

CRITICAL REVIEW.

GENITAL TUBERCULOSIS IN THE FEMALE.

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In 1744 Morgagni,¹ whilst engaged in a *post-mortem* examination on a woman twenty years of age who had died of tubercular peritonitis, demonstrated that both her Fallopian tubes and ovaries were filled with a caseous material, and so densely adherent to one another that he was unable to separate them. After a careful examination of these diseased structures, he came to the conclusion that the peritonitis was secondary to the disease with which they were affected, that that disease was tubercle, and so, placing his opinion on record, was thus the first to report a case of undoubted genital tuberculosis. Nearly a century later Senn² and Louis³ drew attention to this class of case, whilst Reynaud⁴ carefully reported two more cases, and it was after the publication of these that the subject commenced to excite greater interest.

Thiry,⁵ in 1842, published a detailed description of uterine tuberculosis, which condition was also a few years later very fully investigated by Kiwisch,⁶ Geil,⁷ and Paulsen.⁸ During all this time, and even as late as 1880, tuberculosis of the ovary was regarded either as not occurring, or so rare as to be worthless for investigation.

Cohnheim,⁹ in 1879, and Verneuil,¹⁰ in 1883, drew attention to the fact that occasionally women might be infected during sexual intercourse.

Mundach,¹¹ in 1881, removed by cœliotomy tuberculous tubes and ovaries, and Babes,¹² in 1883, discovered the tubercle bacillus in the vaginal secretion. Before cœliotomy became established as a recognised treatment for tubercular peritonitis, genital tuberculosis in the female excited but very little interest. Since, however, the publication of Babes's¹² paper, and in consequence of the experience gained by cœliotomy, the subject has been very thoroughly investigated, as the numerous reports of cases and papers read each succeeding year testify, and it has come to be recognised that,

although as a rule female genital tuberculosis is, in the majority of cases, secondary to disease elsewhere, a primary affection of the genital apparatus is much commoner than was ever suspected.

TUBERCULOSIS OF THE VULVA.—This condition is very rare, only a few cases having been reported in which there was apparently no doubt concerning the diagnosis. Matthews Duncan,¹³ when describing a peculiar hypertrophic and ulcerated condition of the vulva which he had met with in five cases, called the condition *Lupus*, although Dr. Thin, who microscoped portions of the growth from each case, failed to discover any single characteristic of that disease. Since then several cases of so-called *lupus* of the vulva have been described, but in only a few instances have tubercle bacilli been found or inoculation experiments proved that the case was one of tubercle. Doubtless many cases reported as *lupus* have been syphilitic or carcinomatous ulcerations.

Winckel,¹⁴ in 1890, reported a case of *lupus vulvæ* in a child under ten years old, Birch-Herschfield agreeing in the diagnosis, but no mention is made whether tubercle bacilli were found.

Taylor¹⁵ thinks a large number of these cases are simply ulcerative lesions due to irritation, the remainder being caused by the various stages and manifestations of syphilis. Rieck¹⁶ and Freund,¹⁷ on the other hand, believe, from a study of their cases, that the lesion in a majority of cases is tuberculous.

Murray,¹⁸ in the *American Journal of Obstetrics*, January, 1901, reports the termination of a case of *lupus vulvæ* which he had first described in the same journal in August, 1887. The specimen was pathologically reported on by Cordes, who found a streptothrix, which was pathogenic for white mice and rabbits, but not for guinea-pigs. It was found in pure culture from the surface of the vulva, and one year later similar results were noted. No signs of tuberculosis were present, and Murray from this case and a series of others comes to the conclusion that this peculiar condition of the vulva is generally an inflammatory one and not tuberculous; at any rate, these cases are very rare, and he was able to collect less than 100 reported in the last fifty years. Taking only those cases where tubercle bacilli were found, or inoculation proved the correctness of the diagnosis, Whitridge Williams¹⁹ was able, up to 1894, to find but three cases, those of Deschamps, Chiari, and Weigbaum, and a careful search through the literature since that date has only revealed one other—that of Rieck.¹⁶

Deschamps' case was that of a woman, aged twenty-five, in the last stage of phthisis, who had fallen and injured her vulva. Four

months later a large tuberculous ulcer was apparent on the left labium minus, and rabbits inoculated with portions of it developed tuberculosis. At her death the peritoneum and internal genital organs were found normal.

