Archives of Dermatology and Syphilology

VOLUME 6

OCTOBER, 1922

NUMBER 4

THE TISSUE REACTION IN MALIGNANT EPITHELIOMAS OF THE SKIN

ITS VALUE IN DIAGNOSIS AND IN PROGNOSIS *

HOWARD J. PARKHURST, M.D.

TOLEDO, OHIO

A survey of the literature dealing with this particular phase of the cancer problem indicates that surprisingly little investigation has been made in this direction. It was Borst's opinion¹ that the parenchyma of the epithelioma is often retarded by the new connective tissue development roundabout. According to Unna's rule,² "The cellular infiltration of the cutis increases with the activity of the epithelial growth, when the epithelial margin is the seat of marked proliferation."

Concerning the presence of plasma cells, Aschoff, Ribbert and Borst say little. In 1891, Jadassohn³ referred to the "encircling wall of plasma cells and leukocytes," and Unna,² describing the plasmoma of Paget's disease, characterizes it as "a bulwark of defense against cancer invasion." Reviewing a series of twenty-eight cases of epithelioma, Unna reports that fourteen contained many plasma cells, variously distributed, but often encircling the epithelioma. He also found numerous mast cells, usually in inverse ratio to the number of plasma cells present. The striking participation of the mast cell moved him to suggest that carcinoma should not be too widely separated from other chronic inflammatory processes. With Joannowicz,¹ he asserted that the rate of tumor growth is in inverse proportion to the number of plasma cells. Prytek¹ has studied a series of thirty-eight cases from Jadassohn's and other clinics, and he noted that the specimens with many mitoses often contained few plasma cells. However, he concludes that plasma cells, while not always present, "are often numerous, but bear no constant relationship to the type of neoplasm, nor to the presence

* Read before the Section on Dermatology and Syphilology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

* From the Laboratory of the Department of Dermatology, Vanderbilt Clinic, Columbia University, New York.

