thromboplastin time (PTT), and platelet count
 3. Basic laboratory data (see page 3)
- H. Consider early surgical intervention in certain cases, especially in patients with**
1. Peritoneal signs
 2. No diagnosis and ongoing clinical deterioration
- I. Pay particular attention to debilitated patients, who cannot mount a normal host response.** The usual signs and symptoms of disease may be masked. This clinical situation may arise in patients who are elderly, malnourished, diabetic, alcoholic, or immunologically impaired either by medications or underlying immune-altered disease.

⁵With ongoing pain and no diagnosis, pain medications should be used cautiously to avoid masking important clinical signs.