

Manual of Gastroenterologic Procedures

Editor

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Raven Press ■ New York

**Raven Press, 1140 Avenue of the Americas, New York,
New York 10036**

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Library of Congress Cataloging in Publication Data

Main entry under title:

Manual of gastroenterologic procedures.

Includes bibliographies and index.

1. Gastrointestinal system—Diseases. I. Drossman, Douglas A. [DNLM: 1. Gastroenterology—Handbooks. WI 100 M294]

RC802.M35 616.3'3 82-3777

ISBN 0-89004-790-1

Preface

In recent years, the proliferation of gastroenterologic procedures has broadened the diagnostic and therapeutic options available to the clinician; it has also increased the need for a standardized approach to their selection, technique, and interpretation. Although many textbooks cover the field of gastroenterologic disease, little attention is paid to *how* the morphology and function of the digestive system should be studied. Endoscopy manuals provide extensive detail but do not cover the variety of procedures within the clinician's armamentarium. This volume is the first to present in an organized manner 30 diagnostic and therapeutic procedures frequently used by gastroenterologists, surgeons, and primary care physicians.

The procedural techniques presented and recommendations for use of medication and equipment are those used at the University of North Carolina School of Medicine at Chapel Hill. The reader should consider our suggestions as they pertain to other settings and in the light of the experience of others elsewhere.

Four major areas are discussed: the passage of tubes for measuring intestinal function, endoscopy, diagnosis through the use of percutaneous needle technique, and therapeutic procedures. For quick review, each referenced and illustrated chapter organizes in outline form indications, contraindications, equipment, patient preparation, procedure technique, and interpretation.

The manual cannot teach endoscopy or any other technique that requires supervised training, but it can provide reference criteria for anyone in such training. The chapters cover a wide range of procedures—newer, specialized techniques such as rectal manometry and endoscopic sclerosis of esophageal varices, and procedures in common use by primary physicians (nasogastric tube placement, rigid sigmoidoscopy, paracentesis). Also included are some research procedures that might have greater future clinical application (esophageal potential difference measurement, biofeedback for rectal incontinence). Finally, modification of these procedures for use with pediatric patients is included in a separate section.

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Acknowledgments

We would like to thank Peter G. Bedick, Suzanne Sutker Cashwell, Katherine O. Cole, Carol Thompson, and Sandra Foley Woody for their technical assistance, and John T. Sessions, Jr., M.D., for his review during the early preparation of this manual.

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The Procedure Unit and the Patient

Meredith P. Reinhold and Douglas A. Drossman

To ensure safe, efficiently run, and successful procedures, the physician and staff must attend to the organization of the procedure unit and the needs of the patient. This section offers guidelines to accomplish these purposes. It is based on our experience at a referral medical center; however, most of the suggestions can be adapted for use in private practice settings.

I. The procedure unit

A. Location

The procedure unit should be relatively self sufficient and located in a specific area of the hospital or clinic. The size of the unit and its furnishings will depend on patient volume and the types of procedures to be done. We have found that physical separation of the clinical area from the administrative and waiting area is advisable.

B. Clinical area organization and equipment (1).

The following are recommended:

1. Appropriately furnished procedure rooms that include:
 - a. Contemporary, well-maintained diagnostic and therapeutic instruments with appropriate storage facilities.
 - b. Cleaning facilities (sinks, basins, disinfecting solution).
 - c. Wall suction and oxygen.
 - d. Provision for patient privacy, adequate lighting and ventilation.
2. Toilet facilities adjacent to the procedure rooms.

3. Radiologic facilities within or adjacent to the procedure unit. The staff must be taught safe use of the equipment, possible equipment hazards, and methods for shielding patients and staff. Radiation exposure badges must be worn and checked periodically.
 4. Locked storage area for drugs.
 5. Patient dressing, recovery, and waiting areas.
 6. Rooms organized for easy transport of patients. This includes allowance of space for movement of wheelchairs and stretchers.
 7. Cardiopulmonary resuscitation facilities. All nursing personnel and physicians must be trained in basic CPR.
 8. Portable emergency equipment.
 9. An educational and audiovisual viewing area (adjacent to the patient waiting area) for the teaching of patients and staff trainees.
- C. Staff responsibilities.

The procedure unit personnel include a medical director, designated physicians, a secretary-receptionist, and nursing staff.

1. Responsibilities of the secretary-receptionist:
 - a. Organization of procedure schedules. The secretary-receptionist should have some understanding of the length of time usually needed for each procedure and the special room requirements for various procedures.
 - b. Typing and general secretarial duties.
 - c. Maintenance of patient files.
 - d. Acquisition and organization of X-ray and laboratory data.
 - e. Coordination and filing of audiovisual materials.
 - f. Awareness of patient needs.
2. Responsibilities of the nursing staff:
 - a. Preparation of the patient for the procedure, monitoring of the patient during the procedure, provision of psychological support, and the provision of written discharge instructions (medication schedules, appointment dates, postprocedure instructions).
 - b. Organization of and assistance with the diagnostic

and therapeutic procedures. Training as a GI unit assistant is accomplished through on-the-job experience as well as through the use of standardized procedure manuals (2) and attendance in-service education at training courses and seminars.