1. Prytek: The Plasma Cells in Epithelioma of the Skin, *Arch. f. Dermat. u. Syph.* **120**:611, 1914.

2. Unna: *Histopathology* (Walker's translation), New York: Macmillan Co., 1896.

3. Jadassohn: *Verhandl. d. deutsch. Dermat. Gesellsch.*, Leipzig, 1891.

TABLE 1.—THE FINDINGS IN 100 CASES STUDIED *

Slide No.	Type of Tumor	Rate of Growth	Depth of Corium Invaded ($\frac{1}{4}$, $\frac{1}{2}$, or All)	Connective Tissue Degeneration (0, 1, 2, 3 or 4)			Fibroblasts (0, 1, 2, 3 or 4)	0, 1, 2, 3 or 4			Especially Peri-vascular?	Mitoses (0, 1, 2, 3 or 4)	Appearance of Epithelioma Cells	Remarks
				Hyaline Type	Basophilic Type	Depth of Corium Invaded ($\frac{1}{4}$ or All)		Poly-morpho-nuclears	Lympho-cytes	Plasma Cells				
1	Early (?) prickle	Fairly rapid	All	2	2	All	—	1	4	0	No	—	Hardy	Acanthosis
2	Late prickle	Slow	All	3	3	All	1	1	4	0	No	Few	Many hyaline	Acanthosis
3	Early (?) prickle	Slow	All	2	0	All	—	0	2	2	No	Few	Faded	Slight acanthosis
4	1 year basal	Slow	$\frac{1}{2}$	Slight	1	All	—	1	2	2	No	—	Fairly hardy	Acanthosis
5	Early basal	Slow	$\frac{1}{4}$	—	1	All	—	0	2	0	—	—	Hardy	Epidermis thin
6	Early prickle	Rapid	All	—	4	All	2	1	1	0	No	3	Hardy	Hyaline vessels; acanthosis
7	Late prickle	Rapid	All	3	3	All	2	1	3	2	No	1	Hardy	Hyaline vessels; acanthosis
8	Late basal	Fairly slow	All	3	3	All	1	1	2	0	No	1	Hardy	Epidermis thin
9	Early basal	Fairly slow	Not $\frac{1}{4}$	1	1	Not $\frac{1}{4}$	1	0	2	1	No	1	Hardy	Epidermis thin
10	Early basal	Fairly slow	Not $\frac{1}{4}$	1	1	Not $\frac{1}{4}$	1	0	2	1	No	1	Hardy	Epidermis thin
11	Late prickle	Rapid	All	1	1	All	3	0	2	0	Somewhat	2	Hardy	Acanthosis
12	Early basal	Slow	$\frac{1}{4}$	1	1	All	2	0	4	0	No	Very few	Hardy	Epidermis thin
13	Early prickle	Rapid	$\frac{1}{4}$	1	0	All	2	1	4	0	No	4	Hardy	Acanthosis
14	Early prickle	Rapid	$\frac{1}{4}$	1	0	All	2	1	4	0	No	Few	Mostly hardy	No epidermis
15	Early prickle	Rapid	$\frac{1}{4}$	1	0	All	2	1	4	0	No	0	Fairly hardy	Slight acanthosis ?
16	Early basal	Slow	$\frac{1}{4}$	1	0	All	1	0	2	0	No	—	Fairly hardy	Epidermis thin
17	Early prickle	Rapid	All	1	1	All	0	1	2	1	No	0	Fairly hardy	Acanthosis
18	Early basal	Slow	$\frac{1}{2}$	Slight	1	All	3	1	2	0	No	1	Hardy	Epidermis thin
19	Early prickle	Fairly rapid	All	1	1	All	2	0	2	1	No	1	Hardy	Hyaline vessels; acanthosis
20	Early prickle	Rapid	All	1	1	All	2	0	2	0	No	1	Hardy	Epidermis thin
21	Early basal	Slow	$\frac{1}{4}$	1	1	All	1	0	3	0	No	Few	Hardy	Acanthosis
