

Treatment of the ameba containing material with refrigeration, with acid, and with alkali, was done in an attempt to enhance their resistance and to cause them to encyst. In the few instances tried, the treatment proved to be of no value.

Five tubes of media as a minimum were inoculated in each attempt to cultivate ameba from a given patient. Where amebic growth occurred, it was found in at least 2 of the tubes inoculated.

The initial pH of the media varies between 6.8 and 7. The average pH at the end of 24 hours incubation from the cultures from 5 patients was 6.4; at 48 hours 5.6. A pH value of less than 5.4 was never encountered. Protozoal life could not be demonstrated at a pH of less than 6.2. Reinforcement of the buffer value of the serum by the addition of dibasic sodium phosphate did not materially affect the hydrogen ion concentration. The addition of washed human red cells showed no effect on the growth of the ameba or the reaction of the media. The addition of calculated amounts of alkali at short intervals, in the cultures from 2 patients maintained the pH only temporarily but did not affect the growth of the ameba.

Simultaneous inoculation of media with infected material and an alkali producing organism (probably *B. alkaligines*) obtained from the culture of stools in the cultures from 4 patients resulted in a less rapid swing of the pH to the acid side and maintained as a final acid figure the pH 6.2.

The small series of cases above reported demonstrates the difficulty encountered in the cultivation of *E. histolytica*. Some improvement, however, is noted in Dobell's³ modification of Boeck and Drbholav's medium, as there is at present an undoubted culture of *E. histolytica* growing in the laboratory, on the latter media, through 4 successive subcultures. Attempts to grow this organism on the first media used have been futile.

4060

Surgical Relief of Pericardial Adhesions: An Experimental Study.

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The operative procedures employed today to relieve symptoms produced by pericardial adhesions consist of (1) removing the

³ Personal communication from Dr. F. M. Johns.

extra pericardial adhesions extending between the pericardium and the thoracic wall (cardiolysis) and (2) extirpation of the pericardium (decortication) in those cases in which there is considerable fibrous contraction of the pericardium. It is self evident that both of these procedures are largely palliative and have been performed in patients with marked cardiac damage.

Delorme³ advocated the division of the intrapericardial adhesions, but, because of the invariable recurrence of the adhesions, this operation was soon abandoned. Believing that the re-formation of pericardial adhesions might be prevented following their division as peritoneal adhesions by the use of digestants,⁴ the following experiments were performed:

Sixty-five dogs were used. Roentgenograms and electrocardiograms in 3 positions (back, left and right) were taken before and after each operation and immediately before sacrificing the animal. Careful clinical and radiographic observations were made pre and post operatively. As a preliminary operation a pericarditis was produced by introducing irritating inorganic and organic substances into the pericardial cavity, as performed by Herrmann and Musser.⁵ Pericardial adhesions, usually causing a complete synechia of the pericardial cavity, resulted in all animals.

After varying periods of time, a 2nd pericardotomy was performed, and the pericardial adhesions were divided. In one series a vegetable digestant of the papain group was introduced into the pericardial cavity, following the division of the adhesions, in order to prevent their re-formation. In one control series physiological saline solution, and in another 2nd control series nothing, was introduced into the pericardial cavity.

Of the 65 animals many were lost early in the series, because of faulty technic. Many died as a result of barbitol anesthesia. In the control animals in which, following the division of the pericardial adhesions, either nothing or physiological saline solution was added to the pericardial cavity, adhesions invariably re-formed.

Due to sucking back of water from the water pump while steril-

¹ Brauer, L., *Nat. Hist. Verein. Heidelberg*, May 13, 1921; *Abs. Muench. Med., Wchschr.*, 1902, 1072.

² Parlevecchio, *Pericardectomy sperimentale e sue possibili applicazioni terapeutiche Policlinico sez chirurg*, 1908, xv, 8.

³ Delorme, *Bull. et mem. de la Soc. de Chir.*, 827, 898.

⁴ Ochner, Alton, and Mason, Frank, *Proc. Soc. Exp. Biol. and Med.*, 1928, xxv, 524.

⁵ Herrmann, George R., and Musser, John H., *Proc. Soc. Exp. Biol. and Med.*, 1928, xxv, 314.

izing the digestant solution, which was done by passing it through a Berkefeldt filter, the digestant solution became contaminated in 3 instances. Of the 10 animals in which, in addition to the separation of the adhesions, the digestant solution was added to the pericardial cavity, no adhesions re-formed in 3. The other 7 showed evidence of extensive pleural infection, and in 3 the digestant solution contained organisms at the time of its introduction into the pericardial cavity. It has been previously shown that the digestant solution will not prevent adhesions in the presence of infection.

Evidence is submitted that the re-formation of experimentally produced pericardial adhesions may, following their division, be prevented following digestant solutions.

4061

Some Observations on Experimental Arteriovenous Aneurysm.

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Arteriovenous aneurysm experimentally produced in the dog has been the subject of many studies, but we feel that there are still some mooted questions to be elucidated and many interesting facts to be established. Clinical experiences, under the stimulating influence of Professor Rudolph Matas, with his intense enthusiasm in this subject, have prompted our experiments. The earlier experiments were disappointing because of the almost invariable thrombosis of the vessels, but one of us (Gage) has now perfected the technique to the point where a functioning arteriovenous aneurysm always results. A technique of the operation, roughly comparable to that of side-to-side intestinal anastomosis has yielded uniformly successful fistulae. The common carotid artery and external jugular vein were the chief vessels in which anastomoses were accomplished.

Arteriovenous aneurysm has been successfully produced in 8 dogs. The clinical observations on these, 4 of which have died, will form the basis of this report. The lesions have been present in the dogs that have been sacrificed for 4, 40, 80, and 140 days. Four animals have now had functioning fistulae for 120 days, and are apparently unaffected by the presence of the lesion.

Control electrocardiograms were taken with the dogs in 3 stand-