

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-archnoid, 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 a 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.* lungs) 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 vesiculæ 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 suppuration of pyæmia.

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