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LECTURE XVI.

SCROFULA CONTINUED.

Scrofulous inflammation of mucous membranes, of the palate, nose, and lacrymal sac, of the bronchi and larynx; treatment; disease of the tonsils, treatment by local applications, by excision; Scrofulous inflammation of the bladder, extending along the ureters to the kidneys; the changes induced thereby; Scrofulous inflammation of the genital tubes, testicle, and prostate; formation of abscesses in the epididymis and testicles; changes in the lining membranes of the tubes; extension of the disease from one part of the genital system to the others; the importance of examining the whole tract when one organ is suspected; symptoms; treatment; castration; question of the liability to recurrence of disease in other parts; Scrofulous disease of the synovial membrane; the formation of spots and abscesses in the thickened membrane; subsequent affection of cartilages and bones; symptoms; treatment; question of amputation.

Tubercles; their near relation to scrofulous deposits; cause of their destructive influence; varieties; organs most frequently affected by them; association of scrofula and tubercle in the same persons.

The mucous membranes in various parts of the body are particularly subject to scrofulous inflammation, and that of the palate, nose, and throat, more so than any other. Some children are observed to suffer under continual cold, as their affection is called, with accumulation of mucus in the throat and nose, and a thick nasal voice. They snore a great deal and breathe with some difficulty, keeping the mouth always open. The mucous membrane of the throat and nose is in such cases reddish, swollen, and covered with glairy mucus; perhaps its surface is excoriated, or in the worst cases it may be covered with superficial ulcers. In summer these children get better, but in winter the complaint returns. Sometimes the inflammation extends along

the eustachian tube to the tympanum causing deafness. At others the soft palate becomes affected, the mucous membrane lining it is swollen and ulcerated; the ulceration may be communicated to the bones and clear away the hard palate and septum nasi, causing sad deformity; or the lining membrane of the alveolar sockets becoming swollen the teeth drop out without evincing any sign of decay, and the alveoli themselves ulcerate and necrose. Not long ago there was a man in Maynard's ward, in whom this scrofulous ulceration, commencing apparently in the mucous membrane, had cleared away all the palate, the septum nasi, and some of the alveoli, so that in looking into the mouth we could see quite up to the base of the skull. There was at the same time attending as out patient, another man whose gums were swollen, his teeth loosening and coming out one after another, and every now and then a piece of the alveolar process of the upper maxillary bone was necrosed and made its way through the gums.

Sometimes the affection commences and is seated chiefly in the mucous membrane of the nose, causing swelling of it with superficial ulceration, or the latter may extend more deeply so as to perforate the septum or destroy the spongy and ethmoid bones. The disease is now and then associated with polypus, that is to say, the chronic inflammation of the schneiderian membrane may lead to a polypose condition of it, but you must be careful not to mistake for a polypus the loose swollen membrane which, in consequence of its inflamed condition, hangs from the spongy bones into the nostril. The lining membrane of the lacrymal sac and canal is likely to become involved causing obstruction to the tears and watering of the eye; and unless early attention be paid to this disease, we have to fear the complete occlusion of the canal with the formation of lacrymal abscess and fistula, together with more or less caries of the adjacent bones. I may remark, that the disease of the bones here generally follows the inflammation of the mucous membrane, and the suppuration of the lacrymal sac, and may in most instances be prevented by a timely incision and the use of the style.

The mucous membrane of the respiratory apparatus may also be affected, either alone or conjointly with that of the nose and palate. Scrofulous children very often suffer from chronic bronchitis, attended with cough, "stoppage at the chest," wheezing, and the expectoration of frothy mucus. This goes on for a long time, but has no necessary connection with tubercles;

indeed, this affection commonly subsides as the child grows older, and the lungs resume their natural condition. It is well for you to beware of the nature of this scrofulous cough, and its independence of organic disease, otherwise you would be likely to give unnecessary alarm to the parents. It is a very troublesome complaint, and leads sometimes to dilatation of the smaller air tubes, and perhaps occasions permanent dyspnoea, but it is not often fatal. I have not observed that it has any very close connection with the emphysema which occurs in early life.

