Lung Immobilization Chamber Therapy in Chronic Pulmonary Tuberculosis*
(With Case Reports)

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Introduction

During recent years methods of promoting rest and relaxation of the diseased lung in pulmonary tuberculosis have been suggested and developed for clinical use. Decrease in the functional activity of tuberculous lungs is still considered a most important factor in the clearing of inflammatory exudates and the closure of cavities, being of equal, or even greater importance than chemotherapy.

It is the purpose of this paper to report the results of four years trial of immobilizing lung chamber therapy in chronic pulmonary tuberculosis, to discuss criteria for the selection of patients for this form of therapy, and to attempt to evaluate its place in the overall treatment program.

Methods

The method by which local rest of the lungs is achieved and the mechanism by which adequate pulmonary ventilation is provided in the use of the lung immobilizing chamber has been discussed in detail by Barach and co-workers.1-3 The patient lies in an enclosed chamber† in which air can be alternately compressed and decompressed at differential pressures of 55 to 60 mms. of mercury and at a rate of 25 to 30 times a minute, resulting in a tidal flow of 300 to 500 ml. of air in and out of the lungs. The body compartment of the chamber is separated from the head end by a movable partition which lowers over the neck to produce differential pressures between 4 and 12 cm. of water in the head compartment. The addition of this pressure to the compression (positive) cycle of air as it enters the head compartment is adequate to overcome the resistance of the tracheobronchial tree, thus allowing equal air pressure to be simultaneously applied to the inner and outer surfaces of the chest wall as well as the upper and lower surfaces of the diaphragm. The immobilizing chamber

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*From the District No. 1 Tuberculosis Sanatorium, Decatur, Alabama.
†Manufactured by J. H. Emerson Company, Cambridge, Massachusetts.
is air conditioned. The head compartment is equipped with a two-way communication device. A light for reading and a small battery radio may be placed beside the head. By means of a release catch the patient may enter and leave the chamber without help. There are three such chambers in operation at our institution. With our present plan of treatment, each machine is operated on two shifts of 10 hours each; thus enabling six patients to be undergoing treatment during a given period (usually four to six months). By proper training, most patients learn to immobilize their chest wall and diaphragm in the first week of practice, thereafter the chest is immobilized without conscious or voluntary effort. With occasional patient claustrophobia is a deterrent to complete immobilization; in others, nervousness and inability to relax prohibit lung immobilization. Recently we have found Tolserol* to be very helpful in promoting muscular relaxation and in shortening the training period.

Results

Clinical reports of other investigators have shown that lung immobilization therapy with the equalizing pressure chamber has been effective in the closure of cavities and the arrest of disease in moderately and far advanced pulmonary tuberculosis.1-7

During the past four years we have used this form of therapy in 23 patients, eight of whom could not cooperate in learning or maintaining lung immobilization; the treatment of these cases was terminated after a trial period of from four to eight weeks. Fifteen patients immobilized well and were treated for periods sufficiently long for adequate evaluation. Five of these 15 patients were considered failures in regard to this form of therapy.

Of the remaining 10 patients, four were arrested as a result of immobilizing lung chamber therapy alone, four were arrested with chemotherapy used in conjunction, and in two patients disease on one side was arrested enabling thoracoplasty to be performed on the opposite side.

Since the number of cases treated is by necessity too small for statistical analysis, each case must be considered on its own merits. The case histories of the 10 patients successfully treated will be presented.

Case Reports

Case 1: L.E.M., a white male, 20 years of age, was first admitted to the sanatorium August 31, 1945, with a diagnosis of far advanced pulmonary tuberculosis. Because of cavity formation in the right upper lobe, right therapeutic pneumothorax was instituted but could not be maintained.

*Supplied through the courtesy of H. Sidney Newcomer, M.D., E. R. Squibb and Sons, New York City.
Figure 1a: X-ray film May 18, 1947, at the beginning of lung immobilizing therapy. Note cavities in right first and second anterior interspaces.

Figure 1b: X-ray film July 22, 1947, after two months therapy.

Figure 1c: X-ray film March 24, 1950, two and one-half years after therapy showing only fibrotic infiltration in the right lung field.

