

Journal of the American Medical Association

SEPTEMBER 30, 1899.

ADENOMYOMATA OF THE FEMALE SEXUAL APPARATUS.

In his studies of the origin, nature and destiny of the adenomyomata of the female sexual apparatus, Leopold Landau, Berlin, has developed some new knowledge of an old subject. The new matter has for the most part been accumulated within the last five years, and is so complete that the story of the origin, construction and treatment of these neoplasms may now be told in a purely pragmatic and sequential way.

As early as 1896 Von Recklinghausen observed, in addition to the ordinary fibromata, myomata and fibromyomata of the uterus, certain muscle tumors in which glands and cysts were present. The epithelium of the glands and cysts of these neoplasms, which he denominated "organoid myomata," he believed to be derived, either from prenatal inclusion within the tissues of the coalescing tubes of Mueller, of fragments of the Wolffian bodies, or from cut off post-fetal out-shoots of epithelium, growing from the uterine mucosa deeply into the muscularis.

Landau recalls that the tubes of Mueller, which in the female become the Fallopian tubes, and by the blending of their lower extremities form the uterus and vagina, are so situated in the embryo that the upper segment of each tube lies laterally to the Wolffian body of the same side; also that at a lower point which corresponds to the tubo-uterine junction of post-fetal life, the tube of Mueller crosses the Wolffian duct, coursing in a median-ventral direction, and that the lowest or vaginal segment lies median to the duct of the Wolffian body. With these relations in mind it is not difficult to

understand how, as Recklinghausen has shown, fetal inclusion of epithelium from the Wolffian ducts within the substance of the uterine extremity of the Fallopian tube, or the muscularis uteri, could come to pass.

The first substantial proof of Von Recklinghausen's theory is to be found in the fact that these tumors occur with overwhelming frequency in the peripheral layers of the uterine muscularis near the tubo-uterine junction, and are very often bilaterally symmetric.

The second and most remarkable proof consists in the fact that the gland tubules of the adenomyomata under discussion, both in systematic anastomosis and character of epithelium, are strikingly similar to the Wolffian canals. In these tumors there may be traced out the systems of winding, secreting tubules with dilated extremities emptying into a straight connecting tubule or main canal, comb fashion, like miniature parovaria. In other words, we see in a neoplasm of adult life, the complicated anatomic structure of an elaborate embryonic organ.

Landau has always sought for epithelial inclusions whenever a myoma presented which had entangled itself in uterine muscularis, displaying no distinct line of demarcation, and each time with a positive result. Contrary to V. Recklinghausen, he states that adenomata which grow out from the uterine mucosa after birth may arise from the entire mucosa corporis or from a small circumscribed area, and may grow centrifugally through the uterine wall to the serosa and even into the pars uterina tubæ and ligamentum latum. He has shown, moreover, on the basis of L. Pick's observation, that not all of these included epithelial outshoots from the mucous membrane represent post-fetal inclusions, but that some are developed from epithelium and connective tissue which grows deeply into the muscularis—peripheral layers—in fetal life. Pick has found glands of the fetal endometrium corporis occupying the subserous layer of the myometrium in adults, and has demonstrated that myomatous proliferation may take place about such displaced fragments of mucous membrane and remains of the tubes of Mueller. He has shown that mucous membrane adenomata exist, which are primarily of fetal origin.

It is well known that the stroma of the normal mucosa corporis uteri is made up of the so-called cytogenic tissue. In other words, it is a connective tissue composed of abundant round and spindle cells and intercellular substance containing fine reticulating fibers. This tissue is not found in the Wolffian body nor in its post-fetal remains, neither in the epi-ovarium nor parovarium. It is likewise absent in parovarian adenomata showing the scattered arrangement and which have not attained considerable growth. If, however, the Wolffian tubules proliferate extensively, developing many adenomatous systems—closed arrangement—there then appears an accompanying growth of cytogenic connective tissue. The appearance, therefore, of cytogenic tissue in adenomyomata as the stroma of Wolffian body epithelium

is not dependent on the localization of the neoplasm, but on the extent and intensity of the growth, but if epithelium lined tubules are found anywhere in the female genital apparatus where such structures do not histologically belong, the presence of cytogenic connective tissue as their supporting substance gives evidence of their origin from the tube of Mueller or from the mucosa corporis uteri.

Landau very appropriately calls attention to the great practical importance of knowledge of the origin of these neoplasms. He believes that juxta-uterine adenomata, and even voluminous subserous uterine adenomata, despite the diffuse transition of their bases into the normal muscularis, may often be treated successfully by conservative myomectomy.

Pick and Landau have, moreover, encountered adenomata in the round ligament and in the posterior fornix of the vagina. Adenomata of the round ligament are hard, varying in bulk from the size of a walnut to that of a plum. They are not sharply defined from the surrounding tissues. In all cases of adenomyomata of the vagina the neoplasms are situated in the muscularis of the posterior fornix. They project as knotty masses into the perivaginal cellular tissue or protrude, polypus-like, into the vagina. In macroscopic section the fiber bundles are distinct, as in ordinary fibroids. Here and there are scattered yellowish and brown spots of pigment and irregular splits and cracks. On microscopic examination the supporting structure is seen to be composed of atypical fibromyomatous tissue. The little pigmented spots are seen to be gland and cyst formations presenting cylindrical and ciliated epithelium.

The adenomyomata of the ligamentum rotundum and posterior fornix offer valuable evidence in substantiation of Von Recklinghausen's theory of the origin of such neoplasms from displaced tubules of the Wolffian bodies. As in the male, the epididymis is transported during the "descensus testicularum" through the gubernaculum Hunteri, so in the female the cord of the primordial kidney in descending may draw a portion of this embryonic organ down with it into the inguinal canal. The Wolffian tubes, particularly of the distal parovarian segment, may thus descend into the canal of Nuck or into the labia majora.

The transport of epithelium from the primordial kidney through the ligamentum teres uteri to the inguinal region may be assumed without misgivings. Even Kossman, who denies the parovarian origin of uterine and tubal adenomyomata, concedes that the epithelium of adenomyomata of the round ligament comes to this region along the route indicated.

If the Wolffian body is abnormally long and extends down over the dorsum of the sinus urogenitalis, or the canals at its lower pole persist until the tubes of Mueller blend at the sinus, the parovarian segment of the Wolffian body could easily be swallowed up in the dorsum of the uterus or vaginal fornix. The adenomyomata of the posterior fornix present further evidence of their prim-

ordial kidney source in the dichotomous branching of their tubules. In the case of those adenomata originating from the epoöphoron we have to deal not with hypothetical Wolffian canals, but with physiologically preserved masses of primordial kidney.

To the adenomyomata derived from the Wolffian body, L. Pick has given the name "meso-nephritic adenomyomata" and to those derived from the mucous membrane the name of "mucous membrane adenomata." The adenomyomata of the female sexual apparatus, therefore, belong to one or the other of these groups, and must not be confused with the ordinary histoid myomata which represent simple circumscribed outgrowths from the muscularis uteri, and which, according to Virchow, are the result of irritative or inflammatory processes and are not developed in any way from displaced epithelium.