

from a strumous joint or abscess, or an emulsion of a pure culture of tubercle bacillus.

From a histological standpoint the tubercular process is recognized as manifesting itself in two ways; first, in the form of the well-known "tubercle" or "giant-cell system," and secondly, in the less classic, though certainly not less characteristic, "tuberculous tissue," which consists in an infiltration of epithelioid cells. These cells are described by Cheyne as running through the tissues in broad bands, or being found at irregular intervals among the other tissue elements. When giant-cells are present they usually contain bacilli, but bacilli are also found amongst or in the epithelioid cells, often clinging close to the nucleus. On the other hand, they are never found in the inflammatory tissue surrounding the tubercle, unless they have been accidentally washed into that position during the process of preparation.

The most potential factors in the causation of the disease are (1) a peculiar vulnerability of tissue, and (2) the introduction through some channel of the tubercle bacilli. That a peculiar vulnerability of tissue to the ravages of the tubercle bacillus is hereditarily transmitted from generation to generation cannot be denied, and the excessive physiological activity present in the neighborhood of growing bone no doubt acts as the determining cause in the lodgment and growth of the bacilli near ossific centres or epiphyseal cartilages. Having once lodged and asserted its baneful influence, the further course of the disease is largely determined by the varying conditions of rest or irritation, and by sanitary or unsanitary environments as regards clothing, food, and ventilation.

Being in possession of these facts we direct our treatment accordingly, and thus it is that attention to constitutional conditions takes precedence of all others. It is impossible to exaggerate the importance of attention to hygienic details in the treatment of tuberculous diseases. Numerous cases are on record in which, under unusually good surroundings, the system has been able successfully to combat even advanced local disease of this nature. Nourishing, easily digestible food, in sufficient quantities and at appropriate intervals, is of the first importance. Scarcely second in this regard must be ranked warm, clean, dry clothing, and

abundance of warm, fresh air, both by day and by night. Too often patients who are carefully carried out into the open air during the day are required to sleep in a close, ill-ventilated room, possibly with other children in various conditions of health or disease. Such inconsistencies must be carefully avoided. The most important internal remedy is cod liver oil, and this must be regarded rather as a food than a medicine. As much of this important aliment must be given as the digestive system of the patient will dispose of, and its various preparations should be tried until one is found that agrees well with the patient. A most useful adjunct to constitutional treatment is the application of appliances by which absolute rest to the part is insured. It is not sufficient to put the part physically at rest; it must be given physiological rest as well; it must not be permitted to perform any function. Where this is at all possible, such rest should be obtained for the diseased part, while at the same time all other parts of the body are allowed free and unrestrained exercise of all their functions, so that the patient may move about in the open air. In order to accomplish this the surgeon's ingenuity is sometimes severely taxed, and in some cases, from the nature of the parts diseased, it is impossible.

In disease of the spine various appliances are used with satisfaction. For ordinary cases in which the symptoms are not very acute, nothing is better than a well applied plaster of paris jacket. As the case advances towards recovery this may advantageously be exchanged for a poroplastic jacket, which has the advantage of being lighter and more easily removed for cleansing purposes. In the acute stages, however, a double Thomas' hip-splint, with an extension upwards upon which the occiput may rest, is a very useful apparatus. It is much less uncomfortable than would at first appear, and the patient can be carried about upon this with the greatest ease and without causing any movement of the diseased parts. The occipital extension renders it suitable for cases in which the disease is in the upper dorsal or cervical region, as long as the patient is in the recumbent position; but in these cases, as soon as the acute symptoms have subsided, the jury-mast or croquet-hoop apparatus should be substituted for it, in order to allow the patient to walk about. For disease of the hip