The scrofulous affection of the *larynx*, which takes place after puberty is a more serious affair. In the early stages it is attended with cough, expectoration, huskiness and weakness of the voice, with inability to speak clearly, these symptoms are most felt early in the morning and in damp weather. In course of time, the mucous membrane becomes thickened, indurated and uneven on its surface, giving rise to roughness or hoarseness of the voice, with difficulty of expectoration, stridulous breathing, and liability to choking, also to tenderness of the larynx so that slight pressure upon it causes cough. Numerous minute ulcers form upon the surface of the membrane, or larger ones extend deeply into it and attack the cartilages. This disease is frequently associated with tubercles in the lungs. The local treatment of it consists in the application of astringent solutions,—such as nitrate of silver,—by means of a sponge passed into the throat, or what I think more frequently gives relief, a seton placed near to the larynx.

I know scarcely any class of chronic inflammatory affections which are less amenable to treatment than this disease of the mucous membrane of the nose, palate, and respiratory apparatus, which I have been describing. The residence in a mild climate, or by the seaside is perhaps the most effectual means of combatting the disorder. Where this cannot be done we are obliged to be content with the measures which are most likely to improve the general health, adopted according to the rules which I laid down in a former lecture, and modified to meet the requirements of the particular case. Cold ablutions, more particularly the shower bath, have some influence in invigorating the system and diminishing the liability to suffer from changes of weather. You can try the application of astringent lotions to the inflamed membrane, but I must say that I have not seen much benefit from local applications of any kind. I ought perhaps to except the employment of setons and other forms of permanent counter-irritation, which are of some service, and should be employed in the worst cases, more particularly when the bones are beginning to suffer. In milder cases, after having resorted to the usual remedies, I am generally content with endeavouring to palliate the symptoms and rest in the hope, that as the patient grows older the system will acquire sufficient strength to throw off the disease.

The disease of the palate is sometimes preceded and attended by the formation of little grey spots in the tissue, dependent partly on the deposit of ill-organised

lymph, and partly also, perhaps, on the degeneration of the structure of the mucous membrane itself. These spots softening and bursting, become so many centres, from which the ulceration proceeds just in the same manner as in the corresponding disease of the skin, described in the last lecture. I have seen several of these cases, and I regret to say that I have not known decided benefit afforded by any of the various means of treatment adopted. In some the ulcers have spread into one another, till the whole palate has been involved, the bones destroyed, and the patient becoming weaker has sunk under the local disease and the accompanying constitutional debility. When the result has been more favourable, it has appeared to be due rather to change of abode and mode of life, or to the restorative powers of nature, than to any medicinal agency.

The tonsils are often enlarged in scrofulous persons, with or without accompanying inflammation of the mucous membrane. The disease seems to consist in a simple hypertrophy of the follicular basis, of which they are composed, without much alteration of structure. Sometimes they contain yellowish white spots, scattered through their substance, which look more as if they proceeded from discoloration of the tissue than from any new deposit into it. The tonsils thus enlarged are painless, and do not interfere with deglutition unless they are inflamed, but they alter the voice, and render the patient liable to sore throats, which are lingering and very distressing, sometimes even alarming, from the difficulty of breathing, occasioned by a lodgment of mucus in the narrowed passage of the fauces. On this account we are required to treat them. I have in some cases diligently persevered for months in the application of nitrate of silver and iodine, but I cannot say that the result was very satisfactory. As the child grows up, and more particularly after the period of puberty, they often diminish in size spontaneously; but if they are the cause of much trouble, it is worth while to remove them, which is very easily done with a probe-pointed bistoury and a vulsellum, provided the patient is old enough to exercise a little self-control, and does not resist the operator. In children the operation is very troublesome, and I am unwilling to resort to it on that account, and from the fear of bleeding. I once knew hæmorrhage take place to rather an alarming extent after the removal of a tonsil in a young man, but it ceased after a time, when he was kept quiet, with his head raised. In speaking of the removal of a tonsil—I mean that part of it which projects beyond the level of the pillars of the fauces—a portion of the gland is almost always left behind; and though I have heard the operation objected to on the ground that this remaining fragment is likely to enlarge, and have in consequence watched several cases for a considerable period, I have not known this to take place in any one.