Chiari reported a similar condition due to inoculation from tuberculous ulceration of the rectum, and in this case also the internal genital organs were intact.

Weigbaum's case was one of secondary infection from the vagina, the uterus, tubes, and ovaries at death being found normal. Lastly, in 1899, Rieck¹⁶ published the case of a woman with a hereditary taint whose husband had died of phthisis. Her labium minus was the seat of elephantiac changes, with a slowly advancing ulceration. On the ulcer being removed and portions of it microscopied, tubercle bacilli were found with giant cells and caseation.

Tubercular ulcers of the vulva are shallow, with irregular, sharply-cut margins raised above the general surface and granular in appearance, some of the granulations being semi-translucent and gray, and the rest of a bright yellow.

TUBERCULOSIS OF THE VAGINA.—Whilst tuberculosis of this organ is not nearly so rare as that of the vulva, it is generally secondary to a similar condition of the uterus, ovaries, and Fallopian tubes. The lesion is nearly always found in the upper third of the vagina on its posterior wall, this position being doubtless due to the fact that most cases are secondary to disease higher up in the tract, the secretion from which inoculates the vagina.

Reynaud⁴ was the first to describe such a case, and up to 1873 the condition was always thought to be secondary to disease of the uterus. Since that date, however, many cases have been reported which prove without doubt that this is not always the case. Thus Oppenheim²⁰ states that out of seven cases of vaginal tuberculosis, he found in three a perfectly normal uterus between the disease and tuberculous tubes.

Weigert²¹ reports a case of vaginal tuberculosis associated with tubercular peritonitis, the remaining genital organs being normal.

Lancereaux²² reports four cases of phthisis in which miliary tubercles were found in the vagina, the rest of the genital apparatus being free of the disease, and similar cases have been reported by many others, as mentioned in Williams's¹⁹ paper. It may also be secondary to disease of the bladder or rectum, giving rise to vesico-vaginal fistulæ (Catuffe²³) or recto-vaginal fistulæ (Babes¹²). The latter case is interesting also from the fact that it is the first recorded case where the tubercle bacillus was discovered in the

secretion from the genital passages in a case of genital tuberculosis in woman.

Springer²⁴ thinks it may arise from bacilli in the urine, and in stating how uncommon the disease is in this situation he gives the cause of infection of all cases that have been noted at the Frauenklinik of Prague during the last twelve years—viz., 2 from the blood, 3 from the uterus, 1 from the Fallopian tubes, and 1 from the intestine=12.

Two varieties of vaginal tuberculosis have been described, miliary and ulcerative. The miliary tubercles do not exceed in size a millet seed, and vary in colour from grey to yellow. These tubercles, eventually caseating, form the second variety, the tubercular ulcer, the margins of which are irregular and sharply cut, the base shallow and covered with granulations, hidden by a caseous material, the tissue round the ulcer being studded with miliary tubercles and of a redder colour.

Jorfida²⁵ reports a case of tubercular infection of the vagina during the puerperium, the cause of which was not suspected, and he also mentions Geil's⁷ cases of uterine tuberculosis, forty-five in number, the vagina being implicated in three only. The course of vaginal tuberculosis is very slow, the results of treatment unsatisfactory, and the cure difficult. The condition is generally associated with tubercular meningitis or pulmonary tuberculosis.

TUBERCULOSIS OF THE UTERUS.—Though nearly always secondary to disease of the Fallopian tubes, and frequently to phthisis, tubercle of this organ has rarely been found to be the only lesion present. As a secondary condition it is not uncommon, but is then generally limited to the body, the cervix being free of disease, whilst when it attacks the cervix, which it does very rarely, in the majority of cases the body is found normal. Thus Merletti²⁶ states that in 172 cases of genital tuberculosis, 75 had the uterine body affected. He also thinks that hyperplasia of this organ favours the development of tuberculosis in it, since this association is so frequently noted.

Body.—The disease occurs in the endometrium as miliary tuberculosis, or in the muscle as chronic diffuse tuberculosis.

Miliary Tuberculosis.—The endometrium is studded with miliary tubercles, and sections of it or of pieces removed by curetting, show the typical giant-celled structure. In some places small areas of caseation are present, the epithelium covering them being whole. As the disease progresses, the epithelium gives way, and small tubercular ulcers are formed.

