Jejunoileal Bypass for Obesity
A Risk Factor for Tuberculosis

During the past 10 to 15 years, jejunoileal bypass operations have been used as a means of achieving weight loss in markedly obese individuals who are refractory to less drastic weight reduction measures. To date, at least 20 cases of tuberculosis following bypass operations have been reported. These prevalence and incidence figures may not be very accurate because of the limited data available, the absence of suitable comparison groups, biases favoring the reporting of series with tuberculosis cases over those with no cases, and other problems. Nevertheless, the evidence does suggest that persons who have had jejunoileal bypass operations are at increased risk of developing tuberculosis.

Presumably, patients who are at greatest risk of developing tuberculosis are those who are already infected with M. tuberculosis at the time of the operation. However, none of the published reports provides data on the incidence or prevalence of disease among those infected and those uninfected preoperatively. A large majority of cases have occurred in women, but this is more likely a reflection of who is selected for bypass operation than an indication that women who have undergone the operation are at higher risk than men.

A very striking feature of tuberculosis following intestinal bypass operations has been its propensity to involve nonpulmonary sites, particularly lymph nodes. As a consequence, histologic and/or bacteriologic proof of the diagnosis has often required invasive procedures to obtain specimens. Nonpulmonary tuberculosis accounts for only 15 percent of the total cases in the general population, but 82 percent of cases in bypass patients have involved nonpulmonary sites.

Based on the published reports, a "successful" bypass operation, ie, the induction of marked weight loss, is a prerequisite for increasing the risk of tuberculosis. One curious and unexplained finding, however, is that the greatest risk of developing tuberculosis is not during the period of rapid weight loss in the immediate postoperative period, but rather 10 to 15 months after the operation. It is at this time that body weight begins to stabilize.

The reason for the increased risk of tuberculosis after bypass operation is unknown. It may be related to the fact that many patients become protein and zinc deficient postoperatively and both conditions are reported to adversely affect cell mediated immune responses.

Treatment of bypass patients with tuberculosis has sometimes been difficult because of failure to achieve therapeutic serum levels with the usual doses of orally administered drugs. Isoniazid seems to be more reliably absorbed than either ethambutol or rifampin. Some patients have been successfully treated initially with intramuscular drugs, eg, streptomycin and isoniazid, whereas other patients have received oral drugs in higher than normal doses with monitoring of serum levels. The optimal therapeutic regimen for these patients is unknown and treatment must be individualized based upon drug susceptibility patterns, response to therapy, and drug serum levels.

Prevention of tuberculosis morbidity (and mortality) in this population is possible. Mantoux tests with 5 TU Tween-stabilized PPD-T should be routinely performed preoperatively on all "bypass candidates." If the skin test reaction is <10 mm induration, and there are no signs and symptoms of tuberculosis, no further diagnostic workup for tuberculosis is indicated. If the test is positive (10 mm or more induration) and disease is not present, preventive therapy with isoniazid is indicated. Yu advocates delaying the operation for at least six months while isoniazid preventive therapy is being administered.

During the preoperative and postoperative period, signs and/or symptoms compatible with tuberculosis (pulmonary or nonpulmonary) should precipitate a complete workup for the disease. Because several factors may lead to false-negative tuberculin test results in diseased patients, the diagnosis should not be excluded based upon a negative tuberculin test result. Invasive procedures to obtain biopsy specimens for histologic and microbiologic studies may be necessary.

While bypass patients represent only a small proportion of those who develop tuberculosis, the risk of tuberculosis in this group appears to be much higher than in the general population. Therefore, screening these patients preoperatively for the presence of infection and prescribing preventive therapy for those who are infected seems justifiable.

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(Another) New Technique for an Old Disease

The Protected Brush Catheter and Bacterial Pneumonia

It seems incredible in this modern era of bacteriology, immunologic testing and supercomputerized technology that an easy diagnostic test for bacterial pneumonia has yet to be developed. Counterimmunoelectrophoresis, transtracheal aspiration (TTA), fiberoptic bronchoscopy, quantitative bacteriology, lung punctures, and yes, even the old-fashioned Gram stain of expectorated sputum are but a few of the possible techniques available to the clinician to aid in making a specific etiologic diagnosis of pneumonia. Each of these procedures has its protagonists and antagonists, claiming that other methods are not necessary, unreliable, too dangerous, require a skilled technician, etc.

In actuality, all of these techniques can safely and accurately make a specific etiologic diagnosis in most cases of bacterial pneumonia. They (the invasive techniques) are not necessary in all patients, however. Although I do not advocate it, "empiric" therapy of community-acquired bacterial pneumonia in the noncompromised host is relatively safe in most cases and, I suspect, widely practiced. In the selected patient at substantial risk for unusual organisms, however, the risk to the patient of "empiric" therapy increases so greatly as to demand an attempt at making a specific diagnosis. This is where the procedure discussed by Wimberley et al in this issue (see page 556) becomes important.

These authors describe a protected catheter technique for the diagnosis of pneumonia. This method uses fiberoptic bronchoscopy and a sterile brush contained within a catheter which is plugged with polyethylene glycol. Using quantitative bacteriology on the obtained respiratory secretions, 65 patients with a clinical diagnosis of pneumonia were evaluated. Blood and pleural fluid cultures were obtained, although the technique was not compared to the more accepted invasive techniques of TTA or lung puncture and results of Gram stain on the obtained secretions were not reported. Except for these two limitations, however, the study was carefully performed and the results demonstrate the effectiveness of this procedure in diagnosing bacterial pneumonia.

One unsuspected finding of these authors was the relatively high incidence (50 percent) of positive bacterial cultures in patients not felt to have a bacterial infection. One "hope" for the protected brush catheter was that only the probable pulmonary pathogen would grow from the respiratory sample, and that quantitative bacteriology would not be necessary. Unfortunately, this did not occur. Fossieck et al1 reported almost identical findings in 31 clinically uninfected patients with lung cancer whose samples were obtained by TTA. This means that "quantitative" bacteriology of some fashion must be performed on these cultures, and that simply placing the brush into broth and incubating it is clearly inadequate. This complicates the procedure somewhat and will require close communication between the pulmonary physician and the laboratory.

A problem with the study by Wimberley and associates is the lack of information on results of Gram stain. Since the presence of polymorphonuclear leukocytes and bacteria on a Gram stain requires at least 100,000 (10⁴) per ml of each to

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