Observations

ON

DIAGNOSTIC AND OTHER ERRORS IN QUESTIONS OF VENEREAL DISEASE.*

BY

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THE subject of this paper was suggested to me by a run of such cases as the following.

A man of good position asked me to examine him for gonorrhoea. He said that a year previously he had contracted gonorrhoea, which had cleared up completely without any complication. About three months before I saw him he had married, after passing careful tests by a conscientious specialist. A month after marriage his wife developed a Bartholinian abscess, and on the strength of this the husband was told that he had infected his wife with gonorrhoea. You can imagine his distress. I examined him three times and failed to find any evidence of disease in his urethra or adnexa. A complement fixation test for a gonococcal infection carried out by Dr. Osmond gave a completely negative reaction, and I had no hesitation in saying that he was not suffering from gonorrhoea. On my advice, his wife was seen by Dr. Margaret Rorke, who reported that she could find absolutely no sign of gonorrhoea, and that the bacteriological tests strongly suggested a *B. coli* infection as the cause of the Bartholinian abscess.

You will realize that there were the makings of a marriage wreck in this history, and all from the assumption that a Bartholinian abscess spells gonorrhoea, from failure to make bacteriological tests of the abscess pus, or to examine other parts of the genito-urinary passages for confirmation of the suspicion.

In the course of a few years a specialist in venereal diseases meets a respectable number of cases in which mistakes in diagnosis have been made through failure to take even a little trouble over examination of the patient, and the consequences are often so distressing to the patient, so full of possibilities for wreckage of domestic happiness, that I thought it would not be a bad thing to make some of them the subject of a contribution to the proceedings of this Section. Fearing lest I should omit mention of some important errors, I asked my colleagues in the St. Thomas's Hospital Venereal Diseases Department to give me the benefit of their experiences in this matter, and I am indebted to them for some which I should probably have overlooked.

In questions of gonorrhoea it may sound surprising, but ordinary balanitis is sometimes diagnosed as gonorrhoea. I remember a case in which the mother of a boy at a public school was requested to remove him because the school doctor said he had gonorrhoea. He had simple balanitis. Dislike of examining the penis at close quarters must account for numbers of cases commonly seen in which a syphilitic chancre at the meatus or within the fossa navicularis has been diagnosed as gonorrhoea. It is quite a common thing to see cases of tertiary syphilis in which the patient denies any history of a sore, but admits gonorrhoea. I cannot help thinking that in a number of these, in which the patient says that the discharge was only slight and rather watery, the trouble was due to an intra-urethral chancre. The omission of a microscopical examination leads to many cases of urethritis which are due to chemical causes, to constitutional disturbance, or to infection with diphtheroids, staphylococci, streptococci, *B. coli*, or organisms other than gonococci, being treated as gonorrhoea with potassium permanganate irrigations or with one of the fifty-odd preparations of silver which have been put on the market for this complaint. Sometimes a microscopical examination has been made, but only a simple stain has been employed, and a few streptococci inside pus cells have been diagnosed as gonococci. Sometimes a so-called Gram's stain has been used, but the violet has been dissolved out of Gram-positive cocci by prolonged application of methylated spirit, and the process of conversion of Gram-positive

cocci into seemingly Gram-negative ones has been completed by a prolonged application of such a stain as carbolfuchsin.

On the female side vaginal discharges due to a multitude of causes other than gonococcal are commonly diagnosed as gonorrhoea. On the other hand, I have known scores of cases in which a woman who has clearly infected a patient has gone to a practitioner and been passed as free from gonorrhoea on the strength of one naked-eye examination, or at most a single microscopical test. It has been forgotten that a cervical canal may be swarming with gonococci without a pus cell being present, or that gonococci may only intermittently come to the surface of the cervical canal, and that not one but many examinations are necessary to exclude gonorrhoea in a woman.