Chronic Diffuse Tuberculosis.—The commonest form seen. The

inner surface of the uterine body is covered with a caseous material, whilst its cavity is filled with a similar substance. Underlying this caseous material is a very irregular surface, crowded with tubercles which may be breaking down and forming ulcers, replacing more or less the endometrium. The muscle is also invaded by the tubercular growth, with a resulting enlargement of the body. On caseation taking place the uterine wall is much weakened, and Cooper²⁷ records a case of rupture of the uterus from this cause in a woman three months pregnant. At times the cervical canal becoming blocked, more especially in old women, the caseous material cannot escape, and a pyometra results.

Cervix.—Tuberculosis of this portion of the uterus is very much rarer. Rokitsansky²⁸ and Lebert²⁹ both affirmed that it did not occur, and the first undoubted case, which was secondary to disease of the urinary tract, was described by Virchow.³⁰ Since then a fair number of cases have been placed on record. Three forms have been described: a miliary variety, which is most easily recognised; a catarrhal, which may be mistaken for endocervicitis; and an ulcerative variety, which has been diagnosed as carcinoma—in fact, this latter mistake is very easy to make, and there is no doubt, as Lewers³¹ points out, that many cases in which recovery took place after the removal of a supposed carcinomatous cervix were in reality tubercular. In the majority of cases of cervical tuberculosis a similar condition of the vagina has been present. In conjunction with tubercle of the body it is very rare, and Williams¹⁹ was only able to collect seven cases. In women suffering from phthisis it may be the only part of the generative organs involved; and, lastly, several cases have been placed on record where it was the only portion of the patient affected as far as could be ascertained. Ajello,³² in reporting a case of primary tubercular disease of the cervix, noted the excessive rarity of the tubercle bacilli, which he thought was due to their not being sufficiently virulent and to the seat of the disease being ill adapted for their development, as evidenced by the rarity of the disease in this situation.

TUBERCULOSIS OF THE FALLOPIAN TUBES.—In by far the great majority of cases in which the female genital organs are attacked by tubercle, the disease is situated in the Fallopian tubes; thus in the 172 cases collected by Merletti,²⁶ they were affected in 157. As a rule the uterus, ovaries, or peritoneum are also diseased, and more rarely the whole genital tract may be affected. The disease in the Fallopian tubes is usually secondary to tuberculosis elsewhere, although they are the first portion of the genital tract to be affected.

Nevertheless, an increasing number of primary cases are recorded each year. Four varieties are described.

Miliary Tuberculosis.—A Fallopian tube of normal size may be studded with a few miliary tubercles; the collection of tubercles may be localized so that the Fallopian tube is enlarged at one spot, or the organ may be markedly enlarged, the mucous membrane being covered with tubercles. In these latter cases the disease is most noticeable at the fimbriated extremity, the uterine end often being quite free, and this has been more especially noted when the tubal disease has been secondary to phthisis or tubercular peritonitis. Microscopically, the process is found to be limited to the mucous membrane, a few only of the tubercles showing signs of caseation. In addition, a form of purulent salpingitis with leucocytes and small round-celled infiltration may be present.

Chronic Diffuse Tuberculosis.—The Fallopian tube, which is markedly enlarged, is very firmly adherent to adjacent structures, the fimbriated extremity is generally sealed, and the lumen filled with a caseous material. The mucous membrane is ulcerated, and the serous coat is studded with miliary tubercles. At times the tubes may be distended with pus to a great size, Werth³³ reporting a case from which 2 litres of pus were evacuated. The Fallopian tubes, which form sausage-shaped tumours, are, as a rule, bound down to Douglas's pouch. Microscopically, the mucous membrane is infiltrated with giant epithelioid cells, and has been more or less destroyed by caseation of the tubercles.

Chronic Fibroid Tuberculosis.—A form first described by Williams,¹⁹ in which there is an excessive development of fibrous tissue, with relative absence of caseation. The marked feature of this form is its chronicity. The fimbriated extremity of the tube is occluded, and the ovaries and Fallopian tubes are covered with very dense adhesions, presenting no trace of being tuberculous. This variety indicates a conservative process, and may in some instances be the means of curing the patient.

Cures have also been reported as resulting from calcification.

