

# **current Surgical Diagnosis & Treatment**

**5TH EDITION**

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Edited By

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# Preface

The fifth edition of this surgical text makes available in concise form the basic information and the most recent developments in general surgery and each of the surgical specialties for medical students, residents, and practicing surgeons and physicians.

New information has been added to all chapters, and the bibliographies have been updated and expanded. Some chapters have been completely rewritten: postoperative problems, anesthesiology, shock, congenital heart disease, and otolaryngology. Substantial revisions have been made in the chapters on the breast, acquired heart disease, esophagus and diaphragm, stomach and duodenum, portal hypertension, the biliary tract, and oncology and cancer chemotherapy.

The editors express gratitude for the cooperation of all the contributors in the numerous additions, alterations, and deletions required to make each chapter an integrated part of the text.

Translations of *Surgical Diagnosis & Treatment* have been completed in Spanish, Portuguese, Serbo-Croatian, and Japanese and will soon be available in German, Italian, Polish, French, and Turkish.

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May, 1981

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# Approach to the Surgical Patient | 1

J. Englebert Dunphy, MD

The successful management of surgical disorders requires (1) the effective application of a broad knowledge of the basic sciences to the problems of diagnosis and total care before, during, and after the operation; and (2) a genuine sympathy for, understanding of, and indeed love for the patient. The surgeon must be a doctor in the old-fashioned sense, an applied scientist, an engineer, an artist, and a minister to his or her fellow human beings. Because life or death often depends upon the validity of surgical decisions, the surgeon's judgment must be matched by courage in action and by a high degree of technical proficiency.

## THE HISTORY

The surgeon's first contact with the patient is crucial. This is the time to gain the patient's confidence and convey the assurance that help is available and will be given. Above all, the surgeon must demonstrate concern for the patient as a person who needs help and not just as a "case" to be processed through the surgical ward. This is not always easy to do, and there are no rules of conduct except to be gentle and considerate. Most patients are eager to like and trust their doctors and respond gratefully to a sympathetic and understanding manner. Some surgeons are able to establish a confident relationship with the first few words of greeting; others can only do so by means of a stylized and carefully acquired bedside manner. It does not matter how it is done, so long as an atmosphere of sympathy, personal interest, and understanding is created. Even in an emergency (unless the patient is unconscious), this subtle message of sympathetic concern must get across.

Eventually, all histories must be formally structured, but much can be learned by letting the patient ramble a little. Discrepancies and omissions in the history are often due as much to overstructuring and leading questions as to the unreliability of the patient. The enthusiastic novice asks leading questions; the cooperative patient gives the answer that seems to be wanted; and the interview concludes on a note of mutual satisfaction with the wrong answer thus derived.

## BUILDING THE HISTORY

History taking is detective work. Preconceived ideas, snap judgments, and hasty conclusions have no place in it. The diagnosis must be established by inductive reasoning. The interviewer must first determine the facts and then search for essential clues, realizing that the patient may conceal the most important symptom—eg, the passage of blood by rectum—in the hope (born of fear) that if it is not specifically inquired about or if nothing is found to account for it in the physical examination, it cannot be very serious.

Common symptoms of surgical conditions that require special emphasis in the history taking are discussed in the following paragraphs.

### Pain

A careful analysis of the nature of pain is one of the most important features of a surgical history. The examiner must first ascertain how the pain began. Was it explosive in onset, rapid, or gradual? What is the precise character of the pain? Is it so severe that it cannot be relieved by medication? Is it constant or intermittent? Are there classic associations, such as the rhythmic pattern of small bowel obstruction or the onset of pain preceding the limp of intermittent claudication?

The nature of abdominal pain is of particular importance and is dealt with in some detail in Chapter 24.

One of the most important aspects of pain is the patient's reaction to it. The overreactor's description of pain is often obviously inappropriate, and so is a description of "excruciating" pain offered in a casual or jovial manner. A patient who shrieks and thrashes about is either grossly overreacting or suffering from renal or biliary colic. Very severe pain—due to infection, inflammation, or vascular disease—usually forces the patient to restrict all movement as much as possible.