I have seen a number of cases in which the sudden appearance of a urethral discharge, due to the breaking open of a prostatic abscess which has formed quietly, has been diagnosed as gonorrhoea solely on the appearance of the discharge, or on badly stained microscopical specimens. Most of the cases have been in married men who, for one reason or another, had for some time suspended sexual intercourse. I imagine that their prostates had for years been secreting pus, but sexual intercourse had kept the foci draining. The micro-organisms have been in different cases staphylococci, *B. coli*, *B. lactis aerogenes*, *B. pyocyaneus*, *B. proteus*, and others, but not gonococci. One would think that in such a case common sense would dictate a microscopical examination of the pus; and, if the patient is married, as he often is, one might think it not a bad idea to make an inquiry as to the wife's condition before thrusting the patient into hell with a diagnosis of gonorrhoea. It may be worth mention here that a non-gonococcal prostatitis can cause symptoms which simulate typhoid, and I have known of some cases being treated for this disease even after the abscess has burst.

Epididymitis, especially if accompanied by a urethral discharge, seems often to write the word gonorrhoea in the practitioner's mind to the exclusion of every other possible diagnosis—for example, an infection with *B. coli*, or even *B. tuberculosis*. Yet only a few more minutes spent over the examination would serve to avoid the error if the case is not gonococcal. I have known some cases of right-sided gonococcal epididymitis diagnosed as appendicitis. The patient suddenly had an acute pain in his right iliac fossa, his temperature went up to 103° or 104° F., and perhaps he vomited. But his right rectus was not rigid, he did not look like an appendix case, and pressure on his cord as it crossed the ischio-pubic ramus caused very severe pain. By these signs, when I was in charge of a very large number of in-patients suffering from gonorrhoea, I saved quite a number of innocent appendices from removal and had none of general peritonitis.

In cases of arthritis, iritis, and similar troubles often classed as gonorrhoeal, microscopical and cultural tests often fail to discover the gonococcus, and the complement fixation test with a gonococcal antigen is negative. On the other hand, my colleagues and I have seen a fair number of cases of gonococcal arthritis soaked with salicylates, or with potassium iodide, gonorrhoea not having been thought of, or having been excluded on the score of naked-eye examinations.

I owe much to the help of the microscope, to the culture tube containing a properly made medium, and to the complement fixation test. Properly used they save one from many pitfalls. They do not dispense with ordinary clinical tests, but to deny oneself their help is to walk blindfolded.

Turning now to cases of chronic gonorrhoea, I think the number of innocent prostates and seminal vesicles which have been massaged for trouble which a careful examination would have localized in the anterior urethra must be many thousands. Sometimes it is because in the textbook it says that prostatic massage will often clear up a chronic case of gonorrhoea, and so, without further examination, the prostate is massaged. Sometimes a specimen of prostatic secretion is examined, but it has flowed along a urethra cleansed only partially with a stream of urine, not previously washed down by irrigation as it should be, and so the prostatic secretion contaminated with pus picked up in the urethra has been found to be pathological.

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Omission of a urethroscopical examination leads often enough to months of treatment which a touch with a cautery point on one discharging follicle would clear up in a few days. Sometimes I have destroyed a small para-urethral canal and so ended a chronic urethritis which has kept a patient miserable for years.

Chronic urethritis is notoriously difficult to clear up, but I am certain that, if more pains were taken to examine and no method of examination omitted—microscopically, cultural, complement fixation, naked-eye inspection both outside and inside, as well as palpation with fingers and through the medium of instruments—much unhappiness of patients would be avoided. And a patient with a chronic urethritis is generally an unhappy man, far more so than one with a chronic catarrh of the nose or bronchi, and it is important to cure his urethritis even though it may not be physically of any moment.