Tubercular salpingitis is almost always bilateral, and more than any other form of salpingitis tends to close the fimbriated end of the tube, giving rise to a tumour. It also tends to induce a marked reaction in the peritoneum, especially that form of peritonitis with encapsuled exudate, so that it is very important when operating for tubercular peritonitis always to examine the Fallopian tubes, which may likely be the seat of the primary disease.

UNSUSPECTED GENITAL TUBERCULOSIS.—In these cases the tuber-

cular changes are so slight that a most careful macroscopical examination fails to recognise the condition; they are considered to be cases of catarrhal or purulent salpingitis, and it is only on microscopical examination that the condition is found. Hence Williams¹⁹ was led to name it as above, and he reports four cases, in all of which the fimbriated end of the tube was obliterated and the ovaries and tubes bound together by very firm adhesions. They all appeared to be cases of primary genital tuberculosis. This variety is probably much commoner than is imagined, for out of 138 cœliotomies performed at the Johns Hopkins Hospital only 2 out of 8 were recognised at the time of operation as cases of genital tuberculosis, the remaining 75 per cent. being found out on microscopical examination.

TUBERCULOSIS OF THE OVARY.—Up till 1887 tubercular disease of this organ was stated to be very rare, Virchow³⁴ and others being very sceptical of its occurrence; but in this year Terrillon³⁵ reported three cases, and since then the number has greatly increased. The condition is practically always secondary to disease elsewhere, and, in fact, up to 1894, Williams¹⁹ failed to discover a single primary case, and Bland-Sutton,³⁶ after a careful examination of the records of specimens furnished by competent observers, comes to the conclusion that there is no trustworthy evidence that the ovary is primarily affected with tuberculosis; but since that date one case, at any rate, has been reported in which the author considered the tubercle to have primarily affected the ovary. This was a case of tuberculous ovarian cyst, the patient dying of phthisis. The opposite tube contained caseous material, and on the posterior aspect of the uterus was an abscess. Max Madleuer⁶⁰ regarded the pulmonary affection as a secondary complication. Spencer Wells³⁷ and others also report cases where the walls of ovarian cysts have been studded with tubercles. The ovary most certainly exhibits a certain resistance to tubercular infection, which Merletti²⁶ thinks may be due to a timely protective action of the peritoneum by causing exudations and adhesions; thus out of 172 cases of genital tuberculosis he only found the ovary affected in 25; in more than 50 per cent. of the cases the ovary undergoes cystic degeneration. As a rule it is secondary to disease of the uterus, Fallopian tubes, or peritoneum, and more rarely in phthisical women it may be the only portion of the genital apparatus affected.

METHODS OF INFECTION IN GENITAL TUBERCULOSIS.—*Through the Blood.*—In favour of this is the fact that, when puerperal women are the subjects of general miliary tuberculosis, if the genitals are

affected the disease is most marked at the placental site, and also those cases of phthisis where the genital organs are affected secondarily, the peritoneum and intestines being healthy. Amann⁶¹ reports a case of tubercle of the bronchial glands affecting the female genital organs through the circulation comparable to that of Costauroux, and draws attention to the fact that in most cases of genital tuberculosis the lungs and bronchial glands are generally affected.

From the Peritoneum.—Pinner⁴² found that powdered cinnabar placed in the peritoneal cavity of rabbits in a very short time could be detected in the vagina, having been carried down there by the cilia, and it is presumed that in the same way tubercle bacilli could be wafted out of the peritoneal cavity into the genital tract; and it is remarked, as favouring this method of infection, that the pelvis, being the lowest portion of the abdominal cavity, it would naturally be the most likely spot for tubercle bacilli escaping from the intestine, etc., to gravitate, and that tubercular peritonitis, whilst always worse in the pelvis, often commences there. Tubercle bacilli have also been found by Sani⁴⁴ in the lumen of normal Fallopian tubes taken from women dead of phthisis and tubercular ulceration of the intestine. It is a fact that the abdominal ends of the Fallopian tubes are always more diseased than the remaining portions, and statistics show that tubercular peritonitis is one of the commonest conditions found with tubercular disease of the Fallopian tubes. Thus Schramm³⁸ found tubercular peritonitis present in 21 cases out of 34 cases in which the tubes were diseased, Oppenheim³⁹ 21 in 23, Osler⁴⁰ 40 per cent., Kaulich⁴¹ 50 per cent.

