PATHOLOGY AND TREATMENT OF GONORRHEA IN WOMEN.

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The multiplicity of cases presenting histories traceable to gonorrheal infection, which finally come to the surgeon for relief, is my excuse for discussing the pathology and treatment of this disorder. The prevailing idea among women who have gonorrhea is that the disease is in the vaginal tract. Judging from the treatment often advised, one is led to believe that not a few practitioners of medicine labor under the impression that the primary seat of the infection is in the vagina and uterus. Not only is the vagina douched with antiseptics from the inception of the disease, but ofttimes the uterine cavity is blindly scrubbed or douched with some antiseptic solution, without actual knowledge of the presence or extent of gonorrheal lesions.

It can no longer be held that the activity of gonococci is confined to the genito-urinary tract, as it has been demonstrated beyond all question that they may become the sole factor in producing inflammation in almost every organ of the body. Bandler has reported two cases of proctitis complicating gonorrheal vulvitis in children, while Wertheim, Barlow, Krogius and others have made us acquainted with gonorrheal cystitis. Likewise, cases of local abscess have been reported which were apparently caused by the gonococcus, and Charles A. Powers described to the American Surgical Society, 1903, a case of diffuse gonorrheal infection involving the upper extremity, being able to demonstrate gonococci in the serum and pus taken from deep incisions over the points of fluctuation. Moreover, Paldrock refers to a case of exudative pleuritis following an attack of gonorrhea, in which the characteristic micro-organism could be demonstrated in the exudate. Hallé reports the case of a woman dying of generalized gonorrheal infection, with a hemorrhagic metritis and a phlegmonous edema of the left elbow joint, the sero-purulent fluid withdrawn from a point

near the olecranon containing gonococci. Final invasion of the heart caused death. Prochaska obtained cultures of gonococci from an exudation in the region of the supraclavicular joint in a patient suffering with gonorrhea.

Until recently the peritoneum was thought to be capable of successfully resisting an unallied attack of gonococci. The researches, however, of Wertheim, Frank, Mejia, Cushing, Hunner and Harris serve to prove that the gonococcus may be the sole agent in producing general peritonitis. Notwithstanding these facts, it nevertheless remains true that the organisms thrive best upon certain types of mucous membranes, particularly those covered by cylindrical epithelium. The urethra, uterine mucosa, especially that of the fundus, Bartholin's glands, and the conjunctiva presenting the most favorable soil for their growth. A very constant companion of the gonococcus is the bacillus aureus, which is responsible for most of the deep-seated secondary inflammations found, such as those of the epididymis and prostate in the male, and the uterus and tubes in the female. Suppurative inflammation of the tubes and ovaries are, however, frequently the result of direct extension of the gonorrheal process from the uterine cavity, thus representing an unmixed infection. Wertheim was the first to describe the gonorrheal process within the uterine cavity. He found no gonococci in the stratified epithelium of the cervix, but they were present in abundance beyond the internal os. They readily penetrated between the columnar epithelial cells, where their propagation seemed to be most active. In 50 per cent of his cases there was a typical endometritis glandularis and round cell infiltration of the muscular tissue was frequently noted, but in no case could the gonococcus be traced below the epithelium into the muscular tissue.

Wertheim maintains, nevertheless, that the organism may invade the subepithelial connective tissue in any case. Bumm, on the other hand, is firmly of the opinion that it is a parasite and grows only on the superficial epithelium, though his description of the lesions found in the cervix agrees with that of Wertheim. The glands were intact in all cases and the normal arrangement of the cylindrical epithelium was preserved. Individual cells provided with cilia were frequently noted. He holds that even in chronic cervical gonorrhea the cocci are limited to small isolated areas of the superficial epithelium. The difference in the virulence noted in different cases of gonorrheal infection is doubtless due to an attenuation of the virus, as was shown by Bumm,

who, by successive cultures, succeeded in so attenuating it that after inoculation only a very mild infection could be brought about.

In the human body, however, they have been known to produce the most virulent infection of the conjunctiva and genital tract, after having laid apparently dormant for months, or even years, while the innocuous nature of the contents of some gonorrheal pus tubes shows that in other instances they may entirely lose their virulency. The urethra of both male and female offers the most fertile soil for the propagation and growth of the micro-organisms. The next most inviting field seems to lie in the uterine cavity beyond the cervix. Once the uterine cavity is invaded the tubes seldom if ever escape; while the cervix, being more resistant, however, may remain uninfected, as is shown by cases in which the uterine cavity or the urethra alone are infected. The vagina and vulva seldom yield to the invasion. Indeed, the vaginal tract is most resistant to all infections—indeed, pure cultures of streptococci may be injected into it without doing harm, as they are killed off by its secretion and the vagina soon returns to its normal state.