In questions of syphilitic infection, I would mention first the pernicious practice of commencing the treatment of early cases on mere suspicion—to give the patient the benefit of the doubt as is often said. Those who commence treatment on such principles without having verified the diagnosis by bacteriological methods cannot have much imagination of the effect of a diagnosis of syphilis on the patient's mind. Every syphilologist must have seen numbers of cases in which the patient gave a history of a genital sore which was not examined microscopically, and on the strength perhaps of what was called a weakly positive reaction, or even without any blood test at all, treatment was commenced. The history has left one with a very considerable doubt as to the correctness of the diagnosis, but in most cases one has not dared now to suspend the treatment because the negative reactions might be due to the treatment already given, even though this has been trivial. In some cases, however, I have been so convinced that the original diagnosis was wrong that I have suspended treatment. The reactions have remained negative, but the patient has not been freed of anxiety about his future; he has continued to be tested regularly, and when he has married, if one of his babies has snuffled a little, had a rash of any description, or any ailment whatever, he has worried over the possibility that I was wrong and that he had after all transmitted the disease to his offspring. The pitiable condition of his mind is due to the fault of the original man who commenced treatment to give him the benefit of the doubt. There need be no doubt. With bacteriological aids properly employed the diagnosis of an early case can be made with certainty, and, as a rule, rapidly. Promptitude in commencing the treatment of an early case is certainly important, but I am sure that it is not so important as certainty of diagnosis.

I have mentioned diagnosis on the strength of a serum reaction which is called "weakly positive." In the *Journal of the American Medical Association*, 1926 (vol. 87, p. 1351), there appeared an article by J. H. Mitchell entitled "Menace of the slightly positive Wassermann reaction," with which I am entirely in sympathy. The author related cases in which a false diagnosis of syphilis had been made on the flimsy evidence of a weakly positive Wassermann reaction alone, or in conjunction with some non-specific dermatosis having a superficial resemblance to syphilis, such as pityriasis rosea or lichen ruber planus. The result had been the firm establishment of that intractable disease syphilophobia. Sometimes marriage engagements had been broken, and at others divorce proceedings been instituted, in consequence of a dishonest or an ill-trained practitioner founding a diagnosis of syphilis on such a reaction. I am sure that every syphilologist of standing could relate similar cases, and I am convinced that the term "weakly positive" should never be applied to any reaction which is weaker than the pathologist's standard for a diagnosis of syphilis. I have always maintained that, for reactions which the pathologist considers insufficiently strong for a diagnosis of syphilis, the term "doubtful" should be employed, and if I got a report that a specimen gave a "weakly positive reaction," I should ask the pathologist if he meant by it such a reaction as is given only by syphilitic serums or one given sometimes by non-syphilitic.

A false diagnosis of syphilis is sometimes based on a

single positive reaction with clinical signs which are only faintly suspicious. As an example I have in mind a patient I once saw who had been diagnosed as syphilitic on the strength of an ulcer on the lip and a single positive reaction. No *Sp. pallida* had been found in the secretion from the ulcer, there was no adenitis, and the whole history made a diagnosis of syphilis only the faintest possibility. The patient had attempted suicide after being told he was suffering from syphilis. Another specimen of serum was sent to be tested in the same laboratory and this time was reported as negative. I have always taught that, if a report that a serum reaction is positive is not supported by the clinical data, another specimen of blood should be sent. It is no disparagement of the care taken in laboratories to prevent errors to say that every now and again one will occur; specimens may be confused, a dose of complement may be omitted from a standard tube, a piece of cigarette ash may fall into a standard tube, or a number of other little things may happen which result in a normal serum being reported as positive. Such accidents do not happen once in a thousand tests, but, when they do happen, be sure it will be the specimen in which it is most important that no mistake should be made. If I have the least doubt of a result, I have another specimen tested.

As a good example of a mistake which can happen from jumping to conclusions from a naked-eye examination the following was related to me by my colleague Dr. Anwyl Davies. A person was sent to him with a diagnosis of primary sore on the penis and a secondary rash on the abdomen. Examination showed an oval ulcer on the glans penis with a tender inguinal gland. There was an erythematous rash on the abdomen below the umbilicus, and the combination might easily have been mistaken for syphilis. A prolonged search failed to discover *Sp. pallida* in the secretions, and close questioning revealed that in treating honeycombs with a chemical called "beemol," used to prevent Isle of Wight disease, some had dripped on to his waistcoat and passed through this to his skin. The subsequent history proved this to be the correct explanation of the lesions.

