

had to be considered, and as though it always remained the same between two menstruating periods. After quoting at some length the statements on the subject made by Henle, Ruge, Gebhard, Nagel, Waldeyer, and Von Ebner, they pass on to their own investigations. These embrace 58 cases; the material was taken by operation from the living subject and fixed in fresh condition, and in the majority of cases numerous different portions of the uterus were utilised for the investigation.

The authors establish the fact that according to the histological changes of the mucous membrane the following four phases are to be distinguished in the cycle of the transformation of the mucous membrane:

1. Postmenstrual period.
2. Interval.
3. Premenstrual period.
4. Menstruation.

Then they describe the characteristics of the mucous membrane in the separate stages, beginning with

I. The Premenstrual period.

The chief characteristics of this phase are as follows: The mucous membrane, which in the interval is still relatively low, swells on the 6th-7th day before menstruation to two or three times its size, and this swelling is responded to by the changes in the component parts, the glands, and the connective tissue. The glands enlarge, and crested, papillary protuberances rise into the interior. The glandular lumina grow wider and wider, and the mucous membrane thus acquires a mesh-like, spongy formation at its base, while at the surface the excretory ducts of the glands become flatter and farther removed from each other owing to the swelling out of the connective tissue and to the cedema. The cells of the connective tissue of the surface of the mucous membrane become richer in protoplasm, and the nucleus colours slightly. The vessels are dilated, and there occurs extravasation of serum and lymphocyte elements. We have therefore a separation of the mucous membrane into a compact and a spongy portion; the glands themselves are peculiarly enlarged and filled with secretion; the epithelium secretes; and the connective tissue at the surface is swollen out and becomes similar to that of the decidua. These four changes—which the authors regard as cardinal—appear simultaneously and make the premenstrual mucous membrane so characteristic that it cannot be mistaken by anyone who has once seen it. While they are not always developed to an equal extent, they are invariably present in premenstrual cases. Thus the whole premenstrual mucous membrane acquires a great similarity to the decidua.