

ORIGINAL PAPERS.

TUBERCULOSIS OF THE FEMALE REPRODUCTIVE ORGANS.

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THE awakened interest within the last few years in the general subject of tuberculosis has led to a closer investigation into the possible seats of primary infection in every part of the body ; and although the pulmonary phase of the disease still somewhat overshadows all other considerations, there is, nevertheless, no doubt of the increasing importance which is coming to be attached to the appearance of the affection in other viscera. And the reason for this is to be found not only from the possible influence or bearing which disease so located may have upon the lungs, but from the mischief arising out of the directly affected part itself. It is this latter connection that has come to play such a prominent and frequently puzzling part in the rôle of abdominal surgery ; and while intestinal complications occupy the premier position in abdominal tuberculosis, there is now no question of the important part played by tuberculosis of the reproductive organs.

I cannot do more than touch upon, in the briefest possible way, some of the points of most cogent interest in connection with the subject which forms the title of my paper. And I shall limit my remarks to the three following considerations : (1) Primary infection of the female reproductive organs ; (2) the nature of the lesion produced ; and (3) treatment.

Primary Tuberculous Infection of the Female Reproductive Organs.

Since the question has been raised, evidences have been forthcoming with gradually increasing frequency to show that both within the clinical experience of the practitioner and as a result of the post-mortem and post-operative investigations of the pathologist, the uterus and Fallopian tubes—more particularly the latter—may present foci of infection which, in the absence of any other lesions in the

body, may reasonably be regarded as primary. Among a few recorded examples, the following may be given: Hanschka¹ records the case of a woman aged twenty-nine years in whom the whole endometrium was infiltrated with tubercle, and traces of the disease existed in the mucosa of the tubes. There was no evidence of tuberculosis in any other part of the body. Nebesky's² case was that of a woman aged thirty-three years in whom the only discoverable disease—which was removed by operation, and ended in complete recovery—was advanced tuberculosis in the cervical canal, less in the

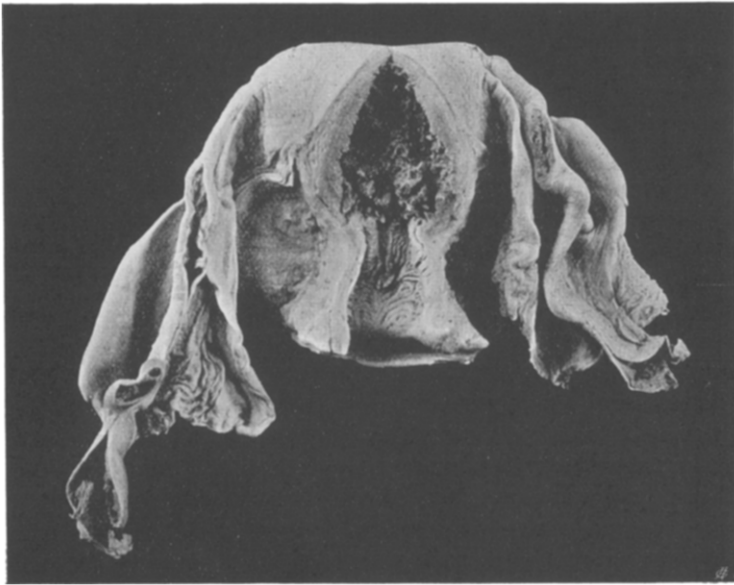


FIG. 1.—TUBERCULOSIS OF THE UTERUS AND FALLOPIAN TUBES.

The uterine cavity contains caseous material, and the tuberculous ulceration of the mucosa has extended into the subjacent muscular tissue. (Photograph of a specimen in the Museum of St. Thomas's Hospital, London.)

endometrium, and still less in the tubes. Young's³ case was that of a woman aged twenty-six years; the disease was exclusively limited to the cervix. Peham's⁴ patient was thirty years of age, and the only disease detected was a tubercular ulcer on the cervix. Lea⁵ records two instances in both of which the disease was limited to the tubes.