CASE 1. I.M.
A cross-spread occurred to the left side and left therapeutic pneumothorax was instituted October 8, 1945, and abandoned four months later. A left phrenicectomy was performed and shortly thereafter he was discharged unimproved. He was re-admitted six months later, July 28, 1946, because of left tuberculous empyema and during the next 10 months received periodic aspirations. Repeated sputum examinations remained positive for tubercle bacilli. X-ray examinations during this interval showed extensive tuberculous infiltration with multiple cavities in the right upper lobe and pleural thickening on the left side with diminishing amounts of fluid and re-expansion of the lung. On May 18, 1947, the patient began lung immobilization therapy with the equalizing pressure chamber. X-ray film of the lungs at that time is shown in Figure 1a. He was kept in the chamber four hours daily for four months. Sputum examinations were negative after the first month in the machine. The patient's cough, which was productive of eight to 10 cups of sputum daily, had become non-productive and infrequent. An x-ray film of the lungs taken July 22, 1947 (Figure 1b), two months after institution of this therapy showed the cavities in the right upper lobe to be lost to view. After two more months of immobilization therapy, he was discharged to be followed in the out-patient clinic.

A recent x-ray film of the lungs, March 24, 1950 (Figure 1c), revealed only fibrotic infiltration in the right upper lobe and left pleural thickening.

Comment: Case 1 was the first patient treated by lung immobilization in our institution. It is noteworthy that although he was kept in the immobilizer only four hours a day, resolution of the far advanced disease was remarkably rapid.

Case 2: M.K., a white male, 30 years of age, was admitted to the sanatorium August 11, 1946, with the diagnosis of moderately advanced pulmonary tuberculosis. X-ray films revealed extensive tuberculous infiltration in both upper lung fields. A cavity was present in the right first anterior interspace and there were multiple cavities in the left upper lung field. Sputum examinations were consistently positive. Left therapeutic pneumothorax was instituted August 19, 1946, and was continued until March, 1947, when it had to be abandoned. Right therapeutic pneumothorax was begun October 21, 1946, and was abandoned one month later because of dense adhesions. One gram of streptomycin was given daily from August, 1947 to May, 1948, with very little improvement. Pneumoperitoneum was tried from January, 1948 to May, 1948, without appreciable improvement. He was maintained on bed rest alone until December 9, 1949, when he was placed in the lung immobilizer 10 hours per day for a period of six months. At the beginning of chamber therapy, x-ray film of the lungs (Figure 2a) showed a cavity still present in the right first anterior interspace and multiple cavities present in the left upper lung field. Sputum examinations were positive. After six months of immobilization therapy, tomograms of the right lung at the 10 cm. level revealed fibrotic infiltration with closure of the cavity (Figure 2b). Since the left side disease had remained essentially unchanged left upper stage thoracoplasty was performed in August, 1950. Follow-up x-ray film (Figure 2c) revealed a successful left thoracoplasty with fibrosis in the right apex and first anterior interspace. He has been seen at regular
Figure 2a: X-ray film at the beginning of chamber therapy. Note cavity in right, first anterior interspace and "honeycombing" in left upper lung field.

Figure 2b: Tomogram of right lung showing absence of cavity after six months of immobilization therapy.

Figure 2c: X-ray after left upper stage thoracoplasty. Clinical arrest of bilateral disease.
intervals since and has remained well. Repeated sputum examinations from September, 1950, to date have been negative.

Case 3: L.K., a white female, age 20, was admitted to the sanatorium April 11, 1949. She had a history of progressive far advanced tuberculosis of two years duration. She had been given pneumoperitoneum therapy

**Figure 3a**

CASE 3, L.K.

*Figure 3a:* X-ray film before chamber therapy. Note giant cavities in both upper lung fields.—*Figure 3b:* X-ray film after six months of immobilization therapy. Note that the cavity on the right is lost to view. The cavity on the left is still present.

**Figure 3c**

CASE 3, L.K.