22	Early prickle	Rapid	All	1	1	All	1	0	2	0	Yes	0	Hardy	Epidermis thin
23	Late prickle	Fairly rapid	All	1	1	All	2	2	1	3	Somewhat	Few	Faded hyaline	Hyaline vessels; acanthosis
24	Early basal	Slow	Not $\frac{1}{4}$	1	1	Not $\frac{1}{4}$	2	0	1	1	No	1	Fairly hardy	Epidermis thin
25	Late basal	Fairly slow	All	1	1	All	1	0	1	1	No	—	Hardy	Epidermis thin
26	Late basal	Slow	All	2	2	All	1	0	1	1	No	0	Variable	After 2 roentgen ray doses
27	Late basal	Slow	All	1	1	All	2	0	1	1	No	2	Hardy	Epidermis thin
28	Early prickle	Rapid	Not $\frac{1}{4}$	1	1	Not $\frac{1}{4}$	0	0	3	1	No	1	Fairly hardy	Slight acanthosis
29	Early basal	Slow	$\frac{1}{2}$	1	1	$\frac{1}{2}$	1	0	2	1	Yes	1	Fairly hardy	Slight acanthosis
30	Early basal	Rapid	$\frac{1}{2}$	2	2	All	2	2	1	3	No	2	Hardy	Epidermis thin
31	Late basal	Fairly slow	All	1	1	All	1	1	1	0	No	2	Hardy	Acanthosis
32	Late basal	Slow	$\frac{1}{4}$	1	1	All	1	1	1	1	No	3	Hardy	No epidermis
33	9 mo. (?) prickle	Fairly rapid	All	1	1	All	1	1	2	1	Yes	1	Hardy	Epidermis thin
34	Early prickle	Fairly rapid	Not $\frac{1}{4}$	1	1	Not $\frac{1}{4}$	0	1	1	0	No	1	Fairly hardy	Acanthosis
35	Early prickle	Rapid	Not $\frac{1}{4}$	1	1	Not $\frac{1}{4}$	0	1	1	0	No	1	Fairly hardy	Acanthosis
36	Early prickle	Rapid	All	1	1	All	1	1	1	1	No	2	Hardy	Epidermis thin
37	Late basal	Fairly slow	All	1	1	All	1	1	1	1	No	3	Hardy	No epidermis
38	Late basal	Slow	All	1	1	All	1	1	1	1	Yes	1	Hardy	Epidermis thin
39	Late basal	Fairly slow	All	1	1	All	1	1	1	1	No	1	Fairly hardy	Acanthosis
40	Late basal	Fairly slow	All	1	1	All	1	1	1	1	No	1	Fairly hardy	Vessels hyaline; acanthosis
41	Late basal	Fairly slow	All	1	1	All	1	1	1	1	No	1	Hardy	Acanthosis
42	Early prickle	Fairly rapid	All	1	1	All	1	1	1	1	No	1	Hardy	Epidermis thin
43	Early basal	Slow	Not $\frac{1}{4}$	1	1	Not $\frac{1}{4}$	0	0	1	0	Yes	1	Some hyaline	Vessels hyaline; acanthosis
44	Early prickle	Rapid	$\frac{1}{2}$	1	1	$\frac{1}{2}$	1	2	1	2	No	1	Hardy	Epidermis thin
45	Early prickle	Rapid	$\frac{1}{2}$	1	1	$\frac{1}{2}$	1	0	1	1	Yes	1	Hardy	Epidermis thin; ulcer
46	Late basal	Slow	All	1	1	All	1	1	1	1	No	1	Hardy	Epidermis thin; metas?
47	Late basal	Slow	All	1	1	All	1	1	1	1	Yes	1	Hardy	Epidermis thin; acanthosis
48	Late basal	Fairly rapid	All	1	1	All	1	1	1	1	Somewhat	1	Hardy	Vessels hyaline; acanthosis
49	Late basal	Fairly rapid	All	1	1	All	1	1	1	1	Yes	1	Hardy	Epidermis thin
50	Late basal	Fairly slow	All	2	2	All	1	1	1	1	Somewhat	2	Hardy	Acanthosis

