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On September 20, 1917, under ether anæsthesia, a median incision four inches long was made. A quantity of bloody serum escaped from the abdominal cavity. The mass was found to be attached to the uterus and was apparently a pyosalpinx which had been turned one and a half revolutions towards the right and completely strangulated, being black and œdematous. There were no adhesions. The mass was removed. On the left side there was a mass of similar size, with very light adhesions and not strangulated. It also was removed. There were some slight fibrin deposits on the small intestines. The appendix was looked for casually, but as the cæcum was not seen and there seemed to be no evidence of a pathological appendiceal condition, the search was not continued.

The recovery was uneventful and the incision healed by primary union. The patient was discharged on October 4, 1917.

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ON TUMORS OF THE SALIVARY GLANDS

EDITOR ANNALS OF SURGERY:

In the ANNALS OF SURGERY for January, 1911 (lxvii, 67), there appears a paper by Drs. J. Forman and J. H. Warren on "The So-called Mixed Tumors of the Salivary Glands, with a Possible Explanation of the Morphological Behavior of the Tumor Cells." It is based on a study of seven cases, the "stroma" of three of which contain cartilage. The "parenchyma" presents the usual appearance of gland-like structures, of interlacing tubules, and of flattening of the cells, whose resemblance to endothelium is striking in places. No evidence, however, was found which showed that they are of endothelial origin. The last case closely simulates a "histoid carcinoma of the epidermoid variety." It is, in other words, a squamous-celled carcinoma.

The authors point out that, in order to explain the presence of "parenchyma" and "stroma" in these tumors, embryonic inclusions of meso- and of epiblast have been postulated by different writers on the subject. They "are of opinion that a simpler explanation of these new-growths is at hand, if one takes into consideration that the derivation of some of the head cartilages can be ascribed to epithelium." They next review some of the papers on this subject, and quite reasonably conclude that, if cartilage arises in this way in the lower vertebrates, "there is a possibility, if not a probability, that there is in the head and brachial region of the human embryo mesenchyme which has been derived from ectoderm. Later this may differentiate into cartilage," etc. "Inclusion or misplacement of this ectodermal mesenchyme gives rise to the so-called mixed tumors of the salivary glands."

I am myself a firm believer in the mixed origin of the mesenchyme, and have read Forman and Warren's paper with much appreciation. The development of the cranial and branchial regions is a highly complicated one,

and the evidence that these writers have collected from the literature is not absolutely convincing. I therefore look forward with much interest to Landacre and Warren's researches on the subject, which are shortly to appear. The reason why the evidence is not conclusive is not far to seek. The mesenchyme cells that are budded off from the epidermis are identical in structure with those derived from other sources. As the cartilage does not become recognizable as such until later, and as it is not situated immediately under the skin, it is difficult, if not impossible, to demonstrate beyond question the ultimate origin of its cells. To V. Szily¹ belongs the credit of having proved that parts of the skeletal system actually are formed by the epiblast. He showed that, in the tail-fin of the trout, some of the superficial bones arise within the deeper layers of the epidermis, and that they are at first completely surrounded by *epithelial* osteoblasts. The same author² has demonstrated the origin of the *sphincter pupillæ* from the epithelium of the iris. Heerfordt³ had previously proved the same derivation for the *dilatator pupillæ*. These three papers, if, as a morbid anatomist, I am qualified to judge, establish beyond all manner of doubt that mesenchymal tissues can and do come from the epiblast. They greatly strengthen the corresponding work done on the cranial and branchial cartilages. I may add that there is a considerable amount of evidence that the cutis is derived from the epidermis. Retterer,⁴ to take but one instance, believes that this takes place in man throughout life.

These researches are of fundamental importance. If correct, they upset the doctrine of the specificity of the germinal layers, a doctrine which has been believed in and taught as a first principle by all the most eminent authorities in every branch of biological science. They should therefore not be taken lightly, but be carefully weighed before being accepted. I, for one, believe that their correctness has been established by the three instances referred to above, and that we are therefore justified in using them to explain other conditions, an instance of which are the mixed tumors of the salivary glands. In this I am in perfect agreement with Forman and Warren. I must, however, deplore that they apparently did not trouble to acquire a thorough knowledge of the literature of this subject. Had they done so, the writings of Krompecher, whose name is not once mentioned in their paper, could not possibly have escaped their attention. In two papers,^{5, 6} one of which is a continuation of the other, and which appeared ten years ago in *Ziegler's Beiträge* (which surely are read in America?) his views are, briefly, expressed thus:

Salivary tumors are basal-celled carcinomata, a group which includes rodent ulcer. They are epi- and hypoblastic according to their situation. The former only concern us here. In the case of the salivary tumors it is impossible to prove their connection with normal epithelium, but their true nature is easily demonstrable by a study of the comparative morphology of basal-celled carcinomata in general. There is no sharp line of separation between epithelium and connective tissue; the cells of the former become

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stellate, acquire processes, and pass into the stroma, from whose corpuscles they cannot be distinguished. In fact, *they become connective-tissue cells*. He next describes all the pathological conditions in which he believes this transformation to occur, and goes into the zoological and embryological literature. He does not omit the development of cartilage from epiblast, but, perhaps for the same reasons that I have given, he lays no stress on it.

Krompecher thus comes to the conclusion that, in basal-celled carcinoma, including the tumors of the salivary glands, the connective tissue is budded off from the epithelium, i.e., it is ectodermal mesenchyme. Forman and Warren arrive at precisely the same conclusion, but have reached it by a different way. The former argues from the appearances which can be seen in a large number of actual cases, and the latter from the analogy of the development of the cranial cartilages in the lower animals. The weakness of Krompecher's evidence, when applied to salivary tumors, lies in the impossibility of proving that they arise in the epithelium of the gland. His contention is greatly strengthened by their very close similarity to certain epidermal new-growths of the head, a fact that I can corroborate from my own experience. Forman and Warren's weakness lies in the fact that, granted that the epiblastic origin of the cranial cartilages has been satisfactorily proved for the lower vertebrates, it has not been so proved for man or is ever, as they themselves admit, likely to be. Both sets of writers can therefore claim merely to have advanced a working hypothesis based on analogy.

My excuse for writing these lines is made by the importance of the subject. Not only do these researches shake the very foundations of biologic doctrine, but, to take an instance nearer home, they upset some of the most cherished theories held by pathologists. The assumption of displaced embryonic rests in the explanation of tumors will in many cases be found to be unnecessary. These mystical beings will, I trust, become less and less common as our knowledge of the development of the mesenchyme grows.

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REFERENCES

- ¹ Heerfordt: *Anat. Hefte*, 1900, xiv, Abt. 1, p. 487.
- ² Krompecher: *Ziegler's Beitrage*, 1908, xlv, p. 51.
- ³ Krompecher: *Ibid.*, p. 88.
- ⁴ Retterer: *Comp. rend. d. sc. et. mém. de a. soc. de biol. Paris*, 1916, lxxix, p. 1113.
- ⁵ V. Szily: *Anat. Anzeiger*, 1902, xx, p. 161.
- ⁶ V. Szily: *Anat. Hefte*, 1907, xxxiii, Abt. 1, p. 227.

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ANNALS of SURGERY

227-231 S. 6th Street
Philadelphia, Penna.