The mention of chemicals reminds one that a very fair imitation of a primary sore can be produced by self-applied caustic stick, and a burn of a lip by a cigarette has been diagnosed as a mucous patch. I once spent an afternoon on a medical board cleansing the record of an officer who had been diagnosed as syphilitic and had protested. The diagnosis had rested on what was said to be a mucous patch on the posterior pharyngeal wall. There was absolutely no evidence of syphilis, but there was a narrow stream of mucus stealing down the middle of the posterior pharyngeal wall, and with only a little book-learning for guidance one might have said it was a snail-track ulcer. Of other conditions in the throat Vincent's angina and diphtheria are, of course, common sources of error.

Scabietic runs on the glans penis are quite commonly diagnosed as primary chancres, especially if they have become a little crusted, and, on the other hand, a cervical chancre on the cervix is sometimes diagnosed as a gonorrhoeal erosion.

Warty conditions about the genitals are a great source of error. Numbers of cases of syphilitic condyloma have been treated for weeks with an ointment suitable for haemorrhoids. Sometimes the patient has not even been examined, and the ointment has been prescribed on the patient's request for "something for piles." On the other hand, many warty conditions have been diagnosed as syphilitic because presumably they were warts, and syphilitic condylomata are warts. In most of these cases, apart from the fact that a careful examination is usually sufficient to distinguish a syphilitic condition from a non-syphilitic, a microscopical examination of the serum from any early syphilitic lesion will usually settle the matter.

Perhaps a less serious error is to diagnose every syphilitic lesion on the genitals as a primary ulcer. It may be awkward then if the patient relates a history of syphilis a few years old and, the lesion being really a gumma, the serum reactions stubbornly remain positive.

Extragenital chancres are commonly overlooked. I have known of a tonsil which was the seat of a chancre being enucleated and the same patient being sent later to a fever

hospital for German measles, the true diagnosis being reached only when the eruption did not clear up in the time usual for measles. Chancres of a terminal phalanx are usually diagnosed as whitlow until a rash appears. The worst error of this kind I ever saw was in a medical officer who was looking after syphilis cases during the war. He allowed his finger to be treated for whitlow, and his tonsils to be cauterized for ulcers, and then went peacefully to hospital for measles. It dawned on him that he had accidentally contracted syphilis, when the measles rash was succeeded by a profuse papular syphilide.

The error of excluding syphilis may be made from the absence of any history of a primary sore. A rather remarkable case of this kind was a nurse who pricked her finger in cleaning up after an operation. She dipped the finger in antiseptic, and no sore appeared, as I have known to happen after the application of an antiseptic in other cases. An axillary adenitis appeared on the side of the pricked finger, and it was diagnosed as tuberculous. Subsequently a general, rather painful adenopathy appeared, and she was treated with ultra-violet rays about three months after the accident. The application of the rays was followed by a rash, which was said to be due to an overdose, but a significant thing was a discoloration of the neck, which appeared at the same time, and was easily recognizable fifteen months later, when we first saw her, as a syphilitic leucoderma. This dated the infection. Naturally, all other sources of infection were excluded by careful examination.

A common mistake is to assume that in a patient with positive serum reactions all abnormalities are themselves syphilitic.

An unusual case was one in which a patient came to me with a history that he had been treated for secondary lesions between the toes. He had previously suffered from a gumma on the chest wall, but the peculiarity of secondary lesions succeeding tertiary did not seem to have struck his medical adviser. He had received a course of treatment, but the lesions remained unaffected, so the patient thought he was not being properly treated. A little examination showed that the trouble was due to trauma, and from one of the sores between the toes I picked out a small spicule, which I could not understand until the patient told me he used a loofah in cleansing his feet.

Tertiary syphilis of the tongue has led to many epitheliomata there being overlooked, and I would caution against being misled by a temporary improvement following administration of arsenobenzene preparations in these cases. The tendency to regard all lesions on the genitals as venereal in origin sometimes leads to an epithelioma of the penis being diagnosed as gumma.

Gummata of the testicle have fairly often been removed under a diagnosis of new growth. In one case which I remember I feel sure that the practitioner and also the pathologist were misled by the blameless life of the patient, and it was not until many months later, when an undoubted gumma occurred elsewhere, that the blood was tested.