51	Early basal	?	Not ¼	1	1	1	All	0	1-1	2	1-0	1-0	No	1-1	Hardy	Epidermis thin
52	Late prickle	Fairly slow	All	1	1	1	All	Slight	1	2	0	0	Somewhat	1	Hardy	Acanthosis
53	Early prickle	Fairly rapid	Not ¼	1	1	1	All	2	1	3	1	1	Yes	1	Fairly hardy	Pegs acanthotic; epidermis thin
54	Late basal	?	All	0	1	2	All	2	3	1	0	0	No	1-	Hardy	Floor of ulcer
55	Late basal	Fairly slow	All	1	1	1	All	1	1	1	0	0	No	1-	Fairly hardy	Epidermis thin
56	Late basal	Fairly slow	All	1	1	1	All	1	1	1	0	0	No	1-	Hardy	Epidermis thin
57	Early basal	Fairly slow	¼	1-	1-	1-	¼	0	1-	2	1	0	No	1	Hardy	Epidermis thin
58	Late basal	Fairly rapid	¾	1	1	1	¾	Slight	1-	1	0	0	Yes	1-	Fairly hardy	Thickness of epidermis varies
59	Late prickle	Fairly rapid	All	1	1	1	All	0	0	1	1	1	Yes	1-	Fairly hardy	Vessels hyaline; acanthosis
60	Late prickle	Fairly rapid	All	1	1	1	All	0	0	1	0	0	No	1-	Faded	Acanthosis
61	Late basal	Fairly slow	All	0	1	2	All	0	0	1-	3	0	No	1-	Variable	Epidermis thin
62	Early basal	Fairly slow	¼	1	1	1	¼	Slight	1-	2	1	1	No	1-	Hardy	Epidermis thin
63	Late prickle	Fairly rapid	All	1	1	1	All	—	1-	1-	1-	1-	Slightly	2	Hardy	Vessels hyaline; acanthosis; pearls
64	Late basal	Fairly rapid	All	1-	1	1	All	Slight	1-	1-	0	0	No	1-	Hardy	Epidermis thin
65	Early prickle	Fairly rapid	All	1	1	1	All	2	1	1	1	1	No	1	Hardy	Vessels hyaline; acanthosis
66	Late prickle	Fairly rapid	All	1	1	1	All	Very slight	1-	1	3	3	Yes	1	Hardy	Vessels hyaline; acanthosis
67	Early basal	Fairly slow	¼	1-	2	2	¼	Slight	1-	1	2	2	No	1-	Variable	Roentgen rayed
68	Early prickle	Fairly rapid	All	2	1-	1-	All	0	1	2	1	1	No	1	Hardy	Vessels hyaline; acanthosis
69	Early prickle	Fairly rapid	All	2	1	1	All	Very slight	1-	1	1	0	Somewhat	1-	Degenerative	hyperkeratosis
70	Late prickle	Fairly rapid	All	1	1	1	All	Very slight	1	2	1	1	Yes	1-	Fairly hardy	Slight acanthosis
71	Early prickle	Fairly rapid	Not ¼	2	2	2	¼	1	1	1	4	4	Yes	1-	Hardy	Acanthosis and hyperkeratosis
72	Early basal	Fairly rapid	¼	1	1	1	All	2	2	1	3	3	No	1-	Hardy	Acanthosis
73	Early prickle?	Fairly rapid	¼	1	1	1	All	Slight	1-	2	0	0	No	1-	Fairly hardy	Nevus ?; acanthosis
74	Early prickle	Fairly rapid	¼	1	1	1	¼	Slight	1-	2	1	1	No	1	Hardy	Acanthosis
75	Early prickle	Fairly rapid	All	1	1	1	All	Very slight	1-	1	1	1	Yes	2	Hardy	Acanthosis and hyperkeratosis
76	Early basal	Fairly slow	¼	1-	2	2	¼	0	1-	1-	3	3	No	1	Hardy	Acanthosis, parakeratosis and hyperkeratosis
77	Early basal	Fairly rapid	½	2	3	3	All	0	2	1	0	0	Somewhat	1-	Hardy	Nevus pigmentosus; acanthosis
78	Early prickle	Fairly rapid	½	3†	2	2	All	Very slight	1-	3	0	0	Yes	1-	Hardy	Vessels hyaline; acanthosis
79	Early prickle	Very rapid	½	1	1	1	All	0	0	1-	0	0	No	1-	Fairly hardy	Acanthosis and hyperkeratosis
80	Early prickle	Fairly rapid	¼	1	1	1	All	Slight	1	1	2	2	Yes	1-	Fairly hardy	Acanthosis
81	Early prickle	Fairly rapid	¼	1	1	1	All	Very slight	1	2	1-	1-	No	1-	Faded	Vessels hyaline; acanthosis
82	Early basal	Fairly slow	¼	0	1	1	¼	1	1	1	0	0	No	1-	Fairly hardy	Epidermis thin
83	Early basal	Fairly rapid	¼	1	1	1	All	1-	1	2	1	0	No	1-	Fairly hardy	Page long; epidermis thin
84	Early prickle	Rapid	¼	1	0	0	All	0	0	1	3	3	Somewhat	1-	Fairly hardy	Page's disease; vessels hyaline
85	Early prickle	Rapid	½	1	0	0	½	2	2	2	0	0	No	1-	Fairly hardy	Acanthosis and hyperkeratosis
86	Late basal	Slow	All	1	1	1	All	1	1	2	1	1	No	—	Hardy hyaline	Nevus papillomatous; acanthosis
87	Early basal	Slow	¼	1	1	1	¼	On	1-	1	1	1	No	1	Hardy	Acanthosis
88	Late prickle	Fairly rapid	All	1	0	0	All	1	2	2	1-	1-	No	1-	Fairly hardy	Epidermis thin
89	Early basal	Fairly slow	½	1-	1	1	½	Slight	1-	1	0	0	No	1	Fairly hardy	Epidermis thin
90	Early basal	Fairly rapid	½	1-	1	1	½	2	1	1	0	0	No	1-	Fairly hardy	Slight acanthosis
91	Late basal	Slow	All	2	2	2	All	1	1	1	0	0	No	1-	Many degen.	Epidermis thin
92	Late basal	Fairly slow	¾	1	1	1	All	1	1	1	1	1	No	0	Fairly hardy	Vessels hyaline; acanthosis
93	Early prickle	Fairly rapid	¾	1	1	1	¾	Slight	1-	1	2	2	No	1	Hardy	Slight acanthosis
94	Late prickle	Fairly rapid	¾	1	1	1	¾	0	0	1	0	0	No	1	Uter	Uter
95	Early basal	Fairly slow	All	1	1	1	All	0	0	2	2	2	No	1	Some degen.	Slight acanthosis
96	Late basal	Fairly slow	¾	1	1	1	¾	2	1	0	1	0	No	1-	Very hardy	Epidermis thin
97	Late basal	Rapid	All	2	0	0	All	3	2	2	0	0	No	2	Fairly hardy	Vessels hyaline; acanthosis
98	Early prickle	Fairly slow	¼	1	0	0	¼	1	1	1	1	1	No	1-	Hardy	Vessels hyaline
99	Early prickle	Fairly slow	¾	1	1	1	¾	2	2	1	1	1	Slightly	1	Fairly hardy	Epidermis fairly thin
100	Early basal	Fairly slow	½	1-	1	1	All	Slight	1	1	0	0	No	1-	Fairly hardy	Epidermis fairly thin