¹ Hanschka: *Centralbl. f. Gyn.*, No. 5, 1901.

² Nebesky: *Monats. f. Geb. u. Gyn.*, November, 1905.

³ Young, Eric: *Trans. Obstet. Soc.*, vol. xlviii., p. 286. London, 1907.

⁴ Peham: *Centralbl. f. Gyn.*, No. 7, 1908.

⁵ Lea, Arnold W. W.: *Trans. Obstet. Soc.*, vol. xlv., p. 133. London, 1904.

Other cases have been published by Penrose and Beyea,¹ Deletrez,² Fabricius,³ Macnaughton-Jones,⁴ etc.

Apart, however, from the actual record of cases, it seems a perfectly reasonable view to entertain that infection should enter the system by way of these organs as readily as by any others, provided it can be shown that conditions exist which are known elsewhere to favour the lodgment of the bacilli. As far as so-called surgical tuberculosis is concerned, we know that the only factor required to allow of infection by the bacillus is some impairment of the normal functional activity of the tissue. A slight injury of any kind is sufficient; and probably in the case of the respiratory organs and the alimentary canal it is usually the previous existence of a chronic or subacute catarrh that proves the predisposing cause in the commencement of the disease. So, therefore, with the mucous lining of the uterus and tubes. What more reasonable to suppose than that impairment of the tissue, either by inflammation or traumatism, should equally dispose to an infection by the bacillus, supposing it to be brought into relation with the damaged parts either by direct introduction *per vaginam* or indirectly through the blood? The case recorded by Fabricius⁵ seems a very apt illustration of the contentions here raised. The patient introduced a hair-pin into the rectum; it perforated the vagina and penetrated the vaginal portion of the cervix. At the point of impaction of the latter, a typical tubercular ulcer developed.

The comparative rarity of the disease as a primary source of infection in the tubes or in the uterus, as, at least, suggested by recorded examples and the adverse criticisms of some authorities, should, I venture to think, not make us any the less alive to the possibility of its more frequent occurrence. After all, it is not necessarily the grossness of the lesion itself in the organ primarily infected which may prove of the greatest moment; it is the possibility that without the production of any such grave lesion the impaired vitality of a part may be the means of admitting the entrance of the bacillus into the system only to cause more serious results in other parts. It is from some such consideration as this, and from the fact that we are striving to prevent infection of the system either by the lungs or the alimentary canal, that we should not regard lightly the existence of simple inflammatory conditions involving the genital tract. The possibility, therefore, of the reproductive organs being a means by which the bacillus may obtain a first footing emphasizes still more the need for

¹ Penrose and Beyea: *Amer. Journ. Med. Sciences*, vol. cviii., p. 521: and vol. cix., p. 271. 1894.

² Deletrez: *Ann. Gyn. et. Obstet.*, January, 1908.

³ Fabricius: *Centralbl. f. Gyn.*, No. 7, 1908.

⁴ Macnaughton-Jones: *Lancet*, vol. i., p. 1275, 1908.

⁵ Fabricius: *Centralbl. f. Gyn.*, No. 7, 1908.

enforcing those precautionary measures which are now being taken with the object of stamping out the disease, be it bovine or human in origin.

The Nature of the Tuberculous Lesion.

It is not that tuberculous lesions of the genital tract present in themselves any histological features which differ from infection elsewhere, but rather that the parts involved produce a train of derangements dependent solely upon the anatomical structures and physiological functions peculiar to the regions. The most striking contrast between the reproductive system and either the respiratory or the alimentary lies in the comparative immobility and functional inactivity of the former. Thus, when once the bacillus obtains a lodgment in the cervical canal, in the uterine cavity, or in the lining wall of the



The outer segment of one tube has been sectioned to expose canal filled with caseous matter. (From a photograph of a specimen in the Museum of the London Hospital.)

Fallopian tube, there is little to disturb the quiet progress of the disease. Except at the periods of menstruation and during parturition, there cannot be said to exist in the parts themselves anything to check the onward advance of the invading bacillus beyond the exercise of such natural forces as the tissues themselves, or the system as a whole, can afford.