Moderate pain is made agonizing by fear and anxiety. Reassurance of a sort calculated to restore the patient's confidence in the care being given is often a more effective analgesic than an injection of morphine.

### Vomiting

What did the patient vomit? How much? How

often? What did the vomitus look like? Was vomiting projectile? It is especially helpful for the examiner to see the vomitus. Important clues helpful in the diagnosis of disorders associated with vomiting are described in detail in Chapter 24.

### **Change in Bowel Habits**

A change in bowel habits is a common complaint that is often of no significance. However, when a person who has always had regular evacuations notices a distinct change, particularly toward intermittent constipation and diarrhea, colon cancer must be suspected. Too much emphasis is placed upon the size and shape of the stool—eg, many patients who normally have well-formed stools may complain of irregular small stools when their routine is disturbed by travel or a change in diet.

### **Hematemesis or Passage of Blood Per Rectum**

Bleeding from any orifice demands the most critical analysis and can never be dismissed as due to some immediately obvious cause. The most common error is to assume that bleeding from the rectum is attributable to hemorrhoids. The character of the blood can be of great significance. Does it clot? Is it bright or dark red? Is it changed in any way, as in the coffee-ground vomitus of slow gastric bleeding or the dark, tarry stool of upper gastrointestinal bleeding? The full details and variations cannot be included here but will be emphasized under separate headings elsewhere.

### **Trauma**

Trauma occurs so commonly that it is often difficult to establish a relationship between the chief complaint and an episode of trauma. Children in particular are subject to all kinds of minor trauma, and the family may attribute the onset of an illness to a specific recent injury. On the other hand, children may be subjected to severe trauma though their parents are unaware of it. The possibility of trauma having been inflicted by a parent ("battered child syndrome") must not be overlooked.

When there is a history of trauma, the details must be established as precisely as possible. What was the patient's position when the accident occurred? Was consciousness lost? Retrograde amnesia (inability to remember events just preceding the accident) always indicates some degree of cerebral damage. If a patient can remember every detail of an accident, has not lost consciousness, and has no evidence of external injury to the head, brain damage can be excluded.

In the case of gunshot wounds and stab wounds, knowing the nature of the weapon, its size and shape, the probable trajectory, and the position of the patient when hit may be very helpful in evaluating the nature of the resultant injury.

The possibility that an accident might have been caused by preexisting disease such as epilepsy, diabetes, coronary artery disease, or hypoglycemia must be carefully explored.

When all the facts and essential clues have been gathered, the examiner is in a position to complete the study of the present illness. By this time it may be possible to rule out, by inductive reasoning, all but a few possible diagnoses. A novice diagnostician asked to evaluate the causes of shoulder pain in a given patient might include ruptured ectopic pregnancy in the list of possibilities. The experienced physician will automatically exclude that possibility on the basis of sex or age.

### **Family History**

The family history is of great significance in a number of surgical conditions. Polyposis of the colon is a classic example, but diabetes, Peutz-Jeghers syndrome, chronic pancreatitis, multiglandular syndromes, other endocrine abnormalities, and cancer are often better understood and better evaluated in the light of a careful family history.

### **Past History**

The details of the past history may illuminate obscure areas of the present illness. It has been said that people who are well are almost never sick, and people who are sick are almost never well. It is true that a patient with a long and complicated history of diseases and injuries is likely to be a much poorer risk than even a very old patient experiencing a major surgical illness for the first time.

In order to make certain that important details of the past history will not be overlooked, the "system review" must be formalized and thorough. By always reviewing the past history in the same way, the experienced examiner never omits a significant detail. Many skilled examiners find it easy to review the past history by inquiring about each system as they perform the physical examination on that part of the body.

In reviewing the past history, it is important to consider the nutritional background of the patient. There is an increasing awareness throughout the world that the underprivileged malnourished patient responds poorly to disease, injury, and operation. Indeed, there is some evidence that various lesions such as carcinoma may be more fulminating in malnourished patients. Malnourishment may not be obvious on physical examination and must be elicited by questioning.