* Under certain of the headings, the figures 0, 1, 2, 3 or 4 are used to designate the relative amounts, 4 representing the highest observed. By 1- ("one, minus") is meant the presence of a very small amount, whereas the figure 1 alone signifies a fair amount.

† U means upper corium; black figure signifies predominance.

§ Epithelioma seen budding from epidermis.

or absence of ulceration, nor to the rate of tumor growth." From animal experiments, DaFano⁴ has concluded that plasma cells as well as lymphocytes appear to be agents of the immunity process. McDonagh⁵ believes that the plasma cell is present as an oxidizer of the deteriorating epithelioma cells.

Beginning in 1915, Murphy and his collaborators⁶ of the Rockefeller Institute apparently showed the lymphocyte to be a bearer of tissue immunity against malignant invasion, upholding the views of DaFano in this respect. Itami⁷ later claimed to have raised the immunity of animals against cancer by injecting lymph node extract. Mitoses have been reported as being very numerous in the spleen after tumor inoculation.⁸ However, the work of Sittenfeld⁹ and of Bullock and Rohdenburg,¹⁰ the latter using splenectomized animals, tends to disprove the theories of DaFano and Murphy and to show that the lymphocyte, after all, is not necessarily the agent of immunity. Woglom¹¹ found that the spleens of immunized and inoculated rats were not enlarged; and Prime,¹² as the result of recent extensive observations, reaches the following conclusions: "Decreasing the circulating lymphocytes by small doses of roentgen ray does not render mice more susceptible to the inoculation of a spontaneous tumor from another mouse of the same strain. Mice with spontaneous lymphocytosis are not resistant to the implantation of a primary tumor from another mouse of the same strain." Thus far, animal experiments have been limited to work with epitheliomas of the prickle cell type, only one case of basal cell epithelioma, occurring in a rat, having been reported.¹³

Here and there throughout the literature, the apparent relationship between chronic inflammation and the development of epithelioma is alluded to, some authorities stating that, without previous chronic inflammation, cancer does not exist (Billroth's dictum). According to McDonagh,⁵ the occurrence of epithelioma follows a chronic inflammation, which produces lipoid-globulin substances in the cells.

4. DaFano: *Ztschr. f. Immunitätsforsch. u. exper. Therap., Orig.* **5**:1, 1910.

5. McDonagh: *The Epithelial Changes in Inflammation and Their Relationship to Malignant Epithelioma*, *Arch. f. Dermat. u. Syph.* **120**:289, 1914.

6. Murphy, J. B.: *J. Exper. M.* **22**:204, 1915; **25**:609, 1917; **29**:25 (Jan.) 1919. Murphy, J. B., and Nakahara, W.: *J. Exper. M.* **31**:1 (Jan.) 1920.