The gonorrheal germ travels by a serpiginous process; seldom by way of the lymphatics, blood vessels, or through the tissues by direct contiguity. Under favorable conditions, however, it is capable of infecting distant organs as noted above.

In the majority of cases, after the infection has existed for a certain length of time, the gonococci disappear spontaneously. This is accounted for by the displacement of the cylindrical epithelium and its substitution by a pavement variety, which is more resistant to their growth, and it is at this stage of the disease that treatment avails most. The adjacent cylindrical epithelium cells have by this time become more resistant to the materies morbi of the individual attack, and the new pavement membrane offers no encouragement to its further development. Gonorrhea, like many other infections, is finally overcome by the influence of the antitoxic elements of the cells, and therefore may be said to be a self-limited disease. Since the micro-organisms rarely penetrate into the subepithelial tissue, one might imagine that their destruction could be easily accomplished, but actual clinical experience has abundantly demonstrated that such a happy result is seldom readily obtained. During the early stages cleanliness and rest should be procured. Gonorrhea in both male and female is usually overtreated, nature being seldom given an opportunity to do her part in the struggle. If in the earliest stages the patient could be

placed in bed and given a strictly liquid diet the infected parts kept thoroughly cleansed with sterile water, the result would certainly be a striking improvement upon that obtained by some of the heroic measures usually adopted.

Cleansing with sterile water does not necessarily imply that the vaginal canal should be douched. Indeed, my own observations go to prove that in many cases vaginal douches are positively harmful, in that they serve to spread the infection from an infected meatus to the uterus and tubes. If douches have not been taken prior to the examination it is not unusual to find the infection confined to the urethra. A vaginal douche immediately following intercourse may remove the germs from that canal, leaving in situ, however, those which were deposited upon and adjacent to the meatus. The resistance offered by the vaginal epithelium may prevent subsequent invasion of that tract. Pus found in the urethra of a previously healthy woman is an almost certain sign of acute gonorrheal infection. In case no discharge is perceptible upon inspection, a small glass pipet may be introduced into the urethra, and by relaxing the bulb upon its withdrawal, some of the secretion is aspirated, when a microscopic test may be made. The open end may be sealed with paraffin and the pipet sent to the laboratory, or its contents be immediately expressed upon a coverglass for examination at the office. Before inspecting the vaginal and uterine canals the vulva should be scrubbed and douched under a stream. If examination of any discharges found in these organs prove negative, then vaginal douches are positively contraindicated, and attention should be wholly turned to the urethra and vulva. A pad of absorbent cotton should be snugly tucked between the labia and changed as often as soiled, and the outside parts douched with tepid water.

During the first few days no other treatment is necessary unless complications arise. The urine is rendered neutral and less irritating by large doses of citrate or bromid of potassium. After the second week a 2 per cent to 4 per cent solution of protargol, or a 15 per cent solution of argyrol may be instilled into the urethra. These solutions may also be used in the uterine cavity. Curage of the uterus is certainly not advisable in the acute stages, or when the tubes and ovaries are infected. In the second stage methylene blue or urotropin may be used to advantage. The blandest diet should be prescribed, and should consist largely of milk. If the patient is not placed in bed she should at least desist from hard manual labor during the first week or ten days of the disease. Should the infection extend to the uterus the tubes are

almost certain to become involved. I have never been able by any method to prevent it, while the injection of solutions is more apt to increase than to diminish the danger. Curage during this stage is out of the question. Should salpingitis develop, rest in bed becomes imperative. Frequent hot douches, ice bags, or turpentine stupes, should be used to control the pain; much, however, must be left to nature, but, unfortunately, she is frequently unable to cope successfully with the infection until the peritoneum is reached and an exudate thrown out, which, for the time being, prevents further inroads.

The general siege now begins which usually ends by the intervention of the surgeon, and the entire removal of the diseased organ. A case upon which I recently operated portrays a course such as illustrated. Miss B., a waitress, soon after contracting gonorrhea, consulted me, at which time the infection was confined to the urethral canal. She was treated according to the methods just outlined. During the fourth week tests were made but with negative results to ascertain if the uterus or vaginal canal had become infected, but the discharge from the urethra, however, was still abundant. About this time she became alarmed over her failure to menstruate. The following week she disappeared and did not return for consultation for a fortnight. I was consulted then on account of intense pelvic pains, etc. Two weeks before an abortionist had passed a bougie into the uterus, bringing on an abortion the following day. The manipulation incidental to the procedure had infected the uterine canal, which up to this time had remained free. Foul pus containing gonococci was being discharged from the uterine cavity. The tubes and ovaries were already irreparably infected and were subsequently removed, together with the uterus, In all cases in which double oöphorectomy becomes necessary I have come to believe firmly in the removal of the uterus. Especially should this procedure be insisted upon if the history is one of gonorrheal infection.