coarsely granular basal nuclei. Many of the cells are distended with mucous droplets and mitoses are common. In brief, it has the appearance of viable intestinal mucosa. Serial sections, in so far as they have been studied, have shown no communication between the glandular inclusions and the gastro-intestinal lumen. These mucosal inclusions were observed only where suture methods were used that caused mucosal eversion at the site of anastomosis. They have not, to our knowledge, been described heretofore, and we are now studying their ultimate fate and possible influence on remote wound healing. The mucosal inclusions in the wall of the intestine at *e* are of different origin and have been described.

5007

On the Bactericidal Powers of Lipiodol and Iodipin in Vitro.

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(Introduced by H. J. Sears.)

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A generous literature concerning the use of lipiodol and iodipin in diagnosis reveals the statements by many authors that these iodized oils are antiseptic.

One of us (A. M.) has used these oils in the injection of over 300 gynecologic patients and has occasionally felt some concern regarding the possibility of infection from the material forced through the tubes into the abdominal cavity. No such infection has taken place and we have been led to believe that the oils used actually had antiseptic powers. Nevertheless we felt that some quantitative work to determine more accurately the effects of these oils on bacteria would be of value.

Great difficulties are encountered at once in applying the ordinary methods of disinfectant testing to these heavy oils. Even long continued shaking of specimens of the oils with masses of bacterial growth taken from agar slants gave very poorly dispersed suspensions of the organisms. Visible clumps were invariably present. *Staph. aureus* (a hemolytic strain) and *B. coli* were the organisms used. Inoculations from such imperfect suspensions to broth gave growth in all cases, but since many organisms in the clumps may have been protected from contact with the oil, we did not feel

that such tests were trustworthy. Better suspensions of the cultures could be obtained in the pure oils, such as sesame and poppy seed, of which the lipiodol and iodipin are addition products, and subsequent additions of these oily suspensions to the iodized products resulted in somewhat better, though still imperfect, dispersion of the organisms in the latter. Inoculations from these to broth at varying intervals yielded variable results. No growth at all was obtained with *B. coli* and only a portion of the Staph. tubes showed growth. Results with pure poppy-seed oil and sesame oil without addition of the iodized oil gave similar results. Portions of the suspensions dropped from a pipette upon agar plates likewise generally gave negative results. On the other hand, when a drop of the suspension was blown upon a plate in a fine spray, a considerable number of colonies appeared. This was true, both of the *B. coli* and of the *Staph. aureus*. This suggested to us that the intimate mixture of the organisms and the oils had so coated each organism that when it was placed in the medium it was actually kept out of contact with the culture fluid by its film of oil. In the spraying this covering was broken in some cases and growth ensued. Failure of growth in the testing tubes, therefore, indicated, not sterility, but sealing of the organisms away from the medium.

A test of this theory and, we believe, a definite proof of the lack of bactericidal power by these two oils, as well as by the uniodized products from which they are made, is furnished by the following experiment. Several agar plates were inoculated by streaking with saline suspensions of *B. coli* and *Staph. aureus*. A portion of each plate was then covered with the oil to be tested. The plates were incubated for 24 hours right side up. None of the oils showed any inhibitory action upon either organism except iodipin, and here the inhibition was only slight. Since chemical tests of this oil showed a trace of free iodine, it is believed that this substance is responsible for the slight effect noted. With the other substances growth continued to increase for 2 or 3 days in the oil covered as well as the uncovered portion.

We are convinced that no dependence can be placed upon lipiodol or upon iodipin as bactericidal agents.