Acute nutritional deficiencies, particularly fluid and electrolyte losses, can be understood only in the light of the total (including nutritional) history. For example, a low serum sodium may be due to the use of diuretics or a sodium-restricted diet rather than to acute loss. In this connection, the use of any medications must be carefully recorded and interpreted.

A detailed history of acute losses by vomiting and diarrhea—and the nature of the losses—is helpful in estimating the probable trends in serum electrolytes. Thus, the patient who has been vomiting persistently

with no evidence of bile in the vomitus is likely to have acute pyloric stenosis associated with benign ulcer, and hypochloremic alkalosis must be anticipated. Chronic vomiting without bile—and particularly with evidence of changed and previously digested food—is suggestive of chronic obstruction, and the possibility of carcinoma should be considered.

It is essential for the surgeon to think in terms of nutritional balance. It is often possible to begin therapy before the results of laboratory tests have been obtained, because the specific nature and probable extent of fluid and electrolyte losses can often be estimated on the basis of the history and the physician's clinical experience. Laboratory data should be obtained as soon as possible, but a knowledge of the probable level of the obstruction and of the concentration of the electrolytes in the gastrointestinal fluids will provide sufficient grounds for the institution of appropriate immediate therapy.

The management of electrolyte imbalances is discussed fully in Chapter 12.

### The Patient's Emotional Background

Psychiatric consultation is seldom required in the management of surgical patients, but there are times when it is of great help. Emotionally and mentally disturbed patients require surgical operations as often as others, and full cooperation between psychiatrist and surgeon is essential. Furthermore, either before or after an operation, a patient may develop a major psychotic disturbance that is beyond the ability of the surgeon to appraise or manage. Prognosis, drug therapy, and overall management require the participation of a psychiatrist.

On the other hand, there are many situations in which the surgeon can and should deal with the emotional aspects of the patient's illness rather than resorting to psychiatric assistance. Most psychiatrists prefer not to be brought in to deal with minor anxiety states. As long as the surgeon accepts the responsibility for the care of the whole patient, such services are superfluous.

This is particularly true in the care of patients with malignant disease or those who must undergo mutilating operations such as amputation of an extremity, ileostomy, or colostomy. In these situations, the patient can be supported far more effectively by the surgeon and the surgical team than by a consulting psychiatrist.

Surgeons are becoming increasingly more aware of the importance of psychosocial factors in surgical convalescence. Recovery from a major operation is greatly enhanced if the patient is not worn down with worry about emotional, social, and economic problems that have nothing to do with the illness itself. Incorporation of these factors into the record contributes to better total care of the surgical patient.

## THE PHYSICAL EXAMINATION

The complete examination of the surgical patient includes the physical examination, certain special procedures such as gastroscopy and esophagoscopy, laboratory tests, x-ray examination, and follow-up examination. In some cases, all of these may be necessary; in others, special examinations and laboratory tests can be kept to a minimum. It is just as poor practice to insist on unnecessary "thoroughness" as it is to overlook procedures that may contribute to the diagnosis. Painful, inconvenient, and costly procedures should not be ordered unless there is a reasonable chance that the information gained will be useful in making clinical decisions.

### THE ELECTIVE PHYSICAL EXAMINATION

The elective physical examination should be done in an orderly and detailed fashion. One should acquire the habit of performing a complete examination in exactly the same sequence, so that no step is omitted. When the routine must be modified, as in an emergency, the examiner recalls without conscious effort what must be done to complete the examination later. The regular performance of complete examinations has the added advantage of familiarizing the beginner with what is normal so that what is abnormal can be more readily recognized.

All patients are sensitive and somewhat embarrassed at being examined. It is both courteous and clinically useful to put the patient at ease. The examining room and table should be comfortable, and drapes should be used if the patient is required to strip for the examination. Most patients will relax if they are allowed to talk a bit during the examination, which is another reason for taking the past history while the examination is being done.