From other Organs.—Kaufmann⁴³ quotes a case in which the tuberculous small intestine was adherent to the uterus, the uterus as a result being infected, and several fistulous openings arising between the two. Many cases have also been reported in which tubercle of the bladder or rectum had infected the vagina, giving rise to fistulous openings between the respective organs, and Kraus⁵⁶ reports a case of tubercular disease of the right ovary and Fallopian tube due to a previous disease of the vermiform appendix.

From Organisms Excreted by the Patient.—This method has not been proved, but there is no inherent reason why, if the fæces or urine contain tubercle bacilli, they should not infect the patient through the vulva or vagina.

From Instruments, Vaginal Examination, or Coitus.—The fact that tuberculosis of the vagina is rare does not disprove the fact that tubercle bacilli may be conveyed as above; in fact, there can be no

doubt that they often are. The walls of the vagina are, however, very tough, and it is probable that the tubercle bacillus is in ordinary cases unable to gain an entrance, unless the walls be wounded, and supposing the bacillus got into the uterus, then, as Williams¹⁹ points out, when the endometrium was shed at the menstrual period, the disease would probably come away too, and that it would be only when the bacillus managed to travel to the tube that it would be likely to infect the woman, and this, perhaps, may be one reason why primary tuberculosis of the Fallopian tubes is so much commoner than primary tuberculosis of the uterus.

Experimentally, Cornil⁴⁵ and Dobrolonsky⁴⁶ produced tuberculous endometritis by injecting pure cultures of tubercle bacilli into the vagina of rabbits. Oncarani⁴⁷ and Williams¹⁹ failed to get similar results, and when the former repeated the experiment, having first irritated the vaginal wall with tincture of iodine, general, and not local, tuberculosis resulted. Another observer, Popov,⁴⁸ injected a bacillary culture into the vaginas of guinea-pigs. In one case the inoculation was into the walls of the vagina, and in another case the walls were previously irritated by a needle. In both cases well-marked tubercular lesions were produced locally, and the neighbouring lymph-glands became infected, but the morbid process did not extend to the internal organs. Gouritz⁴⁹ also proved experimentally that the tubercle bacillus can implant itself on uninjured mucosa of the genital track, proliferate, and cause characteristic lesions. Derville,⁵⁰ with reference to infection by coitus, reports eight very suggestive cases of female genital tuberculosis, and in the husbands of five of these he detected hard masses in the epididymis which he took to be tubercular.

SIGNS AND SYMPTOMS OF FEMALE GENITAL TUBERCULOSIS.—As a rule, when the disease is secondary to tubercle elsewhere, no particular attention is paid to, or complaint made of, the local condition.

In the vulva and vagina the disease can be seen, and if ulceration is present it gives rise to leucorrhœa, and perhaps bleeding. There is but little pain, and the disease is characterized by great chronicity. Cervical tuberculosis gives rise to hæmorrhage and suppuration, uterine tuberculosis to profuse leucorrhœa, with caseous masses in it, and hypertrophy of the uterus. It has no particular effect on menstruation, some observers noting amenorrhœa, probably due to the depreciation in health, whilst others have noted menorrhagia.

In tubercular disease of the ovaries and Fallopian tubes no signs or symptoms peculiar to it have been noted. The condition is

diagnosed at the operation or *autopsy*, and in its clinical aspects it resembles purulent salpingitis.

DIAGNOSIS.—In the case of vulval or vaginal disease the following will have to be differentiated: Granular vaginitis, syphilis, herpes, so-called lupus, and carcinoma.

The condition in the cervix that is generally mistaken for cervical tuberculosis is carcinoma.

When the uterus is affected the only way to diagnose it is to examine the secretion for tubercle bacilli, microscope a portion of the endometrium that has been curetted, or inject some of it into the peritoneal cavity of a rabbit or dog.

As regards tubercular disease of the Fallopian tubes and ovaries, a probable diagnosis may be made when the tubes are found enlarged, and tubercular peritonitis is present, or, as Osler says, "the association of a tubal tumour with an ill-defined anomalous mass in the abdominal cavity should arouse suspicion."

Sellheim⁶² thinks that if there is evidence of tuberculosis in other parts of the body then inflammatory conditions of the genital organs may be regarded as tuberculous. Also that per vaginam genital tuberculosis can be detected by feeling nodules scattered over the posterior surfaces of the broad ligament uterus and utero-sacral ligaments. The Fallopian tubes may also be studded with very hard nodules, and the presence of a nodule in the *pars uterina* he regards as a reliable sign. On the other hand, most authorities agree that a diagnosis is extremely difficult, and seldom made before operation or microscopical examination.

