

vance of the formation of agglutinins; that is to say, the diagnosis may be established by culture methods before the agglutination reaction can be obtained. From 1 to 5 c.c. of blood are drawn from the median vein of the arm and planted into from 30 to 80 c.c. of suitable bouillon, which is then incubated for twenty-four hours and certain quantities of it plated out, or the bouillon culture may be used direct for the agglutination reaction with a known typhoid serum. Inasmuch as typhoid bacilli when freshly cultivated sometimes resist agglutination, it is necessary to supplant the agglutination reaction by the ordinary cultural tests. After from the tenth to the fourteenth day the organisms are commonly not to be cultivated from the blood; it is not improbable that the bactericidal substances of the blood have so increased by this time that the organisms are killed rapidly after reaching the circulation.

As stated previously, they are also found in the various organs, especially in the lymph glands, spleen and bone-marrow in fatal cases. In from one-fourth to one-third of the cases, in the third week, or during convalescence, the urine becomes more or less heavily infected with the bacilli. They may persist in the urine for many weeks after the subsidence of acute symptoms, with little to call the attention of the patient to the condition. Because of its frequent occurrence during convalescence, the process is not to be considered as one of excretion of the organisms from the circulation, but it seems more likely that they arise from metastatic foci in the kidneys—foci which were deposited perhaps at the time similar metastases occurred in the skin to cause the appearance of the rose spots. (Kanjajeff). More than 100,000,000 bacilli per c.c. may be present. The condition may be accompanied by cystitis, varying in degree from mild to severe.

Neufeld claims that the organisms exist in the tissue fluids of the rose spots, and that if they reached the skin in the first instance as metastases in the blood stream they soon become extravascular. **Localization of the Bacilli.** They may be cultivated from the rose spots by inoculating media with scrapings from the surface; it is not necessary that the vessels be injured. The rose spot is due to the congestion of the vessels which surround the focus.

The cultivation of the bacilli from the spleen during life by the aspiration of blood from the organ by means of a syringe is not practiced because of the dangers involved.

The gall bladder is infected with considerable regularity during typhoid, and the organisms may proliferate in this situation for years. It has been suggested that reinfection may be caused by the passage of organisms from the gall bladder to the intestines. Typhoid bacilli have been found imbedded in the nuclei of gallstones.

Pneumonia, which develops as a complication of the disease, is commonly caused by other organisms, occasionally by mixed infection with the typhoid bacillus, and rarely by the latter alone. The organism has been found in the bronchial secretions. Serous or purulent pleuritis may be caused by the typhoid bacillus.

Bone lesions (necrosis, abscesses, periostitis), particularly in the lower extremities or in the vertebrae, occur frequently during convalescence, or rarely one or more years later. They may, but more commonly do not, suppurate. The "*Spondylitis typhosa*" of Quincke is thought to be accompanied by compression of the nerve roots by the serous infiltrate of the periosteum. It is thought that true myelitis may accompany, or follow typhoid, the cause being either toxic, or depending on a previous metastatic infection with the organism. Neuritis although the nervous system is characteristically the seat of is not uncommon. True typhoid meningitis is probably rare, intoxication. The typhoid bacillus is a facultative pyrogenic organism and may cause abscesses without the aid of other organisms. In purulent lesions, however, mixed infection with the ordinary pyrogenic organisms is commonly found.

From the above it would seem that the lesions which may develop during typhoid to a large extent are dependent on the distribution of the organisms, in contrast to the conditions in diphtheria and tetanus. Nevertheless, it appears that the

lymphoid tissue and the central nervous system have a special affinity for the toxic constituents of the organisms. In the beginning, the intestinal infection is rather general, being characterized by diffuse hyperemia, a catarrhal condition of the surface and occasionally by minute hemorrhages into the mucous membrane. Very soon, however, their preference for the lymphoid tissue becomes manifest; that this preference depends on anatomic conditions is perhaps not definitely settled, but seems improbable. The vibrio of the cholera under similar conditions shows no such preference for the lymphoid patches.

(To be continued.)

Clinical Report

RECTO-UTERINE FISTULA.*

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Patient.—Mrs. S., aged 33, married, housewife, was referred to me at the Italian Hospital, April 5, 1905, with the following history:

History.—Patient has given birth to eight children, three still living, five miscarriages; otherwise she never had any trouble. Her present trouble started five weeks ago, when she aborted a three months fetus. She was curetted by her family physician at that time.

Examination.—The woman is very pale and thin, complains of headache, backache, and a feeling of uneasiness in the lower part of the pelvis; also of a bloody fetid discharge. The perineum is lacerated through the external sphincter. She has a slight cystocele and a large rectocele. There was no visible discharge, the patient having taken a douche. A unilateral laceration of the cervix could be felt, and the uterus seemed slightly adherent to the rectum. The fundus was enlarged and soft; the tubes and ovaries were in good shape and not markedly tender. Through the speculum a peculiar blood-stained discharge was seen, which had a putrid odor. Temperature was 99, pulse 88.

Treatment.—The patient was prepared for operation in the usual way. As she was being put on the table the nurse informed me that the fluid from the enema came out through the vagina. Careful search, under ether, elicited no opening between the vagina and rectum. An enema of milk was then given. The milk came out through the cervix. A sound passed into the uterus came in contact with the finger in the rectum through a small opening about a half inch above the internal os. A very gentle curettage was done and the uterus was packed with iodoform gauze. The cervix and perineum were then repaired. The packing was left in forty-eight hours. The bowels were moved on the sixth day by an oil enema. The recovery was uneventful, and the patient menstruated on April 18.

Subsequent History.—June 15, 1905, the patient came in and seemed well, except for an adhesion of the uterus to the rectum. She believed herself pregnant, about two weeks.

Remarks.—The case is rather unique. Rectouterine fistulae are not mentioned in several of the text-books on gynecology. Guilliam mentions the possibility of such cases.

Carcinoma sometimes causes these fistulae, also tuberculosis. In this case it was probably due to trauma, and, as the fistula was so low, the danger of infecting the peritoneum was greatly decreased. It is possible that the uterus was adherent from a syphilitic condition and that the curette had slipped through at that point when she was curetted by the family physician. My idea of syphilis in this case is due to her history and the syphilitic condition of one of her children. The husband also has rather a suspicious-looking nose, while he denies most emphatically any disease of that kind. It would be interesting to know the further history of this patient and whether or not the pregnancy continued to term, but she has left Philadelphia and I am unable to secure further data.

* Reported to Philadelphia County Medical Society, 1905.