A useful rule is to first observe the patient's general physique and habitus and then to carefully inspect the hands. Many systemic diseases show themselves in the hands (cirrhosis of the liver, hyperthyroidism, Raynaud's disease, pulmonary insufficiency, heart disease, and nutritional disorders).

Details of the examination cannot be included here. The beginner is urged to consult special texts.

Inspection, palpation, and auscultation are the time-honored essential steps in appraising both the normal and the abnormal. Comparison of the 2 sides of the body often suggests a specific abnormality. The slight droop of one eyelid characteristic of Horner's syndrome can only be recognized by careful comparison with the opposite side. Inspection of the female breasts, particularly as the patient raises and lowers her arms, will often reveal slight dimpling indicative of an infiltrating carcinoma barely detectable on palpation.

Successful palpation requires skill and gentleness. Spasm, tension, and anxiety caused by painful examination procedures may make an adequate exam-



ination almost impossible, particularly in children.

Another important feature of palpation is the "laying on of hands" that has been called part of the "ministry of medicine." A disappointed and critical patient often will say of a doctor, "He hardly touched me—no wonder he made a mistake." Careful, precise, and gentle palpation not only gives the physician the information being sought but also inspires confidence and trust.

When examining for areas of tenderness, it may be necessary to use only one finger in order to precisely localize the extent of the tenderness. This is of particular importance in examination of the acute abdomen. (See Chapter 24 for details.)

Auscultation, once thought to be the exclusive province of the physician, is now more important in surgery than it is in medicine. Radiologic examinations, including cardiac catheterization, have relegated auscultation of the heart and lungs to the status of preliminary scanning procedures in medicine. In surgery, however, auscultation of the abdomen and peripheral vessels has become absolutely essential. The nature of ileus and the presence of a variety of vascular lesions are revealed by auscultation. Bizarre abdominal pain in a young woman can easily be ascribed to hysteria or anxiety on the basis of "a negative physical examination and x-rays of the gastrointestinal tract." Auscultation of the epigastrium, however, may reveal a murmur due to obstruction of the celiac artery.

### Examination of the Body Orifices

Complete examination of the ears, mouth, rectum, and pelvis is accepted as part of a complete examination. Palpation of the mouth and tongue is as essential as inspection. Inspection of the rectum with a sigmoidoscope is now regarded as part of a complete physical examination. Every surgeon should acquire familiarity with the use of the ophthalmoscope and sigmoidoscope and should use them regularly in doing complete physical examinations.

## THE EMERGENCY PHYSICAL EXAMINATION

In an emergency, the routine of the physical examination must be altered to fit the circumstances. The history may be limited to a single sentence, or there may be no history if the patient is unconscious and there are no other informants. Although the details of an accident or injury may be very useful in the total appraisal of the patient, they must be left for later consideration. The primary considerations are the following: Is the patient breathing? Is the airway open? Is there a palpable pulse? Is the heart beating? Is massive bleeding occurring?

If the patient is not breathing, airway obstruction must be ruled out by thrusting the fingers into the mouth and pulling the tongue forward. If the patient is unconscious, the respiratory tract should be intubated and mouth-to-mouth respiration started. If there is no

pulse or heartbeat, start cardiac resuscitation.

The details of establishing and maintaining artificial respiration and external cardiac massage are described in Chapter 22.

Serious external loss of blood from an extremity can be controlled by elevation and pressure. Tourniquets are rarely required.

Every victim of major blunt trauma should be suspected of having a vertebral injury capable of causing damage to the spinal cord unless rough handling is avoided.

Some injuries are so life-threatening that action must be taken before even a limited physical examination is done. Penetrating wounds of the heart, large open sucking wounds of the chest, massive crush injuries with flail chest, and massive external bleeding all require emergency treatment before any further examination can be done.