*Figure 3c:* Tomogram of the right lung giving confirmation of cavity closure. *Figure 3d:* X-ray film after left upper stage thoracoplasty. Clinical arrest of bilateral far advanced disease.
for the previous year in another sanatorium and discharged with maximum hospital benefit. X-ray film of the lungs (Figure 3a) revealed extensive tuberculous infiltration and giant cavities in both upper lobes. Repeated sputum examinations were positive for tubercle bacilli. The sedimentation rate (Cutler method) was 26 mm. in one hour. Both right and left artificial pneumothorax were attempted, without success. Pneumoperitoneum was re-instituted. Para aminosalicylic acid was given for five months and she was kept at bed rest. There was no significant improvement. On January 15, 1950, she began lung immobilization therapy in the equalizing pressure chamber 10 hours per day. After six months of chamber therapy an x-ray film of the lungs (Figure 3b) showed the cavity in the right apex to be lost to view. A tomogram (Figure 3c) confirmed this. In July, 1950, after a preparatory course of streptomycin, left upper stage thoracoplasty was performed (Figure 3d). She underwent a six months period of convalescence and during this time repeated sputum examinations were negative. She has remained well to date.

Comment: Cases 2 and 3 exemplify the important part lung immobilization therapy can play in the preparation of the ordinarily hopeless case for surgery. In both cases the disease was bi-lateral, cavitary and far advanced. With six months of immobilization therapy, the disease on one side was arrested sufficiently that a successful thoracoplasty could be performed on the opposite side. Case 2 had a great variety of therapeutic measures including 10 months of streptomycin therapy with very little benefit. Case 3 had received bed rest, pneumoperitoneum and a five months course of para aminosalicylic acid before immobilization therapy was begun.

Case 4: O.S., a white nurse, 38 years of age, was admitted to this sanatorium October 6, 1940. Diagnosis of pulmonary tuberculosis had been made six years previously and 18 months of bed rest had resulted in apparent stability of the tuberculous infiltration present in the upper third of both lungs. Shortly before admission a cavity appeared in the left upper lung field. Bed rest and left therapeutic pneumothorax were instituted. In July, 1942, a left extrapleural pneumothorax was performed since the intrapleural pneumothorax had become impossible to maintain because of dense adhesions. The extrapleural pneumothorax was maintained with air until August, 1947, after which the lung was allowed to re-expand. In July, 1947, cavitation appeared in the right first interspace and sputum examinations for tubercle bacilli were positive. X-ray film of the lungs July 22, 1947 (Figure 4a) showed the left extrapleural pneumothorax and tuberculous infiltration in the upper third of the right lung with cavitation in the right first anterior interspace. There was diffuse pulmonary fibrosis throughout both lung fields, which mitigated against another surgical procedure. Beginning in August, 1947, the patient was given immobilization therapy four hours daily for a period of six months. During the last two months of this therapy, one gram of streptomycin was given daily. There was no appreciable improvement. During this time the patient had difficulty in immobilizing due to claustrophobia. This was gradually overcome. She was then placed in the chamber eight hours daily for five months and immobilization was satis-
factory. Streptomycin was continued during this period. An x-ray film taken May 27, 1948 (Figure 4b) at the end of immobilization therapy showed disappearance of the cavities on the right and marked resolution of the tuberculous infiltration. Sputum examinations were consistently negative for tubercle bacilli. She has remained well and is working full time.

Case 5: L.C.T., a white male, 24 years of age, was discovered to have pulmonary tuberculosis January 18, 1950 (Figure 5a). He was placed at strict bed rest at home. On February 26, 1950, he was admitted to this sanatorium because of apparent lack of improvement. X-ray film inspection of the lungs (Figure 5b) revealed a cavity approximately 3½ cm. in diameter in the right first anterior interspace which had definitely increased in size since the first examination. Sputum examinations for tubercle bacilli were consistently positive. Sedimentation rate (Cutler method) was 17 mm. in one hour. Right therapeutic pneumothorax was instituted, but had to be abandoned after a few days. On March 13, 1950, he began lung immobilization therapy in the equalizing pressure chamber 10 hours daily. On May 17, 1950, an x-ray film of the lungs (Figure 5c) showed the cavity to be lost to view. All sputum examinations were negative. The sedimentation rate became normal. Weekly fluoroscopic examination during this time showed progressive improvement. He was kept at bed rest for six weeks following immobilization therapy and was discharged July 7, 1950. He had received one gram of streptomycin every other day and 12 grams of para aminosalicylic acid daily from April 13, 1950, until discharge. Since discharge the patient has been followed in the out-patient clinic and has remained well to date.

