is very simple; but I do not know that pathologists have explained it. It is this. In septicæmia following ovariectomy, the septic bloody fluid is exposed to an immense absorbing surface—the peritoneum—which takes it up as rapidly as does the cellular tissue a hypodermic dose of morphia. In peritonitis, the septic purulent deposits are segregated and in small quantities, and exposed to small absorbing surfaces. The difference, then, is in the large amount of poisonous material and the large free absorbing surface in the one case, and the smaller amount of septic material and the smaller area of absorbing surface in the other. Besides this, sepsis by bloody serum is a more concentrated poison than sepsis by pus or puriform collections.

Pyæmia from peritonitis kills more rapidly than pyæmia from purulent collections in other parts of the body. Perhaps the reason is to be found in the fact that the pus-pouches, bounded all round by convolutions of intestine, may be thus exposed to osmotic influences of intestinal gases and germs. The distinctions here drawn are not in accordance with the doctrines of the day; but they are not based on theory; they are the result of clinical observation and *post mortem* examinations. True, I have seen but few fatal cases of peritonitis following ovariectomy. According to my experience, they are about as one in ten, compared with septicæmia.

(To be continued.)

EXTRACT FROM A LECTURE ON TUBERCLE,

*In the Course of Pathological Anatomy at the Middlesex
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GENTLEMEN,—Having, in my last lecture, given you as explicit an account of the general pathology of tubercle as far as I understand it, I propose to-day, before leaving this subject, to recapitulate to you these facts in the form of a concise summary. In doing so, you must allow me to adopt a somewhat aphoristic and dogmatic method; for I feel that upon this subject, of all in pathology, it is necessary for us to have clear and definite ideas. There is hardly any pathological question that has been so swayed by every wind of doctrine as this of tubercle; not even the subject of inflammation has been viewed from so many standpoints, and received so many and varied explanations. The conclusions I am about to give you do not claim to be anything else than the formulated expression of ideas gathered from time to time from various sources. They embody simply the essential points I have learned from others, confirmed, so far as opportunities have been given me, by my own *post mortem* experience. Therefore, they are in no way original or novel. I hope they may be nearer the truth in consequence; as near, that is, as our present knowledge allows us to go. My sole aim is to teach you the facts which are established, and the inferences that appear to flow from them, in the simplest and plainest manner.

1. Tuberculosis is an infective disease to which man and the higher animals are liable.
2. It is characterised anatomically by the formation of minute nodules or "granulations", composed of elements like those met with in granulation-tissue, the result of simple reparative inflammation.
3. These nodules, or elementary or primary "tubercles", may occur in an isolated manner, or, by their confluence, may form larger or smaller conglomerate masses.
4. The typical structure of each fully formed primary nodule consists in (a) a collection of lymphoid round cells, enclosed in a delicate fibrillar meshwork or stroma; (b) in an internal zone, more or less evident, of larger nucleated epithelioid cells; and (c) a central multi-nucleated or giant cell.
5. These "tubercles" arise apparently in connection with the lymphatic tissue that pervades the body. No region is exempt from them. They may occur in the substance of organs, in the bones and muscles, in serous membranes, as the pia-arachnoid, pleura, pericardium, and peritoneum; in synovial membranes; in mucous membranes (arising in the submucous stratum), as in the mouth, pharynx, larynx, trachea, bronchi, intestines, and genito-urinary tract.

6. Being ill supplied with blood-vessels, they can only attain a certain size, and then perish. The central cells degenerate first, because they are the farthest removed from the nutrient blood-stream, and mutual pressure due to their increasing growth hampers their vital activity. They become fattily degenerated, soft, opaque, caseous, forming "yellow" tubercles, which, when isolated, are larger and manifestly of older formation than the miliary translucent grey granules. Where such tubercles are confluent, larger and more irregular caseous masses are formed. Caseation may pass into cretification. On the other hand, there is no doubt that occasionally the tubercular nodules take on a fibroid change, passing from the stage of "granulation-tissue" to one resembling "cicatrical tissue".

7. Almost invariably there occurs, in the vicinity of the tubercular formation, some reactive inflammation. This may be protective by ultimately leading to encapsulation by fibrous tissue of the caseated tubercular focus; or, as more frequently happens, it aids in the disintegration of the surrounding tissues, and leads, with the necrosis of the tubercles themselves, to destructive ulceration.

8. Individuals who are prone to the development of tubercle are called "tubercular". The disposition may be inherited. Probably what we recognise as "struma" or "scrofula" is only one form of this: a tendency to tuberculosis of lymphatic glands especially; just as in phthisical subjects we have a tendency to pulmonary tuberculosis.

9. The tubercular manifestation is, in the majority of cases, at first local, *i.e.*, limited to one organ or tissue. It may remain so limited throughout life—may not even endanger life—or may lead to death by the local destruction to which it gives rise. On the other hand, it may be more or less widely diffused throughout the body of the same individual. This diffusion may be due sometimes to the simultaneous development of tuberculosis in many parts. More frequently, it is due to secondary dissemination, by a process of infection.

10. This dissemination takes place, as in cancer, in two ways: *viz.*, by direct extension, or infection of neighbouring tissues by contiguity; and by general distribution of the tubercular virus through the medium of the blood-system (including lymphatics).

11. The tubercular virus seems to be most potent, or, at any rate, to retain its potency, *i.e.*, its infective property, in the caseous state.

12. Examples of the local extension of tubercle, or of propagation by contiguous infection are seen: (1) in the development of peritoneal tubercle from intestinal*; (2) in the spreading of tubercle from one part of an organ (*e.g.*, lung) to another part; (3) in extension from lung to pleura*; (4) in bronchial, laryngeal, and intestinal ulceration excited by the passage over their mucous membrane of material expectorated from a phthisical lung; (5) in tuberculosis of bladder and vesiculae seminales following upon renal or testicular tubercle, etc. The mode of its local extension approximates tubercle to the neoplasms, *viz.*, by its elements exciting in the tissue they infect changes leading to the formation of cell-masses resembling the primary focus.

13. The generalisation of tubercle is shown in the disease known as acute miliary tuberculosis, which is characterised by an eruption of miliary granulations in diverse organs and tissues. Its mode of occurrence may be (as above) compared to the general dissemination of secondary cancer, or, perhaps with equal truth, to the metastatic supuration of pyæmia. With few exceptions, it appears to necessitate a primary tubercular focus to give rise to it. It is believed that the infective virus, whatever it be, enters the blood-stream at this local focus, and is thence widely disseminated, the resulting growths being for the most part miliary, grey, and translucent; life not, as a rule, being prolonged for a sufficient length of time after the occurrence of the generalisation to permit of the growths becoming confluent or caseous. As the membranes of the brain are generally involved in this widespread infection, death occurs early.

14. Lastly, tuberculosis is inoculable. In this respect, it resembles pyæmia, and differs from the cancers; for there is reason to think that it may be and is communicated from one human being to another, *e.g.*, from husband to wife, and *vice versa*; and that it can be inoculated in animals from man (artificial tubercle). There is, further, a possibility, based on certain peculiar morphological resemblances of the formations, that bovine tuberculosis is communicable to man.

15. If the foregoing data be true, it follows that tuberculosis is an infective disease, probably due to the presence of a virus, which gives rise to the development of peculiar tissue-formations, capable of localised or general propagation in the body, and characterised mainly by their tendency to early disintegration.

16. Until the nature of the virus is known, it is impossible to formulate data concerning the conditions under which the disease arises in subjects free from inherited taint.

* In these cases, probably by extension along lymphatic channels.