In most emergencies, however, after it has been established that the airway is open, the heart is beating, and there is no massive external hemorrhage—and after antishock measures have been instituted, if necessary—a rapid survey examination must be done. Failure to perform such an examination can lead to serious mistakes in the care of the patient. It takes no more than 2 or 3 minutes to carefully examine the head, thorax, abdomen, extremities, genitalia (particularly in females), and back. If cervical cord damage has been ruled out, it is essential to turn the injured patient and carefully inspect the back, buttocks, and perineum.

Tension pneumothorax and cardiac tamponade may easily be overlooked if there are multiple injuries.

Upon completion of the survey examination, control of pain, splinting of fractured limbs, suturing of lacerations, and other types of emergency treatment can be started.

## LABORATORY & OTHER EXAMINATIONS

### Laboratory Examination

Laboratory examinations in surgical patients have the following objectives: (1) screening for asymptomatic diseases that may affect the surgical result (eg, unsuspected anemia or diabetes); (2) appraisal of diseases that may contraindicate elective surgery or require treatment before surgery (eg, diabetes, heart failure); (3) diagnosis of disorders that require surgery (eg, hyperparathyroidism, pheochromocytoma); and (4) evaluation of the nature and extent of metabolic or septic complications.

Patients undergoing major surgery, even though they seem to be in excellent health except for their surgical disease, should have a complete blood and urine examination. A history of renal, hepatic, or heart disease requires detailed studies. Latent, asymptomatic renal insufficiency may be missed, since many

patients with chronic renal disease have varying degrees of nitrogen retention without proteinuria. A fixed urine specific gravity is easily overlooked, and preoperative determination of the blood urea nitrogen and creatinine is frequently required. Patients who have had hepatitis may have no jaundice but may have severe hepatic insufficiency that can be precipitated into acute failure by blood loss or shock.

Medical consultation is frequently required in the total preoperative appraisal of the surgical patient, and there is no more rewarding experience than the thorough evaluation of a patient with heart disease or gastrointestinal disease by a physician and a surgeon working together. It is essential, however, that the surgeon not become totally dependent upon a medical consultant for the preoperative evaluation and management of the patient. The total management must be the surgeon's responsibility and is not to be delegated. Moreover, the surgeon is the only one with the experience and background to interpret the meaning of laboratory tests in the light of other features of the case—particularly the history and physical findings.

### Radiologic Examination

Modern patient care calls for a variety of critical radiologic examinations. The closest cooperation between the radiologist and the surgeon is essential if serious mistakes are to be avoided. This means that the surgeon must not refer the patient to the radiologist, requesting a particular examination, without providing an adequate account of the history and physical findings. Particularly in emergency situations, review of the films and consultation are needed.

When the radiologic diagnosis is not definitive, the examinations must be repeated in the light of the history and physical examination. Despite the great accuracy of x-ray diagnosis, a negative gastrointestinal study still does not exclude either ulcer or a neoplasm;

particularly in the right colon, small lesions are easily overlooked. At times, the history and physical findings are so clearly diagnostic that operation is justifiable despite negative x-ray findings.

### Special Examinations

Special examinations such as cystoscopy, gastroscopy, esophagoscopy, colonoscopy, angiography, and bronchoscopy are often required in the diagnostic appraisal of surgical disorders. The surgeon must be familiar with the indications and limitations of these procedures and be prepared to consult with colleagues in medicine and the surgical specialties as required. The place of special diagnostic procedures is discussed in Chapter 51.

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## THE PROBLEM-ORIENTED RECORD

The history, physical examination, laboratory studies, x-ray studies, and other special diagnostic procedures provide the "data base" underlying the diagnosis and the surgeon's plan for the care of the patient.

The **problem-oriented record** is becoming an accepted and reliable way of programming management. It also lends itself to reliable peer review. According to this system, the word "problem" represents the most specific generalization that can be supported by the available clinical data. It may be the name of a disease but often is less specific, indicating diagnostic uncertainty. Thus, the list of problems represents what is considered factual; speculation and hypotheses are recorded in the plans. Management focuses on the problems, which should be either clarified by obtaining more data or resolved by appropriate therapy.