The pathological changes, therefore, which may be met with in some part of the genital tract are often of the most advanced character. In the two illustrations given, the one of the uterus and the other of the Fallopian tube, it will be seen how gross may be the lesions when the disease has been allowed to run an almost uninterrupted course. In the case of the uterus (see Fig. 1) the whole lining wall of the viscus has been converted into a condition of ulceration and caseation, the disease also having extended into the muscle wall. In the case of the Fallopian tube (see Fig. 2), the

canal is seen to be filled with caseating material, which has not only effectually blocked the channel, but greatly enlarged the entire organ. These illustrations, however, are more or less extreme examples. Every phase in the development of the disease may be met with, from the mere sprinkling of a few miliary tubercles in the mucous membrane of any part of the tract to the conversion of even the uterus as well as the tubes into what become practically little more than large tubercular abscesses. Targett¹ has described one of these advanced conditions of tuberculous pyometra, where the entire uterus was converted into a kind of sac containing purulent caseous débris. And in the Royal College of Surgeons there is a specimen of tuberculous salpingitis in which both tubes present the appearances of abscess cavities (see Fig. 3).

The particular pathological features which have led to so much interest in recent years, especially from the aspect of treatment, are not so much, perhaps, the essentially local and isolated lesions of the genital tract as the changes which are affected in the surrounding tissues and organs.

The freedom with which the abdomen is now opened for purposes of exploration as well as for some form of specific treatment has frequently caused the surgeon to encounter pelvic conditions dependent upon tubercular disease of the reproductive organs. It, therefore, behoves him to be as cognizant of the lesions affecting those viscera as he is expected to, and should be, of diseases implicating other organs within the abdominal cavity.

As soon as the inflammatory changes connected with the tubercular process in the uterus or Fallopian tubes—the ovaries, from the comparative rarity of their infection, being left out of consideration—reach their respective peritoneal linings, adhesions are contracted both between the viscera themselves and between them and the serous tunics of the intestines, the bladder, and the abdominal parietes. There is no limit to the extent to which this matting may go ; and the explanation is probably to be found in the special anatomical disposition of the parts, already referred to, whereby their immobility allows of the undisturbed union of the applied parts. The results are : Considerable displacement of the viscera ; their complete functional disorganization ; and very possibly other disturbances connected with the bladder and intestines. It is quite remarkable how, in some of these cases, the entire pelvis seems to be filled by a matted mass, in which dilated and tortuous tubes encircle and conceal the ovaries, and the uterus becomes embedded in an indistinguishable and inseparable mass of adventitious tissue. It is quite possible, and indeed probable, that some of these gross intra-pelvic conditions owe

¹ Targett, Jas. H. : *Brit. Med. Journ.*, vol. ii., p. 959. 1903.

their origin to an advance of the disease from above ; and that the infection of the reproductive organs is the consequence rather than the cause of the generalization. Be this as it may, it constitutes a pathological condition which produces frequently one of the most trying and difficult complications that the abdominal surgeon may encounter.

Treatment of Tuberculous Affections of the Female Genital Organs.

If tuberculosis could be regarded as a malignant disease in the same way as we look upon carcinoma, there would be no difficulty in the question of treatment ; a clean and free sweep away of the



FIG. 3.—TUBERCULOUS SALPINGITIS.

Both Fallopian tubes have been converted into abscess-like cavities. (Photographed from a specimen in the Museum of the Royal College of Surgeons of England.)

whole involved organs would be the line to pursue. But tuberculosis, by comparison with carcinoma, differs in one most vital particular, and that, that the human system possesses within itself, independently of any external agency, the power to overcome the disease, and to restore a part to its normal condition. In other words, we are compelled to regard the affection, whatever be the organ or tissue involved, as a conflict between two forces, in which one or the other must conquer. At first the invaders, represented by the tubercle bacilli, are the successful aggressors, and the tissues of the human system are acting solely in self-defence. If ultimate success is to rest with the latter,

then the tables must be turned, and the system take action in the offensive, and overcome and destroy the invaders. It is probable, from what we know regarding the stages of quiescence and the occasional recrudescence of the disease at subsequent periods, that complete destruction is by no means constant—that what is effected is merely a check to further extension; nevertheless, such inhibition may often prove permanent.