I think the tendency in nervous diseases is to think of syphilis and in cardio-vascular disease to forget it. At least quite a number of cases of nervous disease due to causes other than syphilis have been sent to me for treatment, and I have seen a fair number of cases of syphilitic myocarditis in which I wished my predecessors had thought of syphilis earlier and left me with less of a wreck to treat.

In questions of treatment it is always a source of wonder to me that there are so many people who give only partial treatment if there has been a doubt about the diagnosis. They would probably agree at once that a thing cannot both be and not be, but yet they act as if it could.

In patients under antisyphilitic treatment failure to diagnose certain skin rashes as due to arsenic and continuance of the treatment has led to most tragic results; so much so that one would emphasize with all one's strength the advice to take serious notice of any dermatosis in a patient undergoing arsenobenzene treatment, however trivial the skin affection may seem. One should consider most seriously whether or not this is arsenical, and decide on continuance of this form of treatment only on firm conviction that it is not. Otherwise the result may be a dermatitis from which the patient may die, or recover only after a long and trying illness. I ought to mention here that bismuth sometimes causes a troublesome dermatitis, though it is very uncommonly so acute as can be one due to arsenobenzene.

I have thus attempted to set out some of the commoner errors in diagnosis in questions of venereal disease. The subject could be expanded to far greater length, but even if space would permit of this the result would only emphasize still more the principle that, in venereal diseases as in others, one must look for and gather all the evidence which will bear on the diagnosis. And, having gathered the evidence, one must sift it with judgement and common sense. If this discussion leads to some reduction in the wretched victims of wrong diagnoses—the poor devils who go through life under the shadow of an anxiety for which there is no real reason—it will have done some good.

THE PRESENT POSITION OF SILICOSIS IN INDUSTRY IN BRITAIN.*

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DURING the last two decades the subject of silicosis has become increasingly popular as a topic for contributions to medical literature, and the treatment of the subject has been undertaken from so many different angles that it seems to be an act of supererogation to return to this topic at the present time. There are, however, one or two aspects of the subject which I have felt should be brought directly to the notice of the medical profession, and these are concerned with (1) the occurrence of the disease in the various industries throughout this country; (2) the manifestations of the disease as it presents itself to medical practitioners; and (3) the legislation which has been brought into being within recent years.

For the purposes of this paper I will assume a general knowledge of the etiology, symptomatology, and pathology of the disease, but those who have made a special study of the subject will pardon me if I review briefly a few points on this aspect of the subject.

ETIOLOGY.

Silicosis is produced by the inhalation of particles of silica breathed in with the atmospheric air in the course of a person's employment. In silicosis, properly so-called, the silica is in the form of free dioxide of silicon (SiO_2), in the form of quartz, flint, chert, etc. The particles to produce the disease must be inhaled into the ultimate pulmonary tissue—that is to say, into the alveoli—and must therefore be of a degree of minuteness which will permit of their free passage in the mid-current of the air through the upper respiratory passages and the finest bronchial tubes. Many of the particles return with the expired air, but a proportion of them will adhere to the alveolar walls, as well as to the walls of the bronchi. In the latter case particles are caught in the mucus and removed by the action of the cilia. Those particles which fall on the walls of the alveoli are taken up by phagocytes, which move towards the lymph channels and interspaces in an effort to remove the silica. Where the amount of dust is small the action of the phagocytes is likely to be effective, but where it is great this action is imperfect, the phagocytes, overloaded with dust, becoming detained in their progress. The silica acts on the cells so that they lose their motile power. The result is aggregation of these cells in the lymphatic channels, especially the perivascular and peribronchial lymphatics. A deposit of these cells produces a reaction in the surrounding tissue; fibroblasts are produced which change ultimately into fibrous tissue, and so long as the action of the silica proceeds the formation of fibrous tissue continues, from a centre towards an extending periphery. The fibrous tissue undergoes condensation and contraction, and, pulling on the remaining lung tissue, produces distortion with loss of function. It seems likely that blood vessels are obliterated by compression from the perivascular fibrosis before the corresponding bronchi are obliterated, and I have thought that this might explain the absence of cyanosis in chronic forms of silicosis, in

* The opening paper of a discussion in the Section of Occupational Diseases at the Annual Meeting of the British Medical Association, Manchester, 1929.