Indications for Collapse Therapy

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The indications for collapse therapy in the treatment of tuberculosis, simply stated, are—an active pulmonary lesion. Collapse therapy has come to the front as the most effective treatment of pulmonary tuberculosis and ahead of the older measures of rest, fresh air, diet, and climatic change. There is little difference of opinion about the effectiveness of collapse therapy as determined by clinical observation, but a satisfactory explanation of the "why's and wherefore's" of these benefits is not easy.

The theory that the added rest is the important factor has little to appeal to me. Cavity closure is unquestionably important. Changes in circulation and lymphatic drainage in the collapsed lung may have something to do with the benefit. However, the theory as first propounded by the late Dr. Breidenbach, of Dayton, and stressed by the late Paul Coryllos, of New York, that a relatively anaerobic condition is present in the collapsed lung which is unfavorable to the development of the tubercle bacillus, which is an aerobe, is the theory that most reasonably explains the benefit of collapse treatment, in my opinion.

It is a mistake to believe that collapse treatment alone can bring about the arrest of pulmonary tuberculosis. A patient must have some resistance as evidenced by his ability to form fibrous tissue to encapsulate the tubercles and lay down calcium. In spite of adequate collapse the disease will be progressive in certain cases with spread of the disease to various parts of the body. We have no explanation for this factor of resistance, but it can be estimated to some degree by consideration of the clinical manifestations and the study of the character of the pulmonary lesion on the x-ray film.

The patient with poor resistance often runs a high temperature, shows a progressive weight loss, develops early evidences of extrapulmonary complications. The pulmonary lesion is often extensive and progressive, and has a soft diffuse appearance on the x-ray film. The patient with a relatively good resistance often exhibits few evidences of toxemia, shows some tendency to improve under ordinary sanitarium regime, and x-ray studies reveal the lesions to be more discrete, with some regression and tendency towards fibrosis and calcification. While use of collapse is

quite justifiable in the former group, good results cannot be anticipated. In the latter group good results will be obtained. Although it is quite true that some of this latter group may go on to spontaneous healing, the largest percentage, particularly if cavity formation is present, will slowly go on to progression and fatal termination if collapse measures are not applied.

Every case of active pulmonary tuberculosis should be considered for lung collapse. The primary tuberculosis of childhood does not respond as well as the adult type, probably because these patients have a low inherent resistance against the disease. Patients above the age of sixty often have a chronic healing tuberculosis and their lives are probably not appreciably prolonged by collapse measures. However, some of these should receive collapse, particularly from the point of view of stopping the spread of the infection to others.

Unfortunately many cases present themselves for treatment, in which their general condition and the extent of pathology prohibit the effective administration of collapse measures. If more than half of both lungs are involved it is, in general, impossible to collapse the disease effectively and still maintain normal respiratory function. Extensive extrapulmonary tuberculous lesions contraindicate collapse therapy, while minor degrees of involvement do not necessarily contraindicate such therapy. Following control of the major source of infection, tuberculous laryngitis and tuberculous enterocolitis frequently go on to healing. Serious nontuberculous complications, particularly cardiac and pulmonary diseases, may likewise prohibit application of collapse measures.

The object of all collapse measures is to bring about a purely mechanical collapse of the lung, particularly the diseased areas, and these collapse measures are effective in direct proportion to their technical efficiency. Pneumothorax is most widely used in collapse measures because of its relative safety and simplicity, and because it often brings about an effective collapse. Thoracoplasty is probably the most successful collapse measure because it achieves most nearly a perfect technical result and because this collapse is of a permanent nature.

**Collapse of the Minimal Case**

Increased use of various types of x-ray survey has led to the recognition of a larger number of minimal tuberculous lesions in recent years than in the past. A certain number of these may recover under rest treatment. However, as shown by Turner and Collins of the Chicago Municipal Tuberculosis Sanitarium, a considerable number of these cases will extend and become advanced cases. In minimal cases treated with pneumothorax there
were almost no evidences of extension of the disease as far as these cases had been followed. It is my opinion that active minimal lesions of pulmonary tuberculosis should be promptly subjected to collapse therapy measures and these measures kept in effect for a considerable period of time. Although there is some difference of opinion as to which collapse measure should be resorted to, I lean strongly in favor of pneumothorax if this is possible.

**Unilaterally Moderately Advanced and Far Advanced Pulmonary Lesions**

Unilaterally moderately advanced and far advanced lesions present ideal undisputed indications for prompt collapse treatment. The impelling factor is the presence of a cavity. Pneumothorax is almost always attempted first, but if unsuccessful should be quickly supplemented by surgical measures. In certain cases with extensive lung destruction permanent surgical collapse is preferable to a pneumothorax collapse even though pneumothorax may be possible.

**Bilateral Pulmonary Lesions**

Twelve or fifteen years ago bilateral cases were not given benefit of collapse treatment. However, at the present time various combinations of collapse therapy measures can be employed to collapse both lungs simultaneously or alternately. It is necessary to remember that at all times adequate respiratory function must be maintained, and this means that both lungs can be collapsed only partially and that many extensive bilateral processes cannot be thoroughly collapsed, and therefore must be excluded from treatment.

Certain special indications for collapse such as pulmonary hemorrhage are frequently mentioned, but it is my opinion that the fundamental and impelling indication for collapse is merely the presence of an active pulmonary lesion. Discussion of the choice of collapse therapy measures does not seem to be within the scope of this assignment.

**CONCLUSION**

Collapse therapy is often dramatically effective, producing results comparable to the best recognized medical and surgical procedures, and although not free from dangers and complications should be applied promptly upon recognition of the diseased process. It will, I believe, remain the foremost therapeutic measure in the treatment of pulmonary tuberculosis until such a time
when the disease has been eradicated by the control of the source of the infection or when some agent is introduced which will specifically influence the tubercle bacillus in the body.

CONCLUSION

La colapsoterapia es frecuentemente eficaz en forma espectacular, produce resultados comparables con los más aceptados procedimientos médicos y quirúrgicos y, aunque no está exenta de peligros y complicaciones, debe aplicarse con prontitud al diagnosticarse el proceso morboso. Soy de opinión que ella continuará siendo la terapia más importante en el tratamiento de la tuberculosis pulmonar hasta cuando se haya erradicado la enfermedad mediante el control de la fuente de infección, o hasta cuando se introduzca algún agente que ejerza una influencia específica sobre el bacilo tuberculoso en el cuerpo.