The above remarks upon the general subject of tuberculosis are not without their bearing upon the disease as met with in the reproductive organs. We have abundant evidence to show that even the most advanced involvement of these viscera may be overcome by the natural resistive forces of the system. But this possibility must not lead us into the erroneous belief that such a happy sequence of events will be followed in all cases. We have constantly to bear in mind that all the time we are adopting purely expectant lines of treatment we are running the grave risk of allowing the disease to advance. As long as the disease is active, the patient is never free from the possible manifestation of other phases connected with the infection—more serious, it may be, than that for which the conservative treatment is being employed. Thus, then, we are reduced to the position that so soon as we are satisfied that our local and constitutional efforts fail to produce any marked improvement either in the affected parts themselves or in the general systemic condition of the patient, something operative must be attempted. Curettage may be dismissed with no further remarks than that it is a means to be employed for diagnostic purposes, and in no sense as a method of treatment. If the cervix exhibits limited ulceration, it may be excised; but if the body or lining membrane of the viscus is involved there is the probability that the Fallopian tubes are likewise implicated; and that, therefore, nothing short of a total extirpation of the parts is called for.

Much discussion has taken place over the line action to pursue in cases of tubercular salpingitis. Should the tubes alone be excised, or should the uterus be removed in conjunction with them? There are cases where undoubtedly the disease appears in the tube towards its fimbriated extremity as an apparently limited and localized lesion. In such cases the simple removal of the tube may be quite sufficient. In cases, however, where the disease is more extensive and occupies a considerable length of the tube, it is very probable that there is infection of the uterus also. Hence modern practice is in favour of making a clean sweep of all the reproductive organs.

Lastly, we have those cases—but too frequent when the tubes are extensively involved—where the excessive formation of adhesions has matted the parts together and to the surrounding parts in such a way and to such a degree that differentiation of the separate

viscera becomes impossible. Anyone who has encountered conditions of this kind knows something of the difficulties to be faced in attempting to remove the disease. But should the attempt be made? It is not the difficulties which the surgeon fears to tackle, and can overcome with success, but the grave shock to the patient which supervenes, and which may of itself prove fatal. It is the possibility, and indeed probability, that our best efforts may be frustrated by fatal after-effects that should make us pause. There is this consideration also, that, in some inexplicable way, the exposure, and possibly the manipulation of the parts, involved in a simple exploratory laparotomy, causes the disease in some of these advanced cases to subside, and even disappear. For this additional reason, therefore, we should hesitate before submitting our patient to the extremely grave risks associated with the attempts to remove parts that are practically inseparably attached to each other and to the surrounding structures.

AMYL NITRITE AND THE TREATMENT OF HÆMOPTYSIS IN PULMONARY TUBERCULOSIS.

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IN the first number of this Journal Dr. Francis Hare discussed the treatment of hæmoptysis by amyl nitrite, to which he first drew attention in 1903.¹ He gives the literature of the subject up to that time, and he concludes that it is by far the best drug to administer for that condition. Since that article was published others have described their experience in the use of the drug, some fully confirming his results and deductions, whilst others have not had such a fortunate experience.

Cattle,² in discussing the treatment of hæmoptysis, considers that inhalations of nitrite of amyl are a more rational plan of treatment than the administration of adrenalin, etc., because the systemic vessels are of much greater extent than the pulmonary ones, and hence any general dilatation of the arterioles will be accompanied by diversion of the blood from the pulmonary circulation, and, consequently, there will be

¹ Hare, Francis: "Treatment of Hæmoptysis by Nitrite of Amyl." See also *Australasian Medical Gazette*, October, 1903.

² Cattle, C. H.: "The Treatment of Hæmoptysis," *British Medical Journal*, January 14, 1905.