The mucous membrane of the urinary and genital system is also very liable to inflammation in scrofulous persons. When affecting the bladder it forms a very troublesome complaint, giving rise to symptoms resembling those of stone, viz., frequent and painful

micturition, the pain being felt over the pubes as well as at the extremity of the penis; sometimes there is incontinence. The urine generally contains a good deal of mucus or pus, and is sometimes tinged with blood; it is not that tenacious, white of egg-like, ropy mucus, adhering to the bottom of the vessel, which we are in the habit of seeing in common catarrhal inflammation of the bladder, but it forms a loose, white, milky sediment, and contains, perhaps, soft white flakes of lymph: it is commonly alkaline, and there may be particles of phosphate or carbonate of lime in it.

If the bladder be examined where such symptoms have existed during life, the mucous membrane is found to be vascular, thickened, soft, and velvety. It may be covered with minute flakes, or an entire coating of lymph. Adhering to the lymph may be seen, as in this specimen, a white powdery substance, composed of carbonate and phosphate of lime. Sometimes the surface of the membrane is rough and excoriated, or the ulceration may have proceeded more deeply, and you may find several small circular ulcers, proceeding from central points of grey deposit, like tubercles, and running together, so as to form larger ulcers; or there may be, as you see in this specimen, a more extensive deposit of soft grey substance in the structure of the mucous membrane, and in the submucous tissue, with ulceration commencing at many points, and forming a large, ragged, dirty surface, resembling much the corresponding disease in the mucous membrane of the palate and in the skin.

Not uncommonly the inflammation is found to have extended along the lining membrane of the ureters up to the kidneys. Here is an instance where the ureter is enlarged nearly to the size of my little finger, and choked up with a soft, yellowish, white substance, so as to leave only a narrow channel down the middle, through which the urine continued to trickle. This condition extends quite up to the kidney, and you observe that the pelvis and calices are also much dilated, their lining membrane swollen, and covered with a soft white secretion, composed probably of diseased epithelial scales, mixed with a substance intermediate between pus and the lymph of scrofulous inflammation. There are also yellowish white spots in the substance of the swollen membrane. Some of these have softened, and their contents have been washed away, leaving small cavities, which look like ulcers. In the substance of the kidney are other spots and cavities, which may be sections of the urinary tubes, diseased in the same manner as the pelvis and calices, or they may result from independent deposits into the glandular structure of the organ. Some of the cavities are of considerable size, having been occasioned no doubt by the coalescence of smaller ones.

Here is another specimen where the pelvis and calices are enlarged in the same manner as in the last, and there is thickening, with ulceration of the mucous membrane; the glandular substance of the kidney is also studded with yellowish white spots, varying from the size of a pin's head to that of a pea. The larger ones are softened in the centre. In this

third specimen the disease has gone to such an extent, as to obliterate entirely all trace of the glandular structure of the organ. The capsule only remains, and the space which should be occupied by the kidney is filled up with white, crumbling, cheesy deposit. There is no appearance of softening having taken place to any great extent, and it is probable that the disease had been for some time in a quiescent state, or at any rate was not making very active progress.

Now, a precisely similar disease to that which I have been describing in the urinary tubes and kidneys, is of no uncommon occurrence in the genital tubes and testicle; moreover, the two sets of organs are frequently affected in the same person. The convoluted series of tubes at the two ends of the vasa deferentia, viz., the vesiculæ seminales in the one direction, and the epididymis in the other, are generally attacked first, and the disease extends from them to the adjacent glands, to the prostate from the former, and to the body of the testicle from the latter.

These two specimens, which I took from a patient who died in the hospital of phthisis not long ago, are a good illustration of the disease. In this the epididymis is seen to form an oblong knotty swelling, the convoluted tubes of which it is composed are distended with a soft white putty-like substance, the rete testis is indurated, and of a yellowish-white color, the same change having commenced in it, but the body of the testicle is healthy, with the exception of a few small white spots, like tubercles, in its hinder part. The vas deferens, where it leaves the epididymis, is large and knotty, but gradually resumes its natural size, and is continued so in its course into the pelvis. Here are the vesiculæ seminales and prostate from the same patient, and you see the vas deferens again enlarging as it descends; the vesiculæ seminales are swollen, their tubes being distended in consequence of the thickening of the lining membrane and the accumulation of soft putty-like substance in their interior. The section of the prostate gland shows it likewise to be the seat of yellowish-white deposit in several places.