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## 2 | Preoperative Care

John L. Wilson, MD

The care of the patient with a major surgical problem commonly involves distinct phases of management that occur in the following sequence:

- (1) Preoperative care
  - Diagnostic work-up
  - Preoperative evaluation
  - Preoperative preparation
- (2) Anesthesia and operation
- (3) Postoperative care
  - Postanesthetic observation
  - Intensive care
  - Intermediate care
  - Convalescent care

### Preoperative Care

The **diagnostic work-up** is concerned primarily with determining the cause and extent of the present illness. **Preoperative evaluation** consists of an overall assessment of the patient's general health in order to identify significant abnormalities that might increase operative risk or adversely influence recovery. **Preoperative preparation** includes procedures dictated by the findings on diagnostic work-up and preoperative evaluation and by the nature of the expected operation.

### Postoperative Care

The **postanesthetic observation** phase of management comprises the few hours immediately after operation during which the acute reaction to operation and the residual effects of anesthesia are subsiding. A "recovery room" with special staff and equipment is usually provided for this purpose. Patients who have had severe operations or whose general condition is precarious for any reason should be transferred from the operating room or the recovery room to an "intensive care unit." The duration of stay in an intensive care unit may vary from 1–2 days to many weeks depending upon the condition of the patient.

Large general hospitals now usually have a variety of specialized intensive care units adapted to the needs of medical, surgical, and pediatric patients. Intensive surgical care can of course be provided on a regular nursing unit by mobilizing the necessary personnel and equipment when needed by individual patients. If there is a constant census of 5–10 critically ill

patients, it is more efficient and effective to establish an intensive care unit.

It should be noted that not all postoperative patients require intensive care. Uncomplicated operations for hernia, appendicitis, anal conditions, and other problems of similar magnitude ordinarily require only a few days of hospitalization and an intermediate level of care on a regular nursing unit.

Postoperative **intermediate care** can be described as that normally available on the regular nursing units of the hospital. This type of care, and the **convalescent care** provided to the ambulatory patient outside the hospital, will not be reviewed here, because they pose no special problems not touched on in the following chapters on postanesthetic and intensive care in Chapter 4.

### The Continuum of Surgical Care

The continuum of surgical care has been represented above as progressing through a series of pre- and postoperative phases. In practice, these phases merge, overlap, and vary in relative importance from patient to patient. Morbidity, mortality, and therapeutic end result in the surgical patient depend upon the competence with which each succeeding phase is managed. The rapid progression and severe episodic stress of major surgical illness leave small margin for errors of management. The care immediately preceding and following operation, which includes preoperative evaluation and preparation and postanesthetic observation and intensive care, is especially critical. Improved surgical results in recent years are due chiefly to improvements in the management of these important phases of surgical care.

### PREOPERATIVE EVALUATION

#### General Health Assessment

The initial diagnostic work-up of the surgical patient is concerned chiefly with determining the cause of the presenting complaints. Except in strictly minor surgical illness, this initial work-up should be supplemented by a complete assessment of the patient's general health. Such an evaluation, which should be completed prior to all major operations,



seeks to identify abnormalities that may influence operative risk or may have a bearing on the patient's future well-being. Preoperative evaluation thus involves a comprehensive examination and should include at least a complete history and physical examination, urinalysis, complete blood count, and posteroanterior and lateral chest x-rays. In patients over 40, it is advisable also to obtain an electrocardiogram, a stool test for occult blood, and a blood chemistry screening battery. Open wounds and infections usually require culture and determination of antibiotic sensitivity.

In addition to the foregoing studies, all significant specific complaints and physical findings should be adequately evaluated by appropriate special tests, examinations, and consultations. Bleeding tendencies, medications currently being taken, and allergies and reactions to antibiotics and other agents should be noted and prominently displayed on the chart. Psychiatric consultation should be considered in patients with a past history of significant mental disorder that may be exacerbated by operation and in patients whose complaints may have a psychoneurotic basis.

