

longitudinal muscle fibres are much more prominent and occupy a wider zone. The degenerative changes, which are recognised by the fat stains, occur in the muscle cells by the accumulation of fat granules in a greater or less quantity. The fine elastic fibres which are present between the muscle cells and the muscle bundles are also found to be attracting a fatty substance to them. These fibres eventually appear quite granular with the yellow lipoid bodies. Where the degeneration is advanced the muscle fibres become less numerous, and masses of fat granules are found to lie in the positions which the muscle cells formerly occupied. In no instance have we observed evidence of inflammatory cellular infiltration in the musculo-elastic layer during these processes.

The affected area of the superficial intima occasionally showed a slight reaction of proliferation with scattered lymphocytes. An acute inflammatory reaction was not observed either in or about the tissues showing the fatty change. On the other hand, the vasa vasorum of the adventitia and of the outer zone of the media were repeatedly observed to have a cellular infiltration about them. Lymphocytes and plasma cells were most abundantly present, with stray polymorpho-nuclear leucocytes. In these situations, however, there was no evidence of the accumulation of fat in the tissues. The media and adventitia showed no other evidence of change which could be associated with the condition arising in the intima. In fact, in young individuals no alteration of any other tissues was observed, while in adults, and in particular those beyond middle age, varying lesions were observed, common for this period of life, in one or other of the arterial coats. In no instance was a former lesion found to influence the character of the recently acquired fatty streaks.

One feature, however, of sclerosed arteries was evident, that the vessels with former intimal sclerosis, either nodular or diffuse, rarely showed fatty streaks even when the patient had suffered from a disease which in the young adult would have been followed by these lesions. It would appear that where the subendothelial layer had been thickened with the production of connective tissues it no longer reacted to irritants as formerly. Degenerative changes do, of course, develop in the thickened fibrosed intima, but these occur in the progressive process of intimal sclerosis.

The fat, as we have observed, is at first deposited within the living cells and in the elastic fibres. Later, free fat is found between the tissue cells and lying as fine droplets upon the different fibres. In some of these deposits anisotropic globules, like myelin, were seen. The fat and fat-like substances could be dissolved from the tissues by alcohol and ether, while no lipoid substances insoluble in these solvents were observed. All of the fat stained after the manner of neutral fats.

From our observations it appears quite definite that fat may be