As the disease advances the tubes become more distended, the scrofulous substance contained in them softens into a curdy fluid, with which some pus is intermixed; the lining membranes of the tubes become impregnated with the same substance, deposited in spots, or more generally infiltrated through their tissue. The membranes are in this manner destroyed, and the natural structure of the part is lost by the fusion of the tubes into cavities which, enlarged by the increasing accumulations in their interior, project from the epididymis into the loose tissue of the scrotum, surround the testicle, and at last burst through the skin, discharging their contents, and leaving sinuses. The sinuses thus made often remain open for months and years, forming channels of communication between the interior of the epididymis and the surface of the body. They discharge a thin fluid, in which spermatozoa may be sometimes found.

You observe that the disease consists not simply in the accumulation of scrofulous substance in the tubes,

but that the lining membrane of those tubes also undergoes a change. In this specimen, for instance, the smooth swollen membrane which lines one of these cavities formed in the epididymis, contains in its substance numerous small greyish spots, and these would, no doubt, in course of time, have softened and formed cavities or ulcers. I cannot tell whether these spots are occasioned by a distinct deposit in the swollen membrane, or whether they result from a degeneration of its structure. The examination of these and other instances of scrofulous disease, particularly when it affects synovial membranes, seems to show that the latter is often the case, for the spots appear to consist at first of a mere discoloration of the tissue, and to be united to it by continuity of structure.

The softening and formation of abscess takes place in the same manner in the prostate gland and vesiculæ seminales, though less frequently in the latter. The abscesses in the prostate make their way slowly through the perineum, and leave urinary fistulæ; or they burst into the urethra.

I produced to you just now a specimen in which, with much disorganisation of the epididymis, there were only a few spots like tubercles in the body of the testicle. In the one I now show you the disease has made its way into the latter so as quite to annihilate its glandular structure. The swollen lobules still remain distinct, and the septa between them were so free that they could be easily separated from one another, but the tubular character of the lobules is entirely lost, and each one is seen to be reduced to a homogeneous, friable, putty-like substance. Some of them were softened in the centre, their contents have escaped, and you see the cavities remaining. The epididymis is occupied by abscesses, some of which still contain a curdy fluid; others had burst through the scrotum. The vas deferens is as large as a goose quill, and is choked up with scrofulous substance. I removed this testicle from a man aged about 35, before I was acquainted with the pathology of the disease, and the extent to which it affects the whole system of genital tubes. I had subsequently reason to believe that the vesiculæ seminales, as well as the prostate, were involved, and the other testicle began to show signs of unsoundness. The case, together with what I have said respecting the usual progress of the disease, will impress upon you the necessity of examining so much of the genital apparatus as lies within your reach when any one part of it is affected; and you will often be able to confirm your diagnosis as to the presence of scrofulous inflammation in one organ by the condition of the others. For instance, when a patient presents the symptoms of this disease in the bladder, you should not fail to examine the testicles, particularly observing the state of the epididymis; you should also pass the finger into the rectum to ascertain the condition of the prostate gland and the vesiculæ seminales.

The scrofulous disease of the testicle which I have been describing is of common occurrence. Sometimes it occurs as the remnant of acute epididymitis, but more frequently it begins insidiously, and proceeds with

little or no pain. A patient applies to you in consequence of enlargement of his testicle, which is attended with some uneasiness in the part, and some aching in the loins. You find the epididymis enlarged, with soft swellings, perhaps, projecting from it; the vas deferens may be also large and knotty. At first you can distinguish that the body of the testicle is healthy, but it subsequently ceases to be so, or it becomes so lost in the swollen epididymis that you can gain no information respecting it. You will not, in such a case, forget to examine the other testicle, the vesiculæ seminales, and the prostate, and to inquire into the condition of the urine and the state of the bladder.