The physical examination should be thorough and must include neurologic examination and check of peripheral arterial pulses (carotid, radial, femoral, popliteal, posterior tibial, and dorsalis pedis). A rectal examination should always be done, and a pelvic examination should be performed unless contraindicated by age, virginity, or other valid reason. A Papanicolaou smear of the cervix should be obtained in women over 30 years of age. Sigmoidoscopy is required for completeness of evaluation when there are rectal or colonic complaints. This can usually be accomplished at the time of the physical examination; if necessary, the rectum and lower sigmoid can be rapidly cleared by administration of a hypertonic sodium phosphate enema.

In summary, the preoperative evaluation should be comprehensive in order to assess the patient's overall state of health, to determine the risk of the impending surgical treatment, and to guide the preoperative preparation.

### **Nonsurgical Diseases Affecting Operative Risk**

Nonsurgical disorders frequently increase the risk of surgical procedures. An analysis of the causes of deaths occurring during operation or in the postoperative period shows that fatal complications are often related to preexisting organic disease, particularly of the cardiovascular, respiratory, and genitourinary systems (see Chapter 5).

### **Special Factors Affecting Operative Risk**

**A. The Pediatric Patient:** See Chapter 48.

**B. The Elderly Patient:** Operative risk should be judged on the basis of physiologic rather than chronologic age, and an elderly patient should not be denied a needed operation because of age alone. The hazard of the average major operation for the patient over 60 is increased only slightly provided there is no cardiovascular, renal, or other serious systemic

disease. Assume that every patient over 60—even in the absence of symptoms and physical signs—has some generalized arteriosclerosis and potential limitation of myocardial and renal reserve. Accordingly, the preoperative evaluation should be comprehensive. Occult cancer is not infrequent in this age group; therefore, even minor gastrointestinal and other complaints should be thoroughly investigated.

Administer intravenous fluids with care not to overload the circulation in the elderly. Monitoring of intake, output, body weight, serum electrolytes, and central venous pressure is an important means of evaluating the cardiorenal response and tolerance in this age group.

Regarding medications, aged patients generally require smaller doses of strong narcotics and are frequently depressed by routine doses. Codeine is usually tolerated. Sedative and hypnotic drugs often cause restlessness, mental confusion, and uncooperative behavior in the elderly and should be used cautiously. Preanesthetic medications should be limited to atropine or scopolamine in the debilitated elderly patient, and anesthetic agents should be administered in minimal amounts.

**C. The Obese Patient:** Obese surgical patients have a greater than normal tendency to serious concomitant disease and a higher incidence of postoperative wound and thromboembolic complications. Obesity also usually increases the technical difficulty of operation and anesthesia. For these reasons, it may at times be advisable to delay elective operation until the patient loses weight by appropriate dietary measures.

**D. The Pregnant Patient:** See Chapter 5.

**E. The Compromised or Altered Host:** Patients may be considered "compromised or altered hosts" if the capacity of their systems and tissues to respond normally to infection and trauma has been significantly impaired by some disease or agent. Preoperative recognition of a compromised immune state and special evaluation of these patients are obviously important.

**1. Increased susceptibility to infection—**Certain drugs may reduce the patient's resistance to infection by interfering with host defense mechanisms. Corticosteroids, immunosuppressive agents, cytotoxic drugs, and prolonged antibiotic therapy are associated with an increased incidence of invasion by fungi and other organisms not commonly encountered in infections. A combination of irradiation and corticosteroid therapy is found experimentally to predispose to lethal fungal infections. It is possible that the synergistic combination of irradiation, corticosteroids, and serious underlying disease may set the stage for clinical fungal infection. A high rate of wound, pulmonary, and other infections is seen in renal failure, presumably as a result of decreased host resistance. Granulocytopenia and diseases that may produce immunologic deficiency—eg, lymphomas, leukemias, and hypogammaglobulinemia—are frequently associated with septic complications. The uncontrolled diabetic is also observed clinically to be more susceptible to infection (see Chapter 5).