7. Itami: *J. Cancer Res.* **4**:23 (Jan.) 1919.

8. Murphy, J. B., and Nakahara, W.: Footnote 6, fourth reference.

9. Sittenfeld, M. J.: *J. Cancer Res.* **2**:151 (April) 1917.

10. Bullock, F. D., and Rohdenburg, G. L.: *J. Cancer Res.* **2**:455, 465 (Oct.) 1917.

11. Woglom: *J. Cancer Res.* **4**:281 (July) 1919.

12. Prime, F.: *J. Cancer Res.* **6**:1 (Jan.) 1921.

13. Morris, D. H.: *J. Cancer Res.* **5**:147 (April) 1920.

With the purpose of further investigation, we have examined the slides from 100 human epitheliomas, noting the following points in each: the type of the tumor, whether basal or prickle cell; its apparent age and rate of growth; the depth of its extent into the underlying corium; the appearance of the cells of the tumor parenchyma and the number of mitotic figures observed; the state of the overlying epidermis, whether thinned or acanthotic; and, the characteristics of the stroma, including the connective tissue degeneration, its degree, location and type (whether hyaline or basophilic), the growth of new connective tissue, and the types and relative numbers of the plasma cells, lymphocytes and polymorphonuclear leukocytes, their relation to the

TABLE 2.—AN ANALYSIS OF THE FINDINGS IN FIFTY PRICKLE CELL AND FIFTY BASAL CELL EPITHELIOMAS

Findings	Basal Cell		Prickle Cell	
	Typical	Otherwise	Typical	Otherwise
Epithelioma arising from thin epidermis.....	24	..	..	..
Signs of a preceding inflammatory process.....	..	45	50	..
Noninflammatory	5	..	..	..
Epidermis acanthotic	..	8*	45	..
Epidermis thin	35	..	..	..
Infiltration of lymphocytes alone.....	21	..	..	17
Lymphocytes and plasma cells.....	..	27†	..	35‡
Infiltration of plasma cells alone.....	..	..	..	..
Cellular infiltration perivascular.....	..	4	19	..
Connective tissue degeneration basophilic only.....	5	..	..	..
Connective tissue degeneration basophilic and hyaline	..	41	..	34
Connective tissue degeneration hyaline only.....	..	2	15	..
Connective tissue degeneration in upper corium basophilic only	18	..	..	..
Connective tissue degeneration in upper corium basophilic and hyaline.....	..	20	..	20
Connective tissue degeneration in upper corium hyaline only	..	..	26	..
Hyaline changes in vessel walls.....	..	..	19	..
Fibrosis	..	44§	..	40§
Mitoses in epithelioma cells.....	..	45¶	..	48¶
Epithelioma cells of hardy appearance.....	..	46	..	47
Epithelioma cells of faded appearance.....	..	2	..	3

* Cylindromas, nevi, etc.

† Plasma ++ in seventeen.

‡ Plasma ++ in twenty-one.

§ Fibrosis ++ in thirteen.

¶ Mitoses ++ in six.

blood vessels, and the condition of the vessel walls, especially as to the presence or absence of hyaline degeneration. The specimens had been fixed in Bouin's solution and stained with hematoxylin and eosin; a few were stained with hematoxylin orange and acid fuchsin. Fifty of the specimens were from basal cell epitheliomas, while the remaining fifty were of the prickle cell variety, all stages of development and various rates of growth being represented. The basophilic degeneration noted was of the so-called mucoid type, such as that occurring in senile atrophy of the skin, and the hyaline or acidophilic degeneration was that which accompanies chronic interstitial inflammation; its location in the derma was noted, and the locations in which each type of

degeneration predominated, whether immediately beneath the epidermis or deeper. The stain did not permit an examination for mast cells, nor could the elastic tissue be studied. The results have been tabulated as shown in Table 1, presenting the findings in each case, and these findings have been summarized in Table 2.

RESULTS OF OBSERVATIONS

1. Neoplasms of the epidermis, associated with thinning of the remaining epidermis and not accompanied by a chronic inflammatory process, usually are basal cell epitheliomas (Fig. 1).

Fig. 1.—Neoplasms of the epidermis, associated with thinning of the remaining epidermis and not accompanied by a chronic inflammatory process, are usually basal cell epitheliomas; compare Slide 16.

2. If these basal cell epitheliomas are slow growing, they usually present slight inflammatory tissue reaction, with lymphocytes as the predominant cells (Fig. 2).

3. If a basal cell epithelioma is accompanied by much tissue reaction, we find a mixture of lymphocytes and plasma cells (Fig. 3).