The several cases which have been, and now are, attending at the hospital, have given you reason to know that the scrofulous affection of the urinary and genital system, particularly of the testicle, is by no means more easy to cure than the other forms of scrofula. In some of those cases we have tried a variety of remedies without any apparent advantage. In truth, it is generally accompanied by fewer indications of treatment than most other scrofulous affections, and, though like them, associated with want of vigour of the nutritive functions, it is, I think, less commonly accompanied by the symptoms of disorder of the digestive system. You will find it a rule, with exceptions no doubt, that the scrofulous cases which are devoid of that accompaniment, are the most difficult to cure, because they are the most directly and completely dependent upon the constitutional defect. The measures most conducive to the general health must be tried, such as simple and nutritious diet, fresh air, and tonic medicines. The application of a solution or ointment of iodine, so as to produce slight irritation of the scrotum, may do some good. The internal administration of iodine and cod-liver oil are also sometimes beneficial. There is no doubt that many of these cases get well as the patients become stronger; we may, therefore, encourage them with the prospect of a cure, though we are unable by any direct means to contribute very greatly to it.

The prospect of acute inflammation degenerating into this tedious and destructive chronic disease, will make us especially anxious to arrest the disorder quickly when called upon to treat the common "hernia humoralis" in persons of delicate scrofulous habit. We shall be careful that no traces of it are allowed to linger behind, especially as in the debilitated state to which the patient is reduced by an acute attack the organ is often slow to recover its natural condition, and if the antiphlogistic treatment, with confinement to bed, be continued too long, the chronic disorder may not unlikely be engendered.

We are sometimes called upon to consider the question of the removal of the organ. It is seldom imperatively necessary to do this, but when the disease has so destroyed the natural structure of the organ as to render the restoration of its function improbable, it is advisable to remove that which has become a mere burthen and source of annoyance, especially if the patient be confined to bed in consequence of it, and his

strength is being weakened by the successive formation and bursting of abscesses, and by the discharge from them. I do not think that the existence of the disease in other parts of the genital system is of itself sufficient to preclude an operation, because in the cases which I have seen, the removal of the one testicle has not been followed by an increase of the disease in the other, but on the contrary the remaining organ has appeared to fare rather better, and to recover more quickly. The experience of one person, however, cannot furnish sufficient data for the decision of such a point as this.

There is one other circumstance which I must mention to you before dismissing this subject of the scrofulous disease of the testicle, and that is its frequent association with phthisis pulmonalis. This has happened in about one half of the cases I have seen.

In the scrofulous disease of the bladder, especially when the urine is alkaline, small doses of the mineral acids, given in bitter infusions, are often productive of benefit; also iodine, in the form of the iodide of potassium, and the preparations of steel. It is very important to rectify any disorder of the digestive organs that may accompany it, for all the inflammatory affections of the bladder are much influenced by the state of the stomach, and care in diet must be strictly enforced. If, in spite of these precautions and remedies the disease still lingers, or shows a disposition to increase or spread to other parts, you had better adopt some permanent counter-irritation, such as an open blister, or, still better, a seton above the pubes or in the loins.

The genital organs in the female are also liable to scrofulous inflammation. There may be deposit of lymph and abscess in the ovary, but that is not common. The Fallopian tubes are more frequently the seat of this disease. Here you see a specimen where those tubes are lengthened, contorted, and greatly enlarged. They increase in size towards their free extremities, which were adherent to the surrounding parts. The mucous membrane lining them is much swollen, and of a yellowish-white color, having undergone the same change as the mucous membranes of the ureters and vasa deferentia in the specimens I just showed you. The tubes also contain some soft scrofulous matter. The uterus itself is healthy, though of small size. Here is another remarkably small uterus taken from a person who was of a scrofulous constitution. This disease of the Fallopian tubes, though existing in a much slighter degree than in the specimen before you, would be likely to occasion sterility.

The scrofulous disease of the *synovial membrane* is the most common cause of white swelling of a joint. In the early stage the membrane is merely thickened, has a somewhat granular appearance, and is semi-opaque, of pale colour, with a brownish or reddish tinge. Soon it is found to be mottled with white spots of various sizes, scattered more or less thickly through it; sometimes they look like mere minute specks, at others they consist of a discoloration of considerable portions of the thickened membrane. As I have before said, these spots seem to depend rather upon a change taking place in the structure of the already diseased

membrane than upon any fresh deposit into it. However this may be, they frequently soften into a white curdy fluid, become connected with one another in the same manner as small abscesses do in other parts, and either burst externally or find their way into the cavity of the joint.

