7. THE ENTERAL CONTRAST INFUSION

1. Preparation of patients

Even more important than for a conventional follow-through study is the thorough cleansing of the patient. It is desirable that the stomach be entirely empty and thus contain no fasting gastric residuum. Should there be gastric fluid in the stomach, the pyloric ring will not close properly since it is a natural reaction of the stomach to dispel its contents through the pylorus. When an infusion is running, the pressure in the duodenum is probably greater than the pressure in the stomach so that an open pyloric ring will have a reverse effect on gastric emptying and reflux of contrast fluid into the stomach from the duodenum will occur. Since the presence of feces in the cecum will tend to retard the rate of passage through the ileum, the patient must follow a low-residue diet and the colon should be thoroughly cleansed. It is also preferable that the last meal on the day before the examination be free of fats.

Comparison of the results of examinations when the patients did and did not receive a laxative beforehand has shown that less contrast fluid is required to reach the cecum when it is cleansed than when it is contaminated. It is easier to project the separate ileal loops in the lower abdomen with a low dose of contrast fluid than with a high dose that causes greater intestinal filling. An additional advantage of a well-cleansed cecum is that, although the x-rays then obtained of this part of the intestine are inferior to the films from a routine colon examination, they are still usable.

It is exceedingly important that castor oil, or any other purgative given for laxation of the colon, be administered orally. It is not advisable to cleanse the colon by means of a rectal-cleansing enema. We have found that a cleansing enema can sometimes cause extensive reflux of the clyster fluid into the ileum. Some of this clyster fluid is often retained in the ileum and proximal colon and will mix with the contrast fluid flowing in from the proximal direction. As a result, the mucosal patterns in this important part of the intestine can be evaluated only with great difficulty or not at all. It is true that the disadvantages of a rectal enema can be overcome entirely or to a large extent by waiting 1–2 h before beginning enteroclysis, but then one can no longer speak of a short examination.

Very good results for cleansing the large bowel are obtained if the day before the examination the following diet is used:

7 a.m. – 30 g magn. sulf. in 300 ml water; 2 Dulcolax tablets.
9 a.m. – 600 ml tea or lemonade; 2 boiled eggs; 30 g (1 slice) of white bread with 30 g (1 slice) of cheese.
11 a.m. – 600 ml coffee, tea, lemonade, or water.
1 p.m. – 60 g of white bread and 2 slices of cheese (no butter!). 600 ml tea or water.
3 p.m. – 600 ml coffee, tea, lemonade, or water.
5 p.m. – skinless cooked chicken or cooked fish. 200 ml beef-tea. No potatoes, vegetables, or fruits!
7 p.m. – 30 g magn. sulf. in 300 ml water; 2 Dulcolax tablets.
9 p.m. – 600 ml coffee, tea, beer, lemonade, or water.

Whenever possible, preparation of the patient should also include discontinuation of drugs that inhibit peristalsis in the intestine. In general it can be stated that such a drug should be discontinued for a period that depends upon the length of time the patient has been taking the drug (see also chapter 12).
If the patient has received antispasmodics, sedatives, or tranquilizers for many months or even years, then discontinuation just before the radiological examination will serve little purpose since these drugs must be discontinued for many months before any improvement is noted in the peristaltic movement in the intestine. In addition, just prior to or during the examination, no drug should be given that enhances the production of bile or contraction of the gallbladder. Bile pigments do in fact stimulate peristaltic action in the intestine, but on the other hand also tend to promote disintegration of the contrast fluid. An initial advantage can therefore become a disadvantage if the examination has to be prolonged.

Finally, the patient must be told that large amounts of fluid will be administered during the examination. As a result, he may have to micturate frequently and there may be some diarrhea for several hours afterward. This should be taken into account when planning the trip home; it might even be wise to remain in the waiting room of the radiology department for 15 min or more. He should also be made to empty his bladder and bowels just prior to the examination. Otherwise he might do so on the examination table!

2. Duodenal intubation

Fear of the time-consuming intubation procedure is often the main reason that enteroclysis has not been introduced as a routine procedure in some departments of radiology. If, however, the trouble is taken to practice this technique several times, and if the directions described below are followed, then experience will show that this fear is without foundation. After some practice, duodenal intubation of most patients only takes several minutes and fluoroscopy requires 10–30 s at the most. In only a few patients out of every hundred will intubation prove to be difficult for various reasons. It may then take 10 min, sometimes slightly longer. These difficulties are, however, insignificant in comparison to the improved results and the much shorter examination (15–30 min). Only in cases of obstruction or drug-induced atony of the small intestine can the examination last 1 or 2 h, depending upon the dose of contrast medium. This is still very short when compared with the conventional follow-through studies that can last all day in such cases, in spite of the administration of large amounts of contrast fluid and drugs to accelerate transit. Furthermore, the roentgenograms of a conventional examination will become useless much sooner because of disintegration, pronounced dilution, or thickening of the contrast fluid.

Of the tubes on the market today, the best choice is the extended Bilbao-Dotter tube (fig. 7.1B), which was designed especially for enteroclysis. The guide wire of this tube has the correct degree of rigidity; those used for angiography are too flexible.

In comparison with the original Bilbao tube (fig. 7.1A) designed for hypotonic duodenography, the tube in the new model is not shorter than the guide wire but is instead several centimeters longer. This offers the following advantages: