

# TREATMENT OF UNDULANT FEVER BY ARTIFICIAL FEVER THERAPY

## *Report of Case*

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Despite the fact that undulant fever is now recognized as a widespread and fairly prevalent disease, methods for its treatment are still somewhat uncertain. Brucellosis has in the past been treated chiefly by chemotherapy, vaccine, and serum therapy. The vaccines used have generally been of two types, specific *Brucella* vaccine or a fever producing vaccine, such as typhoid and paratyphoid A and B. From a review of many cases<sup>1</sup> reported during the past decade, it appears that the results obtained by the administration of a fever producing vaccine have been most gratifying. It was observed that the undulant fever disappeared more often in those patients in whom a febrile reaction had been obtained.

It has been demonstrated by many workers that fever induced by physical means is of value in any condition for which malarial, typhoid, or protein injection therapy is indicated. A recent report<sup>2</sup> indicated favorable results in four patients treated by artificial fever. In the following case, the patient responded very satisfactorily.

### REPORT OF CASE

The patient, a married farmer, 54 years of age, was admitted to the Cleveland Clinic on April 30, 1937. His complaint was of pain in the scrotum with marked edema, pain in the left hip, right shoulder and the hands, weakness, and periods of diaphoresis.

*Past history:* About a year previous to examination—in April, 1936—the patient had pains in various joints. These were similar to those he was experiencing at the time of our examination and he stated that such pains had occurred nearly every spring for the preceding 10 years. He also had noticed a swelling of the right testicle, and weakness associated with loss of weight had developed. At intervals he suffered from severe sweats. The right testicle continued to increase in size and a diagnosis of tuberculosis was made. A right orchidectomy was performed on November 5, 1936. Following this, the patient had a draining sinus for two and one-half months. His general condition did not improve, and a few weeks before coming to the Clinic the left testicle became painful and enlarged.

*Physical examination* revealed no apparent abnormalities except for absence of the right testicle. The left epididymis was thickened and tender. The prostate was slightly enlarged, very firm and smooth, and the left lobe was somewhat tender. The right hand showed changes characteristic of rheumatoid arthritis.

*Roentgen examination* of the chest revealed an old right basal fibrosis. The spine showed an old left lumbar scoliosis with rotation and extensive osteoarthritis.

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*Laboratory findings:* Examination of the blood showed 4,550,000 red cells per cubic centimeter, 5,500 white cells per cubic centimeter, and 90 per cent hemoglobin. The differential count was 70 per cent, polymorphonuclear neutrophils; 1 per cent, eosinophils; 29 per cent, lymphocytes. The level of the blood sugar was 112 mg. per 100 cc. and of the blood urea 42 mg. per 100 cc. The Wassermann and Kahn reactions of the blood were negative. Urinalysis gave normal findings. The sediment of the urine was negative for tubercle bacilli. The sedimentation rate was increased to 1.08 mm. per minute. The agglutination test for *Brucella abortus* was positive in a dilution of 1:160.

On further questioning of the patient, it was learned that abortions had occurred quite frequently among his cattle, so in all probability the animals were a source of infection. After an evaluation of the history, clinical, and laboratory findings, a diagnosis of undulant fever was made and it was decided to give the patient artificial fever therapy.

Figure 1 shows the temperature curve before and after fever therapy. The patient received three artificial fever treatments. The temperature during the

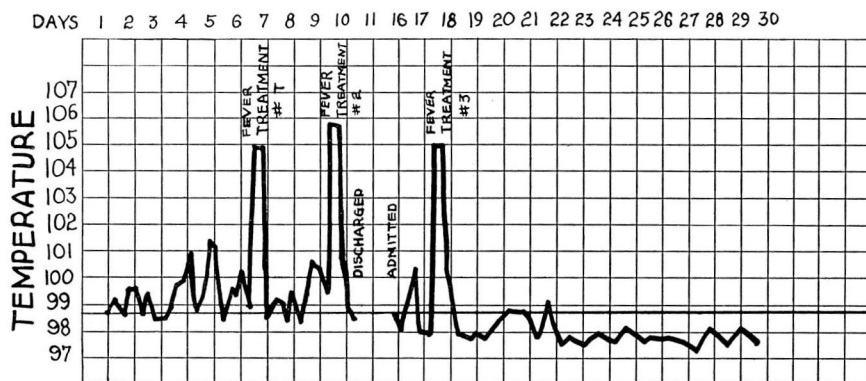


FIGURE 1

first treatment ranged between 104° and 105° F. for five hours. The second and third treatments were given between 105° and 106° F. for five hours each. The fevers were produced by electromagnetic induction. Figure 2 shows a graph of the second treatment.

Four months after the last fever treatment, the patient's general physical condition has improved greatly. His temperature has remained normal and he has gained about 15 pounds in weight. Some of the symptoms of arthritis still persist in the joints.

### COMMENT

Another patient has just completed three artificial fever treatments for undulant fever, but it is too early to make any statements as to the final result. However, the results obtained thus far in a limited number of patients indicate that this form of therapy is of definite value in the treatment of patients with undulant fever and it certainly should be used until more data are available.

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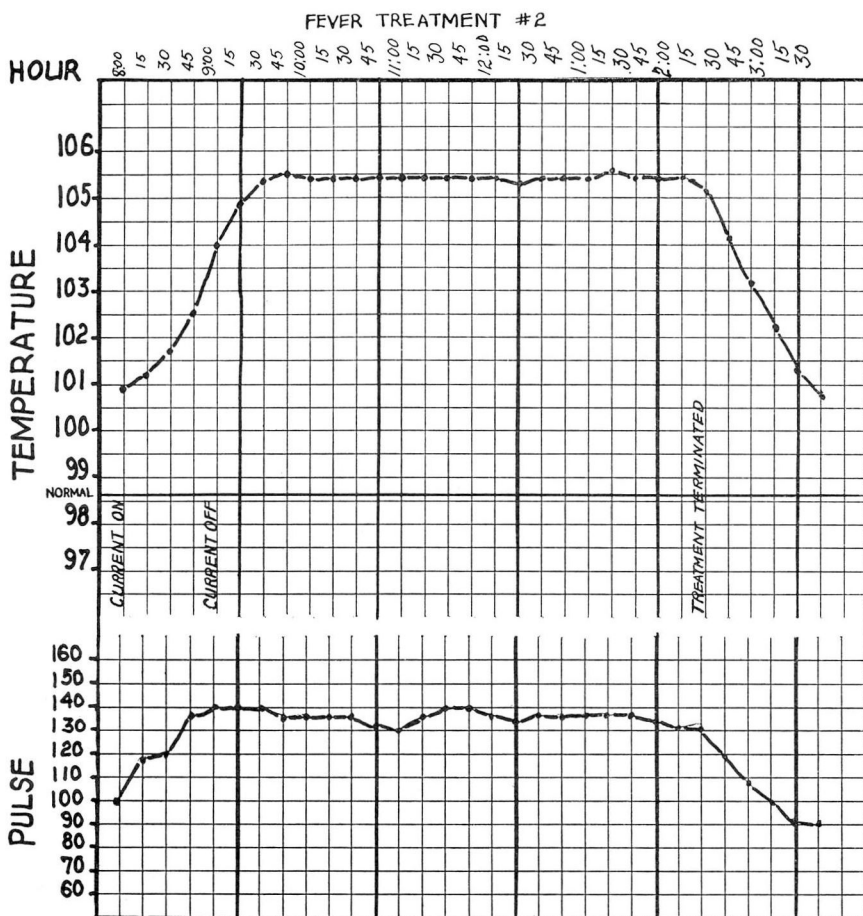


FIGURE 2

## REFERENCES

1. Angle, F. E.: Treatment of acute and chronic brucellosis (undulant fever); personal observation of 100 cases over a period of 7 years, J.A.M.A., 105:939-942 (September 21) 1935.
2. Prickman, L. E. and Popp, W. C.: Treatment of brucellosis by hyperpyrexia induced by the Simpson-Kettering hypertherm, Proc. Staff Meet. Mayo Clin., 11:506-510 (August 5) 1936.