This remarkable specimen of the disease was removed in the hospital, five or six years ago, from a young man of scrofulous constitution. The knee was greatly swollen, but not very painful or tender; he could move it, but could not raise the limb from the bed, or bear the slightest weight upon it. The synovial membrane is thickened to an enormous extent, especially where it forms the cul de sac above the patella, and in other situations where it is naturally loose and folded. It is of a pale semi-opaque colour like brawn, and there are numberless white spots in its substance. Some of these have softened, forming cavities which contain a turbid fluid. These cavities have no distinct lining membrane, being mere hollows in the thickened synovial structure. There are other larger cavities formed by the confluence of the smaller ones. The cartilages remain quite healthy, the ligaments are merely somewhat stretched, and the tissues in immediate contact with the synovial membrane had not undergone any change or even acquired preternatural adhesion to it.

It sometimes happens that, instead of the grey spots in the substance of the thickened membrane or in company with them, a deposit of soft curdy substance takes place upon the interior of the joint. When this deposit is washed away the surface of the synovial membrane is found to have lost its polish; perhaps it is studded with the grey spots, or is more or less ulcerated in places. These ulcers, making their way through the membrane, give rise to disease of the bone at the margins of the articular cartilages as well as to abscesses which burst externally. Even in the cases where the disease proceeds chiefly from the interior of the joint, the cartilages are often not much diseased. Sometimes, however, they are ulcerated or holes are formed in them by the pressure of projecting processes of synovial membrane which induces absorption of them,* or they become loosened from the bone beneath and undergo absorption in that direction.

This disease attacks most frequently the knee, the ankle, the elbow, and the wrist joints.

In the ordinary cases of white swelling, where the disease is not associated with a scrofulous habit of body, the synovial membrane becomes thickened, pulpy, and of brownish color, but it is not affected with

* I am aware that a difference of opinion exists respecting the mode by which these holes connected with projecting processes of synovial membrane are occasioned. Some pathologists, observing the accuracy with which the cavities are filled by the synovial processes, imagine that these latter are the active agents in the work of destruction, that they encroach upon, and eat away, the surface of the cartilage, and so form cavities which are exactly suited to themselves. Others conceive that the synovial processes merely project into and fill up the vacancies occasioned by ulceration which is the result of an active process going on in the cartilage itself. Probably, the truth lies between the two opinions, the absorption or ulceration taking place in the inflamed and softened cartilage, and being induced in it at particular points by the pressure of the synovial membrane. The latter is the excitor, though not strictly the agent in the work of destruction.

spots and the formation of cavities in its substance. The ulceration of the cartilages also forms a more prominent feature and is attended with more marked symptoms.

The chief and often the only early symptom of this scrofulous disease in a joint is the swelling, which is soon attended with more or less stiffness, and some uneasiness or even pain. You will be surprised how little suffering is in many cases occasioned by the disease, even when it is advancing to its more destructive stages. I do not know any sure signs by which you can discover what are the precise changes in the synovial membrane. The feeling of fluctuation is so deceptive that it is not easy to distinguish whether the swelling of the joint depends upon thickening of the membrane or effusion into the synovial cavity. Still less can you decide with any certainty as to the presence of the white spots I have so often mentioned in the thickened membrane, though you may form some conjecture respecting them from the constitutional predisposition of the patient. Even in the latter stages of the disease when an abscess comes forwards and bursts, it is not easy to decide whether it originated in the substance of the thickened membrane or whether it proceeded from the interior of the joint. Happily this accuracy of diagnosis is not very important with regard to the treatment, for in instituting that we must be guided as to the particular remedies to be employed by the state of the patient's health and the general condition of the joint.

