A Case of Acute General Gonococcic Peritonitis.*

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WHILST clinically peritonitis is a well-recognised complication of gonorrhœal infection in women, the opportunity for obtaining direct bacteriological proof of its occurrence is of some rarity; in fact, I am not aware of a single case hitherto published in this country in which the presence of *micrococcus gonorrhœæ* in the peritoneal exudation has been actually demonstrated. In a case of gonococcic pelvic peritonitis, which was recorded by Mr. Bland-Sutton, in Vol. xliii. of the *Transactions of the Obstetrical Society*, I was able to obtain *micrococcus gonorrhœæ* in pure culture from the tubes which had been removed by operation, but had not the opportunity of examining the peritoneal exudation itself. For this reason the following case, in which a pure culture of *micrococcus gonorrhœæ* was obtained from the peritoneal exudation is of particular interest; the onset of symptoms also was perhaps more acute than is usually associated with the clinical conception of gonococcic peritonitis:—

F.B., aged 19 years, an unmarried woman, was admitted into the Middlesex Hospital, under the care of Dr. Pasteur, on Tuesday, 21st March.

Condition of Patient on Admission into Hospital. The patient complained of severe pain in the abdomen, and of extreme tenderness when examined. The abdominal muscles were immobilised, respiration being entirely thoracic. The temperature was 100·4° F.; the pulse-rate was 116.

History of Illness previous to Admission. The patient completed a normal menstrual period the previous week. On 19th May she noticed some pain in the abdomen, but did not pay much attention to it. On the following morning the pain was more severe, but the patient was able to get up. During the afternoon diarrhœa and vomiting set in, and by the evening the pain in the abdomen had become extremely acute. On the following morning the patient was brought to the hospital. It may be added that subsequently the patient denied any knowledge of having suffered from any sort of purulent discharge from the vagina.

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Progress of the Case. It was decided that abdominal exploration was immediately necessary, and the patient was transferred to Mr. Andrew Clark's wards for surgical treatment. The patient was anæsthetised, and before the operation was commenced it was ascertained that there was a free purulent discharge from the vagina. An incision was made from the umbilicus downwards along the middle line, and pus at once welled up through the opening. On examination it was found that the peritoneal sac contained a considerable quantity of pus, and that the peritoneal covering of the intestines was deeply injected. The appendix cæci was next examined, and was found to be of healthy appearance. On drawing up the right tube for examination it was found to be swollen, and pus was oozing out of the ostium abdominale; the left tube was also swollen, but there was no escape of pus from it. The tubes and ovaries were then removed, the peritoneal sac was swabbed out with a 1 in 4,000 solution of perchloride of mercury, and the operation wound was closed except for an opening for a drainage tube.

After the operation the temperature rose to 101.4° F., and did not become normal until some three weeks later; but otherwise the course of the case was quite satisfactory, and the patient left the hospital on 20th April.

Condition of the Appendages. Both ovaries appeared to be normal, the left one showed a recently ruptured Graafian follicle. Both tubes were thickened, and contained greenish pus, the lumen was not obviously dilated. The right tube was sharply kinked at about its middle, being doubled on itself so that a section through this point cut across the lumen of the tube twice. The ostium abdominale of the left tube was occluded by adhesion.

Bacteriological Examination. An examination was made of the vaginal discharge, of the pus from each tube, and of the peritoneal pus.

On microscopical examination of the vaginal discharge, colonies of cocci, which did not stain by Gram's method, were found in many of the pus cells; no examination by culture was made.

Pus from each of the tubes showed similar intra-cellular cocci in considerable numbers, which did not stain by Gram's method. Culture tubes of gelatin, nutrient agar, and pepton broth were inoculated with pus from each of the tubes; and in every case the media inoculated remained sterile on incubation. No culture media, however, which would have allowed the growth of *micrococcus gonorrhææ* were inoculated with pus from the tubes.

On microscopical examination of the peritoneal pus a number of

the pus cells were found containing colonies of similar cocci. The pus also contained a number of larger mono-nuclear cells, apparently of endothelial origin, none of which appeared to contain cocci. No other bacteria were seen in the microscopic examination.

Culture tubes of gelatin, nutrient agar, and pepton broth were inoculated with the pus and incubated, some aerobically, others anaerobically; all these remained sterile. Four nutrient agar tubes, with fresh human blood smeared over the surface of the medium, were inoculated with the peritoneal pus, and on each of these four tubes cultures of *micrococcus gonorrhææ*, typical in every respect, were obtained after incubation for 24 hours at a temperature of 37°C.

Microscopical Examination of Sections made through the Tubes. The condition of the tubes showed that there had been considerable exudation into the sub-epithelial layer and into the circular muscle layers, the latter showing numerous localised aggregations of round cells. The mucous folds were swollen, the change being slight towards the uterine end of each tube and very conspicuous towards the ovarian end. The epithelium itself did not show as much alteration as might perhaps have been expected. In the half of the tube nearest to the uterus, the epithelial cells showed little change, except that in some places the cell-protoplasm had a cloudy appearance when stained. Towards the ovarian end of the tubes the mucous folds were in places denuded of epithelium.

A careful examination of many sections failed to reveal any evidence of penetration of the cocci below the epithelium, nor was any marked invasion of the epithelial cells themselves by the cocci noted. In one or two instances a pair of cocci could be seen in the upper part of a columnar cell, but such were few and far between, and larger intra-cellular colonies were not found.

The comparative rarity of symptoms of peritonitis in women who are suffering from gonorrhœal infection, in comparison with the known frequency of gonococcic salpingitis, is probably due, in the first instance, to the natural tendency for a fluid in the tube to flow in the direction of the uterus, and afterwards in many cases, at any rate, to the occlusion of the ostium abdominale by adhesion. And it would seem probable that in this particular case the occurrence of peritonitis was due to the kinking of the right tube. This kinking would appear to have been caused by the sudden engorgement of the wall of the tube with inflammatory exudation, and was of such a nature that the lumen of the tube must have been completely closed to the passage of pus from the ovarian end of the tube towards the

uterus; pus therefore escaped through the ostium abdominale before occlusion of the aperture could occur.

The removal of the appendages in this case was clearly justified. The right tube was occluded by kinking near its middle, and had it been left a tubal abscess would almost certainly have necessitated further operative interference later on. The ostium abdominale of the left tube was completely sealed by adhesions, and so the tube had become useless as an oviduct, whilst remaining a potential source of future danger to the woman.