TREATMENT OF GENITAL TUBERCULOSIS.—This depends very greatly on the general condition of the patient. If the genital disease is secondary to disease elsewhere which is far advanced, no treatment is of any use.

On the other hand, in primary cases, or in secondary cases where the primary disease is localized and not severe, extirpation of the genital lesion has proved encouraging.

Sellheim⁶² gives the results of the treatment at the Freiburg Clinic during the past eight years. There were 65 cases. Of these in 28 cases palliative treatment only could be carried out with a very gratifying result, whilst in 37 where operative treatment was undertaken the results were very good, especially in those cases where the operation had been of a radical character.

When the vulva or vagina is attacked, the treatment should be radical, excision of the diseased part well clear of the disease having proved very satisfactory. If the disease is too advanced for this, the

ulcerated parts may be treated with tincture of iodine, iodoform, lactic acid, or curettage, with the application of the actual cautery, and all these methods have given striking immediate results, the parts rapidly healing. Unfortunately, as a rule, the disease in a very little time breaks out again.

Where the cervix is affected alone, amputation has given good results, or vaginal hysterectomy may be performed. If the uterus or Fallopian tubes are affected in addition, then hysterectomy is indicated.

When tubercle attacks the body of the uterus, and the Fallopian tubes are free of the disease, curetting the uterus and the application of iodoform pessaries afterwards has given good results. If the disease recurs, or the Fallopian tubes are infected, then hysterectomy should be performed, and probably this is the best treatment in any case.

Primary tuberculosis of the ovaries and Fallopian tubes being undiagnosable, there is no need to discuss their treatment. When complicated with tuberculosis elsewhere, the general condition of the patient is an indication of what should be done. For instance, when complicated with tubercular peritonitis, cœliotomy is indicated, and many cures have resulted from removal of the diseased appendages in early cases of phthisis, and very gratifying results have been obtained by this treatment. The credit of recognising that cœliotomy might be a valuable method of treatment in female genital tuberculosis and of acting accordingly belongs to Hegar.⁵⁷

Lindfors,⁵⁸ when operating on a girl for bilateral tumours of the adnexa, accompanied with fever, found the Fallopian tubes, which were covered with reddish grey miliary spots, so densely adherent to the adjacent structures that he was unable to extirpate them; so he ligatured the ovarian vessels in the manner proposed by V. Antal for inoperable myoma, with the pleasing result that cure took place in four weeks, and was ascertained to be permanent two years later. Since, however, tubercular peritonitis has been cured by a simple cœliotomy, it would not appear to be an absolute certainty that ligation of the ovarian vessels was responsible for the cure in this case. Seeligman⁵⁹ reports the spontaneous healing of an extensive *lupus faciei* after the abdominal extirpation of a suppurating tubercular tubo-ovarian tumour.

FREQUENCY.—With regard to the frequency of genital tuberculosis, the investigations of Williams,¹⁹ Gouritz,⁴⁹ and Merletti²⁸ have proved beyond doubt, at any rate, that this condition is very much more common than has usually been supposed. At the same time, to obtain exact data on this subject is extremely difficult, since

not only should an enormous number of cases be investigated to give the statistics much value, but also, unless in all of them the genital organs have been microscopically examined as a matter of routine, there is a very great danger of missing quite a number, to which, as they cannot be diagnosed macroscopically, Williams¹⁹ has given the name of "unsuspected cases."

Turning first to operative experience, Williams¹⁹ has noted the following facts: That Edebohls met with genital tuberculosis 6 times in 157 cœliotomies=4 per cent.; Martin, 3 times in 287 cœliotomies=3 per cent.; the Johns Hopkins operators, twice in 137 cœliotomies=1½ per cent.; being a total of 9 times in 581 cœliotomies =2·9 per cent. But, as he points out, whilst only 2 cases were discovered macroscopically out of the 137 cœliotomies performed at the Johns Hopkins Hospital, 5 more were added as the result of a routine microscopical examination of the genital organs removed, which makes 7 in all, or 5·2 per cent.; and, further, that if of these 137 cœliotomies only those where the appendages were removed for inflammatory disease are counted, the percentage rises to 7·7, which figure exactly corresponds to the results found at the Brompton Consumption *autopsies* on females dead of tubercular disease.

