ALTHOUGH they are still formidable, intestinal fistulas are no longer so catastrophic as they were a few years ago. Many reports in the medical literature affirm that the seriousness of the disease is, in large measure, directly related to the site of origin. The higher the fistula, the more troublesome will be its management. During the earliest stages in the development of a fistula, the immediate threat to life is generalized peritonitis. Administration of antibiotic agents has lessened this hazard and, at times, fortuitous circumstances such as the presence of adhesions or, in postoperative patients, drains, may lessen the probability of this complication. Persistent loss from a "high-output" fistula in the upper portion of the small intestine still places a severe burden on homeostatic mechanisms. Careful attention to fluid and electrolyte balances, caloric requirements and nutrition, and awareness of an eventual need for trace elements may be utilized to maintain the patient in satisfactory condition for long periods of time. This can be accomplished by intravenous feeding or by feeding through a nasal tube, passed beyond the site of the fistula or through a jejunostomy established below it. A small number of fistulas may close spontaneously while these methods are being employed. This possibility will vary according to many circumstances such as the location and size of the internal opening, cause of the fistula (enteritis, cancer, tuberculosis, etc.), presence or absence of distal obstruction, and presence or absence of a foreign body. However, this limited possibility should not be used as an excuse for protracted intravenous alimentation. We do not suggest that an aggressive surgical attack be undertaken recklessly, but we are opposed to waiting for a golden moment that may never appear.

As a rule, fistulas involving the upper portion of the small bowel require early surgery, and fistulas of the lower portion of the ileum and colon are less urgent. In the latter, judicious delay is warranted unless unfavorable extenuating circumstances develop, the most important of which is a fistula involving the urinary tract and causing progressive kidney damage. Theoretically, the ideal time to attempt surgical correction of a high-output fistula of the upper portion of the small intestine is the moment when it is discovered. There are certain obvious reasons why surgeons are reluctant to pursue this course. The most compelling is persistence of the causative factors. The cause may be infection, compromised vascularity, local malignant or granulomatous disease, or distal obstruction. Nevertheless, protracted conservatism usually leads to a higher mortality rate than a well-planned early surgical procedure. Nonsurgical measures require diligent daily attention to prevent fluid and electrolyte imbalance and nutritional problems. Care of the skin is very important, and the possibility of abscess formation...
necessitates constant alertness. There is no doubt that so-called medical measures can successfully keep the patient in good condition with a clinical record that shows satisfactory progress. These records can be misleading, however, and if surgery ultimately is required, the postoperative course may be rugged. Carried beyond a certain point, the end result of such hopeful waiting may be a debilitated patient, in negative nitrogen balance, who is physically and emotionally exhausted. It is difficult to determine the appropriate time to utilize surgical measures. Undoubtedly, surgical correction should be attempted as soon as it is apparent that the fistula is not likely to close spontaneously, and before the patient's disability has reached alarming proportions.

**Diagnosis**

Early and accurate diagnosis is a most important feature of the management of fistulas. Of equal importance is determination of the nature of the causative disease, because its treatment is as necessary as a direct attack on the fistula. Frequently this dictates the type of surgical procedure that should be employed. The site of origin of the fistula bears an important relationship to the method of treatment and the prognosis. It is a matter of practical necessity, therefore, to make this determination as soon as possible. At times, valuable information can be gained by observing the characteristics of the discharge. This, however, does not necessarily reveal the point of origin, especially if there is gross infection. It may not, and probably will not, indicate if there are multiple internal tracts or involvement of other organs. The location of the external opening provides only limited information that may or may not indicate a particular segment of the intestine, because the planes of least resistance are frequently circuitous rather than direct. Coupling this information with a comprehensive history will, however, make it possible, in some cases, to identify accurately the characteristics of the fistulous tract.

In our experience, the best method of determining the location, nature and extent of a fistula is contrast fistulography, which should be employed in all cases. This is easily accomplished with one of the iodinated water-soluble media, such as Hypaque®, Renografin® or Gastrografin®. The dye is introduced through a small catheter or a plastic French pediatric nasogastric tube into the external fistulous opening. X-rays should be obtained immediately. If they are not satisfactory, it is often advisable to take delayed films. While the radiopaque medium is being injected into the external opening of the tract, a careful fluoroscopic examination should be made to supplement the information on the roentgen films. This technic is especially applicable to enterocutaneous fistulas, but it can also be used for other conditions, such as vaginal fistulas. When the urinary bladder is involved, a complete evaluation of the urinary tract is required and, in other situations, it is also useful. Cystoscopic examination will sometimes reveal the fistulous opening, or it may be visible in a cystogram.

All patients should undergo complete studies of the gastrointestinal tract. It has been our experience that, if the internal opening is not large, these studies will not reveal it. In some instances, however, it may be possible to identify internal fistulas or concurrent conditions that require treatment and are not revealed by fistulography. Upper and lower gastrointestinal studies are a reliable means of determining the type and extent of the causative disease, be it inflammatory or neoplastic. We make such studies routinely. Sigmoidoscopic examination should be performed to evaluate low fistulas and to rule out associated lesions that otherwise might pass unnoticed.