Case 6: W.W.G., a white female, 33 years of age, was admitted to this sanatorium October 17, 1949, with the diagnosis of moderately advanced pulmonary tuberculosis. She had been under treatment in another state.

FIGURE 4a
CASE 4, O.S.

FIGURE 4b

*Figure 4a*: X-ray film July 22, 1947, before beginning immobilizing therapy. Note cavity in right first anterior interspace, inner zone.—*Figure 4b*: X-ray film May 27, 1948, after second period of lung immobilizing therapy showing cavity lost to view.
Figure 5a: Initial diagnostic x-ray film January 18, 1950. Note cavity beneath right first anterior rib, mid-zone region — Figure 5b: X-ray film February 28, 1950, after one month of strict bed rest. Note increase in size of cavity — Figure 5c: X-ray film May 17, 1950, after two months of immobilization therapy. Cavity lost to view.
three years previously and discharged apparently arrested. Admission x-ray film (Figure 6a) revealed thickening of the pleura bi-laterally and slight fibrotic infiltration in the upper third of the left lung with a cavity measuring 3 x 2 cm. in diameter present in the outer zone of the second anterior interspace. Repeated sputum examinations were positive. Sedimentation rate (Cutler method) was 23 mm. in one hour. She began lung immobilization therapy shortly after admission, remaining in the chamber 10 hours daily for three months. She received one gram streptomycin daily and para aminosalicylic acid 12 grams daily from October 18, 1949 to January 20, 1950. On January 16, 1950, an x-ray film (Figure 6b) showed the cavity to be lost to view. All sputum examinations had become negative. There was a weight gain of 20 pounds. Since discharge from the sanatorium January 20, 1950, she has been followed through her family physician and has remained well to date.

Case 7: G.H., a white female, 25 years of age, was found to have pulmonary tuberculosis August 18, 1950 (Figure 7a). She was admitted to the sanatorium October 1, 1950, having been treated with strict bed rest at home during the interval prior to admission. During this time her disease advanced considerably and admission x-ray film (Figure 7b) revealed exudative and productive infiltration in the upper third of both lung fields, with a large cavity 5 cm. in diameter located in the first and second anterior interspaces. Sputum examinations were repeatedly positive. Sedimentation rate (Cutler method) was 26 mm. in one hour. The patient began lung immobilization therapy October 3, 1950, remaining in the chamber 10 hours daily for five months. She also received 12 grams of para aminosalicylic acid daily. Tolserol elixir* was given to promote lung immobilization and general relaxation, 1 gram being given 30 minutes before entering the chamber, 1 gram after five hours immo-

![Figure 6a](http://journal.publications.chestnet.org/pdfaccess.ashx?url=/data/journals/chest/21216/)  ![Figure 6b](http://journal.publications.chestnet.org/pdfaccess.ashx?url=/data/journals/chest/21216/)

*Figure 6a: X-ray film October 27, 1949, before beginning immobilization therapy. Note cavity in left third anterior interspace, outer zone.—Figure 6b: X-ray film January 16, 1950, after 12 weeks therapy. Cavity lost to view.*
Figure 7a: Survey x-ray film August 18, 1950. Note large cavity in the left first and second anterior interspaces.

Figure 7b: X-ray film October 2, 1950, at the beginning of lung immobilizing therapy and after six weeks of strict bed rest. Note great increase in size of the cavity.

Figure 7c: X-ray film January 2, 1951, after three months therapy. Cavity lost to view. Confirmed by fluoroscopy.
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bilization and 1 gram at the end of the 10 hour period. Weekly fluoroscopic examinations showed progressive improvement in the disease with diminution in the size of the cavity. In January, 1951, an x-ray film (Figure 7c) showed the cavity to be lost to view. Lung immobilization therapy was continued until February 23, 1951, and 1 gram of streptomycin was given every third day in an attempt to stabilize the healing process.

Comment: Cases 4, 5, 6 and 7 are examples of moderately and far advanced cavitary disease in which chemotherapy was employed in conjunction with lung immobilization. Case 4 was the second patient treated in the chamber at our hospital. Because of her poor prognosis she was given streptomycin disregarding its possible effect on the evaluation of lung immobilization therapy. However, the first two months of streptomycin therapy produced no visible improvement, furthermore, it has been our experience that streptomycin only rarely is effective in the closure of large cavities of long standing. In rare instances, streptomycin appears responsible for the closure of tension cavities by its effect on the attendant bronchial lesions. Case 7 had far advanced disease. Paraaminosalicylic acid was given for the first four months of the chamber therapy and streptomycin given concurrently during the last month of therapy. We now feel that chemotherapy judiciously employed is a logical and helpful procedure during the period of lung immobilization and in no way minimizes the importance of pressure chamber therapy. Cases 5 and 6 were treated in this manner with excellent results.

Case 8: R.B., a white male veteran, age 28, was admitted to the sanatorium June 12, 1950, with a history of non-productive cough, mild fever, loss of weight and strength over a period of two months. An x-ray film of the chest made during a survey revealed a small cavity in the left apex. Two weeks prior to admission, he experienced pleuritic pain in his left chest. Admission x-ray examination (Figure 8a) revealed exudative and productive tuberculous infiltration in the left apex with a cavity measuring 3 x 3 cm. There was a small pleural effusion in the base. Sputum examinations were positive for tubercle bacilli. Sedimentation rate (Cutler method) was 19 mm. in one hour. He was placed at strict bed rest; no specific medication was given. At the end of one month an x-ray film (Figure 8b) showed clearing of the pleural effusion and of the exudative infiltration in the left apex, but the cavity had increased in diameter. He then began lung immobilization therapy, remaining in the chamber 10 hours daily for two months. At the end of this time upon fluoroscopic examination and roentgenogram (Figure 8c) the cavity was lost to view. He had gained in weight and strength. Repeated sputum examinations were negative. He has remained well to date.

Case 9: R.E.P., a white male, age 43, was first admitted to the sanatorium February 7, 1949, complaining of cough, expectoration, night sweats, loss of weight, and indigestion. Tuberculous infiltration was

*E. R. Squibb and Sons.
Figure 8a: X-ray film June 13, 1950. Note cavity in left first and second anterior interspaces, outer zone.

Figure 8b: X-ray film July 14, 1950, at the beginning of immobilization therapy and after one month of strict bed rest. Note clearing of pleural effusion but increase in size of the cavity.

Figure 8c: X-ray film September 14, 1950, after two months of lung immobilizing therapy. Cavity last to view.
present in the upper third of the right lung field with a small cavity in the right first anterior interspace and tuberculous infiltration without evident cavitation was present in the left upper lung field. Sputum examinations were positive for tubercle bacilli. The sedimentation rate (Cutler method) was 20 mm. in one hour. The disease was known to have been present at least a year prior to this admission. The patient refused collapse therapy. He was given streptomycin, one gram daily, and Promizole, two grams daily, for three months. An x-ray film May, 1949, showed definite improvement. Sputum examinations were negative. On May 9, 1949, he left the hospital against medical advice. He was re-admitted May 22, 1950, and an x-ray film of the lungs (Figure 9a) revealed tuberculcosis infiltration in both upper thirds with a small cavity in the right apex and a larger cavity, 3 x 2 cm., beneath the second anterior rib. Sputum examinations were positive for tubercle bacilli. He was placed at bed rest and amithiozone in dosage of 75 milligrams daily was given. After one month of this regimen, there was no evident improvement. He was then placed in the lung immobilizing chamber, 10 hours daily for two months. X-ray film (Figure 9b) then showed both cavities lost to view and residual fibrosis in the upper third of each lung field. Sputum examinations were negative for tubercle bacilli and he was discharged August 24, 1950. He has remained well to date.

Case 10: C.G., a white male, 20 years of age, was discovered to have pulmonary tuberculosis in January, 1950 (Figure 10a). There was tuberculous infiltration in the right first and second anterior interspaces with a cavity measuring 1½ x 2 cm. in the second right interspace. Sputum examinations were positive. Under the supervision of his family doctor, the patient was placed at strict bed rest for one month. No specific medication was given. Because of apparent lack of improvement he was admitted to the sanatorium February 21, 1950. An x-ray film (Figure 10b) revealed enlargement of the cavity. Repeated sputum ex-
CASE 10, C.G.

Figure 10a: X-ray film January 3, 1950, showing cavity in the right second anterior interspace.

Figure 10b: X-ray film February 21, 1950, after strict bed rest. Note increase in size of cavity.

Figure 10c: X-ray film May 17, 1950 after three months lung immobilization therapy. Cavity lost to view.
aminations were positive for tubercle bacilli. His symptoms were those of cough, expectoration and low-grade fever. The sedimentation rate (Cutler method) was 20 mm. in one hour. He was then given lung immobilization therapy 10 hours daily for three months. No antibiotic was given. At the end of two months therapy, sputum examinations were negative and upon fluoroscopy the cavity was lost to view. His sedimentation rate had become 5 mm. in one hour. An x-ray film (Figure 10c) taken at the end of three months showed the cavity to have disappeared and only residual fibrotic infiltration in its place. He was discharged July 7, 1950, to be followed in the out-patient clinic and has remained well to this date.

Comment: Cases 8, 9 and 10 above have in common that the cavities increased in size upon bed rest, disappeared after two months therapy with lung immobilization and the fact that chemotherapy was not given during the period of chamber treatment. The results of these cases suggest that chamber therapy be extended to patients with earlier and less extensive cavitary disease obviating some of the well known disadvantages and complications of usual methods of collapse therapy.

Discussion

Since the number of patients that can be treated in a given period is small, the careful selection of patients for lung immobilization therapy is important. Otherwise all concerned become discouraged at the repeated failures. In this study failures were classed as initial or treatment failures.

Initial Failures: In our experience extremely nervous and restless individuals undergoing much mental turmoil cannot immobilize properly or remain in the machine for sufficiently long periods of time. The use of mephenesin (Tolserol* used in this study) has enabled us to successfully treat some cases of this type. We have learned to avoid individuals with psychopathic personalities who cannot follow any type of treatment long or who do not have the will or the desire to become well. Patients who have claustrophobia, as a rule, do poorly. Others who reside in the machine during the 10 hour period at night are unable to adjust themselves to sleeping in daytime. In some patients who then sleep in the machine, chest movement may take place.

Individuals with sinus and middle ear disease frequently suffer much discomfort and may have exacerbations which resist all treatment. In our experience, such measures as vaso-constrictor sprays or nose drops, antibiotics, ear plugs and sponge ear pads help this class of patients very little. Most of them must discontinue immobilization therapy.

One or more of the above factors were responsible for the initial

*E. R. Squibb and Sons.
failure of the eight patients in our series who could not learn or maintain lung immobilization. At the present time most patients of this type are not considered for this form of therapy.

Treatment Failures: The main conditions within the chest which seem to be responsible for treatment failures are extensive fibrosis with rigid thick walled cavities of long standing and marked pleural thickening as may occur from previous artificial pneumothorax. These factors appeared responsible for the failure in at least three of the five patients who had long periods of adequate lung immobilization. However some of the cases successfully arrested and reported above had extensive fibrosis, therefore it is not always possible to determine with certainty whether such cases should be denied lung immobilizing therapy.

There are several factors to be considered in evaluating the place of lung immobilization chamber therapy in the overall treatment program of pulmonary tuberculosis. Expense is one such factor, allowing the use of only a few machines in the average institution devoted to care of the tuberculous. Since a patient must reside in the chamber at least 10 hours a day for a period of four to six months in order to achieve good results, it can be seen that few patients can be treated in the course of one year. However, there are certain advantages of this form of therapy as it concerns the individual patient. Both lungs are rested simultaneously. There are no complicating structural changes in the lung or pleura as a result of this therapy, consequently, there is no corresponding loss of pulmonary function. By utilizing the lung immobilizing chamber for a relatively short period of time, a patient with moderately advanced disease may be saved many months of treatment with other types of collapse therapy which result in loss of pulmonary function. We feel that lung immobilizing therapy should have a definite place in the treatment of those patients whose cavities are increasing in size upon bed rest, in those with bilateral cavities particularly when such cavities are unaccompanied by marked fibrous tissue reaction, and in certain patients as a preparation for "salvage surgery". Since lung immobilizing therapy is considered to be only an exaggerated form of lung rest, chemotherapy may be used in conjunction according to the same indications and contraindications as when combined with ordinary bed rest.

In evaluating lung rest as a therapeutic agent for cavitary tuberculosis, the effectiveness with which the method is employed warrants a brief comment. In our judgement the use of a semi-continuous 10 hour treatment, either during the day or night, is superior to shorter periods with longer intervals between chamber therapy. Furthermore, the patient should be kept at strict bed rest.
rest when out of the chamber, and vigorous chest examinations and maximal breathing tests, which may tend toward cavity inflation, avoided.

SUMMARY

1) The results in 23 cases treated by lung immobilizing chamber therapy in our institution over a period of the past four years are described. Eight of these were considered initial failures in patients who were unable to learn or maintain correct lung immobilization. Five of the 23 cases were treatment failures, in which arrest was not achieved after long periods of adequate lung immobilization. The 10 remaining patients were clinically arrested in whole or in part due to lung immobilizing chamber therapy and have remained well for periods ranging from six to 42 months.

2) The case histories of 10 patients in whom arrest of disease took place are reported with illustrative roentgenographic pictures.

3) The limitations and advantages of lung immobilizing therapy are discussed. Careful selection of patients is emphasized.

4) The use of the lung immobilizing chamber is stressed as an adjunct to the therapy of chronic pulmonary tuberculosis which is of value in the closure of cavities and arrest of disease without resulting in loss of pulmonary function.

RESUMEN

1) Se describen los resultados obtenidos en 23 casos tratados por medio de la cámara de inmovilización en nuestra institución por un período de cuatro años. Ocho de estos casos fueron considerados al principio como fracasos, por tratarse de enfermos incapaces de aprender a mantener la inmovilización correcta. Cinco de los 23 casos tratados lo fueron sin éxito, en los que no se logró detención de la enfermedad después de largos periodos de inmovilización. Los restantes 10 fueron considerados clínicamente como detenidos en parte o completamente a causa del tratamiento en la cámara de inmovilización, y han permanecido bien por periodos de 6 a 42 meses.

2) Se presentan las historias clínicas de 10 enfermos en los que la enfermedad se logró detener, y se muestran radiografías ilustrativas.

3) Se discuten las limitaciones y las ventajas de la inmovilización del pulmón. Se llama la atención sobre la cuidadosa selección de los enfermos.

4) El uso de la cámara de inmovilización se recomienda como adjunto al tratamiento de la tuberculosis pulmonar, que se de valor en la clausura de excavaciones y la detención de la enfermedad, sin pérdida de la función pulmonar.
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RESUME

1) Les auteurs donnent les résultats de 23 cas traités par la chambre d’immobilisation puemonaire pendant ces quatre dernières années. Huit d’entre eux ont été considérés comme des échecs, il s’agissait de malades qui furent incapables de s’astreindre à une immobilisation pulmonaire correcte ou qui ne la supportèrent pas assez longtemps. Cinq sont des échecs du traitement: malgré une longue période d’immobilisation correcte, il n’y entre pas d’arrêt de l’évolution. Les dix malades restants furent cliniquement stabilisés en partie ou totalement grâce à la chambre d’immobilisation pulmonaire; ils sont demeurés en bonne santé pendant un laps de temps de six à quarante deux mois.

2) Les auteurs rapportent l’histoire clinique des dix malades qui furent stabilisés avec les images radiographiques.

3) Ils discutent les limites et les avantages du traitement par immobilisation pulmonaire et insistent sur le soin que l’on doit apporter au choix des malades.

4) Ils mettent l’accent sur le rôle de la chambre d’immobilisation pulmonaire comme traitement adjuvant de la tuberculose pulmonaire chronique. Ils montrent sa valeur dans la fermeture des caverner et l’arrêt de l’évolution, sans aucune action fâcheuse sur la fonction pulmonaire.

REFERENCES