But if operators are not agreed as to the frequency of genital tuberculosis, the discrepancy becomes much more marked when the *post-mortem* records are taken. Thus: Courtz⁵¹ found genital tuberculosis in 1 per cent. of women dead of tubercle; Louis,³ 1·5 per cent.; Cornil,⁴⁵ 1·5 per cent.; Kiwisch,⁶ 2·5 per cent.; Mosler,⁵² 2·5 per cent.; Schramm,³⁸ 4·1 per cent.; Nimias and Christoforis,⁵³ 8·3 per cent.

Merletti,²⁶ on the other hand, after a very lengthy and laborious investigation of a large number of cases, estimates the frequency of female genital tuberculosis as 12·6 per cent., as against 2·4 per cent. in males, in this latter agreeing with Reclus.⁵⁴ He thinks that the greater frequency in women depends not merely on the more intimate relations of the genital organs, peritoneum, and intestine, but also upon causes of infection inherent in the function of generation. In the Brompton records quoted below, 6·8 per cent. occurred before puberty, and 93·2 per cent. during the child-bearing period.

By the kindness of the Board of the Brompton Consumption Hospital I was able to examine the *post-mortem* records of that institution from 1880 (since which date the condition of the genital organs have been particularly noticed) to 1902, and as the result of a very careful investigation it appears that in 798 *autopsies* performed on females dead of tuberculosis the genital organs were affected in

62—that is, 7·7 per cent., which figure agrees with Williams'¹⁹ results quoted above.

The different organs were found affected as follows :

Fallopian tubes	30
„ „ and body of uterus	8
„ „ body of uterus, and ovaries	5
„ „ and ovaries	4
Ovaries	4
Uterine cervix	3
„ body	3
Vagina	2
Fallopian tubes and vagina	1
„ „ body of uterus, and cervix	1
„ „ body of uterus, ovaries, and vagina	1
Vulva	0
	<hr/> 62

From this it appears that the various organs are affected as follows :

Fallopian tubes	80·6 per cent.
Body of uterus	29·0 „
Ovaries	22·5 „
Cervix	6·4 „
Vagina	6·4 „
Vulva	0

With reference to the comparative frequency of primary tuberculosis of the genital organs in comparison with cases of secondary tuberculisaton, Mosler⁵² gives the proportion of primary disease as 17·3 per cent.; Trenchs, 15·6 per cent.; Schramm,³⁸ 20·9 per cent.; and Merletti,²⁶ 18·6 per cent.; whilst of the 62 cases noted at Brompton one was primary=10·6 per cent.

TUBERCULOSIS OF THE FEMALE GENERATIVE ORGANS IN CHILDHOOD.
—This disease is generally regarded in children as a rare event, but Still,⁵⁵ in a careful examination of 126 consecutive *autopsies* in females below twelve years of age, states that he found 12 cases, or 9·5 per cent. Merletti²⁶ gives the percentage before puberty as 7·3, and the Brompton records as 6·8.

Of the 126 quoted above, 13 had general tubercular peritonitis.

In only one case did Still⁵⁵ find the ovaries affected—an infant of eight and a half months, and in no case was the vagina or vulva involved.

In discussing the method of infection, he points out that if the primary infection occurs through the female genital tract, it might reasonably be supposed that tubercular peritonitis would be commoner in girls than boys; and yet in 100 *autopsies* of tubercular peritonitis at Great Ormond Street Hospital for children 52 occurred in boys and 48 in girls; whilst Rillez and Barthez for children under fifteen give the proportion as 53 in boys and 33 in girls.

The fact that there is no lesion to be found in the vagina does not quite contra-indicate this as a route for infection, since it is well known that tubercle of the œsophagus and trachea is rare, and yet there is no doubt that the tubercle bacillus gains entrance to the lungs and intestinal tract *viâ* these tubes.

Again, whilst it must be quite easy for tubercle bacille to pass from the peritoneal cavity into the tubes—*vide* Pinner's experiments with powdered cinnabar—yet it is certainly with great difficulty that micro-organisms are able to pass from the vagina to the tubes, since, although vaginitis—the discharge of which contains a large number of pyogenic organisms—is common in children, it is very rare for the inflammation to spread to the uterus or tubes.

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