- c. Assembly, cleaning, and maintenance of all instruments.
- d. Written documentation of patient care and medications.
- e. Coordination with the secretary-receptionist of patient flow and scheduling changes during the day.
- f. Establishment with the the physician of written procedural standards for the unit to insure continuity and individual and institutional accountability. When a procedure is in the early stages of use or its efficacy is not proven, certain criteria should be met. The procedure should be subject to institutional peer review, and the physician performing the procedure should be the one most qualified. The patient must be made aware of the "state of the art," the medical rationale for undergoing the procedure, and the risks involved. Written standards for the procedure and all appropriate instrumentation should be available. It is important that all staff be made fully aware of technique and potential problems in order to assist most knowledgeably. A record of complications should be kept (3).
- g. Stocking of necessary supplies, ordering equipment, and maintaining records of instrument breakdown and repair.
- h. Coordination of the use of audiovisual equipment (camera for endoscope, slide retrieval, patient education equipment).
- i. Contributing to hospital in-service education.

II. The patient

The staff's effort toward patient education, comfort, and emotional support will help ensure a well-accepted and successfully administered procedure. The degree of patient preparation needed

will depend on the type of procedure and the needs of the individual patient. All procedures require considerate, individualized attention to the patient by the staff. The following should be accomplished by the nursing staff or the physician:

- A. Introduce yourself and explain your role in the procedure.
- B. After chart review, assess the patient's clinical status, including general health and current medications, through questioning and observation of nonverbal behavior. The patient's ability to understand and communicate and the patient's psychological state, including the level of apprehension, should be noted.
- C. Assess the *patient's* understanding of the procedure.
- D. Explain the procedure, keeping in mind your initial assessment of the patient and his or her understanding. Patients respond differently in anticipation of unfamiliar, potentially harmful, or uncomfortable procedures. Some are obviously anxious, and benefit from reassurance and detailed explanations of what to expect. Others appear more calm, do not ask questions, and express a desire to "get on with it and get it over with." These patients at times can become more agitated if too much effort is made to explain what they would rather not hear (4). In general, a description of the procedure including what is likely to be experienced (such as numbness of the throat, a brief needle stick, abdominal cramps) is more valuable than detailed scientific explanations (5). The need for the test and possible risks and complications should be presented in a straightforward manner. Detailed descriptions of all complications are not necessary (6). It is quite helpful to have available a variety of adjunctive audiovisual materials, including printed patient guides, videotapes, and audio slide equipment, to be offered to the patient when he or she is confronted with the need for a certain study and again just prior to the procedure.
- E. Assess the patient's understanding of your explanation and allow sufficient time for questions.
- F. Obtain written consent.
- G. Ascertain that all the preprocedure requirements have been accomplished by the patient (NPO, bowel preparation).
- H. Perform the needed preparation (vital signs, blood drawing

for coagulation studies, SBE prophylaxis, starting of i.v., etc.).

- I. During the procedure, monitor the patient's clinical condition (change in vital signs, need for more medication, possible complications), and provide support and reassurance to the patient.
- J. At the end of the procedure, reassess the patient's clinical status (e.g., ability to leave the area unattended) and review written postprocedural instructions (possible after-effects and complications, medication schedules, return appointment date) with the patient.

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Modifications of Gastrointestinal Procedures for Pediatric Patients

Martin H. Ulshen

I. Introduction

Virtually any GI procedure used for adults also can be used for infants and children. Withholding a study only because of concern about the patient's size may, in fact, be detrimental to his/her care. On the other hand, some procedures are technically more difficult in children. In addition, even an experienced gastroenterologist might have difficulty if he is not comfortable working with children. For these reasons, there may be times when it is best to refer the patient to a physician with expertise in pediatric gastroenterology. However, many procedures can be done safely by an internist-gastroenterologist.

II. Sedation

- A. The greatest difficulty in working with infants and young children is their lack of cooperation.
- B. Children old enough to comprehend often benefit from an explanation in advance about the procedure as well as a tour of the area where it will be done. If the facility has play therapy support available, a play therapist can be of help by reviewing the procedure with the child while he/she acts the part of the physician with a doll as patient.
- C. Older children may need only this kind of introduction to tolerate the less uncomfortable tests such as small bowel biopsy and sigmoidoscopy. One may also give an older child the choice as to whether he or she would prefer sedation.

- D. Young children (i.e., < 5 years of age) often need sedation or possibly general anesthesia depending on the procedure.
- E. For the procedures associated with less discomfort such as small bowel biopsy, sigmoidoscopy, or liver biopsy, milder sedation given 45 min or 1 hr before the procedure may be adequate. (The dosage given is for otherwise healthy children on no other medications.)
 - 1. If oral medication is desired
 - a. Chloral hydrate 50 mg/kg (maximum 2 g) plus diphenhydramine 1.25 mg/kg (maximum 50 mg).
 - b. Or for older children, diazepam, 5 to 10 mg.
 - 2. If i.m. medication is desired the following combination works well for small bowel biopsy:
 - a. Meperidine 1 mg/kg (maximum 50 mg).
 - b. Pentobarbital (Nembutal) 5 mg/kg (maximum 100 mg).
- F. For upper and lower endoscopy.
 - 1. IV diazepam and meperidine may be used in older children (more than 5 years of age) in a manner similar to use in adults. Meperidine may be given from 1 mg/kg to no more than 2 mg/kg. As in adults, the diazepam dose should be carefully titrated. Children often require proportionately larger doses than adults. However, one should probably not use more than 10–20 mg diazepam in any event. If a child continues to be combative, it is safer to do the procedure under general anesthesia with the airway protected.
 - 2. Infants should usually have endoscopy under general anesthesia. An endotracheal tube is necessary to protect the airway when upper endoscopy is done. In children, the decision should be made on the basis of anticipated cooperativeness.

III. Unique aspects of procedures in infants and children

A. Upper GI endoscopy.

Endoscopy may be done with any patient from full term newborn upward using a pediatric endoscope (1,2). Only rarely will this instrument fail to pass through the pylorus.