Fig. 2.—If these basal cell epitheliomas are slow growing, they usually present slight inflammatory tissue reaction, with lymphocytes as the predominant cells; compare Slide 18.

Fig. 3.—If a basal cell epithelioma is accompanied by much tissue reaction, we find a mixture of lymphocytes and plasma cells; compare Slide 12.

Fig. 4.—When a basal cell epithelioma is slow growing, as a rule we find little evidence of connective tissue degeneration, and vice versa; but there is always some connective tissue degeneration. In basal cell epitheliomas, the type of connective tissue degeneration is prevailingly basophilic rather than hyaline; compare Slide 5.

Fig. 5.—The prickle cell epithelioma is always associated with evidences of a chronic inflammatory process, for example, acanthosis or hyperkeratosis; compare Slide 59.

Fig. 6.—This chronic inflammatory process has ordinarily been present for a long time, so that the tissue has had time to develop a certain amount of resistance, as evidenced by the proliferation of connective tissue, by the presence of plasma cells, and by changes in the blood vessels; compare Slide 7.

The slow development of a prickly cell epithelioma is accompanied by the appearance of plasma cells (Slide 7).

Fig. 7.—This preceding chronic inflammatory process is a complicating factor, according to the nature of its pathologic picture; compare Slide 93.

Fig. 8.—Connective tissue degeneration in prickly cell epitheliomas is more hyaline than basophilic, as a rule; compare Slide 98.

Fig. 9.—The rapid development of a prickly cell epithelioma is accompanied by lymphocytes; compare Slide 1 (Highman).

Fig. 10.—The number of plasma cells and, to a somewhat less extent, the number of lymphocytes, vary directly with the amount of hyaline degeneration of the connective tissue. Here it is slight.

Fig. 11.—A typical prickle cell epithelioma; compare Slide 28.

4. When a basal cell epithelioma is slow growing, as a rule, we find little evidence of connective tissue degeneration, and vice versa; but there is always some connective tissue degeneration (Fig. 4).

5. In basal cell epitheliomas, the type of connective tissue degeneration is prevailingly basophilic rather than hyaline (Fig. 4).

6. The prickle cell epithelioma is always associated with evidences of a chronic inflammatory process; for example, acanthosis or hyperkeratosis (Fig. 5).

7. This chronic inflammatory process has ordinarily been present for a long time, so that the tissue has had time to develop a certain amount of resistance, as evidenced by the proliferation of connective tissue, by the presence of plasma cells, and by changes in the blood vessels (Fig. 6).

8. This preceding chronic inflammatory process is a complicating factor, according to the nature of its pathologic picture. (Fig. 7: prickle cell epithelioma in tissue affected by lupus vulgaris.)

9. Connective tissue degeneration in prickle cell epitheliomas is more hyaline than basophilic, as a rule (Fig. 8).

10. The rapid development of a prickle cell epithelioma is accompanied by the presence of lymphocytes (Fig. 9). The slow development of a prickle cell epithelioma is accompanied by plasma cells (Fig. 6).

GENERAL CONCLUSIONS

1. The number of plasma cells and, to a somewhat less extent, the number of lymphocytes, vary directly with the amount of hyaline degeneration of the connective tissue. (Compare Figure 10, showing a slight amount, and Figure 8, showing a great amount.)

2. The apparent strength of the cancer cells and the number of mitoses bear no constant relationship to any other feature, nor to each other.

3. Mitotic figures may be entirely lacking, and they are usually not so numerous as might be expected.

4. The number of plasma cells in prickle cell epitheliomas varies directly with the number of pearls, as a rule.

5. Plasma cells are never found in the absence of hyaline degeneration.

6. As the number of plasma cells is an indication of the degree of resistance (immunity) of the tissue (derma), the malignancy of the neoplasm varies inversely in proportion to the number of plasma cells. The more malignant the process, the less the number of plasma cells, showing that the neoplasm is developing so rapidly that the tissue has not the time to develop any resistance. (This is a note of prognostic value.) (Figure 4 represents a typical basal cell epithelioma, and Figure 11 a typical prickle cell epithelioma.)