I think it is very important that the patient should not be confined to bed or to the house, more than is absolutely necessary; for I am quite certain that the local disease is often much aggravated in consequence of the injury to the health occasioned by close confinement. At the same time, it is important that the joint should be kept quiet when it is at all tender, painful, or uneasy after exertion. To secure this it is a good plan to fix and support the joint by means of bandages, plasters, and leather or gutta percha splints, while the patient is allowed to go out upon crutches. The tincture or ointment of iodine applied every night and morning, so as to produce some irritation of the skin, but not sufficient to prevent the limb being bandaged during the day, is one of the best local applications. It may be alternated with other stimulating liniments, with blisters, or, in slight cases, with the cold douche. When abscesses form I generally allow them to burst, because their contents are thus discharged more freely and the slight loss of skin occasioned thereby is not very important.

I have tried the cod-liver oil in many of these cases,—in a few with decided advantage, but in many instances it seemed to do no good. I cannot say that I have found iodine administered internally of much service in this disease.

The question of amputation is to be entertained when the destruction involving the cartilages and bones has gone to such an extent as to leave little prospect of the restoration of a useful joint, or when the health is beginning to fail under the confinement and irritation occasioned by the local disease. You must beware of delaying the operation too long, or of attempting it

when the bodily powers (naturally feeble) are reduced to a low ebb; for, if that be done, the wound will not heal, or any slight cause, such as a cold, or an attack of diarrhoea, will be sufficient to disturb the reparative processes, to occasion the re-opening of the wound, and may give a fatal termination to the case. It is an interesting matter to decide what influence upon the future health of the patient is likely to be produced by the removal of a limb affected with scrofula; also, whether the disease is to be looked for in other parts of the body with greater probability than if the primary affection had been allowed to remain. I do not profess to have had the experience necessary to enable me to venture a decided opinion upon such points as these, and I only state my general impression that the removal of scrofulous limbs does not impair, but on the contrary, rather improves the general health, and that it does not render the patient more liable to the occurrence of scrofulous inflammation in other regions.

If you have studied the pathology of *tubercles* at all you cannot have failed to remark their close apparent resemblance to those little deposits of ill organised lymph I have been speaking about, which form a prominent feature in scrofulous disease, occasioning so much destruction of tissue, and giving rise to the formation of ulcers, in consequence of the softening and suppuration they have a tendency to undergo. It is probable, I think, that the relation between tubercles and these deposits of scrofulous lymph is not one of mere external resemblance, but that they are in their real nature and essence very closely allied.

A tubercle consists of a small mass of heterogenous substance interstitially placed with regard to the tissues in which it is embedded. It does not increase to any great size, but it softens and suppurates, destroying at the same time the tissue involved with it, and so forms a cavity. The contents of this cavity, increasing like those of an abscess formed in any other manner, occasion absorption or ulceration of the structures intervening between them and the surface, and are discharged. About the time that the softening commences, inflammation is set up, and lymph effused in the circumference of the tubercle, walling it in, and forming the lining of the cavity. The destructive effects of tubercles depend not upon the ability of each one to attain to a great size, and, like a cancerous growth, to go on spreading at one part while it is softening at another, but upon their disposition to occur in considerable numbers, all of them running the same course, and forming cavities, which coalesce into larger ones, and so make great havoc, sometimes hollowing out, as in this specimen, the entire substance of the lung. An individual tubercle, when it has softened and burst, has done its worst; the cavity left by it is lined with the common lymph of inflammation, which would contract and cicatrize, and there would be an end of the matter, did not other tubercles exist in the neighbourhood undergoing the same changes, bursting into this cavity, and continuing the work which the first had begun.

When I suggest that tubercles are nearly related to the scrofulous deposits which I have described to you in this and the former lectures, I do not mean to intimate that they are dependent entirely upon inflammation, or that they consist of masses of lymph strictly so called, for there is often, indeed commonly, no evidence of their being preceded or accompanied in their first stages by any inflammation; and you remember that according to our definition made on a former occasion, lymph is effused fibrin altered by the inflammatory process; but I mean, that they probably consist of some of the imperfectly elaborated components of the blood, the albumen or the fibrin, changed, it may be, in some manner, and effused among the tissues. These remarks apply also in some measure to the scrofulous deposits, which are often preceded by no signs of inflammation, and which sometimes seem rather to excite than to depend upon that process.

Both in the scrofulous and tuberculous subject, particularly the latter, when genuine acute inflammation is induced, the effused lymph, partakes more nearly of its ordinary or healthy characters. Sometimes, however, even then, it has the constitutional defect impressed upon it, giving rise to what is called tuberculous and scrofulous infiltration, which is not always confined to small spots and masses, but may extend through a considerable space.

The degree in which tubercles differ from the ordinary scrofulous deposits varies according to the constitution and age of the patient. In the young, light complexioned, delicate patient, who presents the signs of the scrofulous diathesis most strongly, the tubercles are from the first large, of yellowish-white colour, and cheesy consistence, closely resembling, in short, the common scrofulous deposits; so closely, that the one can scarcely be distinguished from the other. They are attended with inflammation in an early stage, soften quickly, and run their course in a comparatively short period. In older patients, and in the dark-haired, thin, active persons, who exhibit fewer traces of a scrofulous habit, the tubercles are at first much smaller and harder, forming little semi-opaque horny grains, which easily escape notice; these have been called miliary tubercles. They are slower in their changes, remaining sometimes quiescent, or advancing but little for months. In their progress they increase a little in size, become more opaque, of white or yellowish-white colour, so as to resemble those last described, and then gradually soften and form cavities. These miliary tubercles have been thought to form the early stage of those first mentioned, and so, no doubt, they often do, but the large white tubercles are very frequently found presenting their own distinctive characters from their first commencement in the class of persons I have mentioned.

The softening of tubercles, though generally accompanied by some inflammation and deposition of lymph in their circumference, is in all probability independent of that inflammation, or rather may be regarded as its exciting cause. It seems to depend upon some quality inherent in the tubercles themselves; often it begins in the centre, and forms a cavity there, so that when the

tubercle is opened it looks like the divided end of a tube. This appearance has given rise to the mistaken notion entertained by Carswell and some other pathologists, that tubercles of the lungs consist in a concentric deposit within the minute bronchial tubes.

Tubercles, and as I have just said, the small grey miliary tubercles particularly, sometimes fall into a quiescent state, become dry, and the surrounding pulmonary tissue loses its increased vascularity. Even after softening has commenced they sometimes retrograde, drying up, and undergoing calcareous transformation, while the lymph effused into the surrounding pulmonary tissue contracts upon them, and gives rise to a puckered appearance, like a cicatrix. We often find in old persons these traces of the tuberculous disease of early life. Whether they are ever absorbed in the early stages, and disappear entirely, so as to be quite cured, is uncertain, though it is probable that they do so.

The lungs are more frequently the seat of tubercles than any other organ of the body, and the distinctive characters of the morbid product are most clearly marked in them. On the peritoneum also, they are of common occurrence, both the small, hard, grey tubercles, and especially the large, soft, white ones, which have a near resemblance to scrofulous deposit, and which, as I have just intimated, seem to form the connecting link between tubercle and scrofula. In the liver, spleen, and brain, tubercles are less common, and approximate still more closely to scrofulous masses; and in the absorbent glands, the skin, and the bones, the deposit which I have described as the result of scrofulous inflammation, is by many pathologists ranked under the head of tubercle.

I do not think that persons who suffer from scrofula are much more liable to tuberculous phthisis than others. This is scarcely to be considered an argument against the supposition of the two diseases being very nearly allied, and is no more remarkable than the fact that each of them is so frequently confined to a particular organ, or a particular class of tissues. Tubercles are often found only in the lungs, and I told you on a former occasion that scrofulous affections are very commonly limited either to the absorbent glands, the skin, or the bones, in individual cases. Even if tubercle and scrofula be *identical*, each deriving its peculiarities from some quality of the organ affected, it is no wonder that the two are not found to coexist more frequently.

I have already mentioned that the scrofulous disease of the testicle is very often associated with tubercles in the lungs, and I have observed that the same is true of scrofulous abscesses on the thorax connected with disease of the ribs. There are patients at the hospital at the present time whose cases illustrate the truth of this remark. It is also a general impression, and, I think, a well-founded one, that patients who, in early life, were troubled with scrofulous affections, are, after the age of puberty when the disease of their childhood has passed away, very liable to fall victims to tuberculous disorganisation of one or other of the internal organs.