

HISTOLOGICAL AND IMMUNOLOGICAL OBSERVATIONS ON COMMON WARTS IN REGRESSION

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Abstract. 26 common warts showing clinical signs of regression (darkness or dark spots) were studied histologically as well as for complement-fixing antibodies in serum. The control group comprised 27 warts without signs of regression. No evidence of lymphocyte infiltration was found in either of the groups. Complement-fixing antibodies to wart virus were found in 3 patients with warts in regression and in 2 of the controls. Thus the study did not support the hypothesis according to which cellular immunity or serum antibodies to wart virus should be responsible for the spontaneous cure of warts.

Common warts often disappear spontaneously (8, 13). This has been noticed both for single warts and for multiple warts, which may disappear simultaneously. Rasmussen described the typical clinical appearance of plantar warts in regression (11). The cases comprised only about 3% of a population of wart patients admitted to a large clinic.

The spontaneous cure of warts has led to the suggestion that antibody formation might be involved (11, 12). Cellular immunity visualized by infiltration of lymphocytes as well as circulating antibodies might act in the disappearance of warts. Recent studies have tended to confirm that serum antiviral antibodies occur in relation to regression of warts (9, 10). The aim of the present investigation has been to study cellular immunity and serum antiviral antibodies in a selected group of patients with common warts in regression. Comparative studies were carried out in a control group of wart patients without signs of regression.

MATERIAL

26 warts from 26 patients with either single or multiple palmar or plantar warts showing signs of regression

were selected (Table I). These warts appeared dark or had dark spots (Fig. 1). Tenderness and redness of the surroundings were frequently observed. The duration of the warts before admission ranged from 1 to 24 months (average 8 months). The age of the patients ranged from 7 to 62 years (average 19 years). Before admission, a variety of "self"-treatments had been applied, though not within 8 days before curettage.

The control group comprised 27 warts from 27 patients with single or multiple plantar or palmar warts (Table I). None of the warts in this group of patients showed darkness or other signs of regression. The duration of the warts before admission ranged from 2 to 48 months (average 10 months). The age of the patients ranged from 7 to 58 years (average 25 years).

METHODS

Under local analgesia (lidocain 1% without epinephrine) the whole wart was removed by curettage. The specimen was fixed in Bouin's fixative for 24 hours and embedded in paraffin. Serial sections (5 microns) were stained by hematoxylin and eosin. Only sections including the whole wart and its base were evaluated.

On the day of curettage a blood sample was taken for determination of complement-fixing antibodies (CF antibodies) to wart virus (4). Additional blood samples were scheduled 3 and 5 weeks after curettage. These additional samples were only obtained in some of the patients, however. Thus a total of 53 blood samples were obtained from 26 patients with warts in regression and 47 blood samples from 27 patients in the control group.

RESULTS

Table II shows the incidence of some histopathological characteristics in both groups. Findings typical of common warts (6), such as papillomatosis, acanthosis, parakeratosis, hyperkeratosis, and vacuolated cells in the upper stratum Malpighii occurred with similar frequency in both groups. Basophilic inclusions in the nuclei of vacuolated

Table I. Distribution of palmar and plantar warts

	Multiple	Single
26 regression warts		
Palmar	10	9
Plantar	3	4
27 controls		
Palmar	12	10
Plantar	4	1

cells, supposed to contain virus particles (7, 14, 15) were found in both groups. Also, eosinophilic bodies probably representing a degeneration product (6, 14), were frequently noticed. It was of particular interest that no lymphocytic infiltration in the wart or at its base was found, except in one case. This exception had heavy infiltration of both granulocytes and lymphocytes, indicating unspecific inflammation.

Thrombosis localized to capillaries and venules was only discovered in 4 cases, all of which were warts in regression.

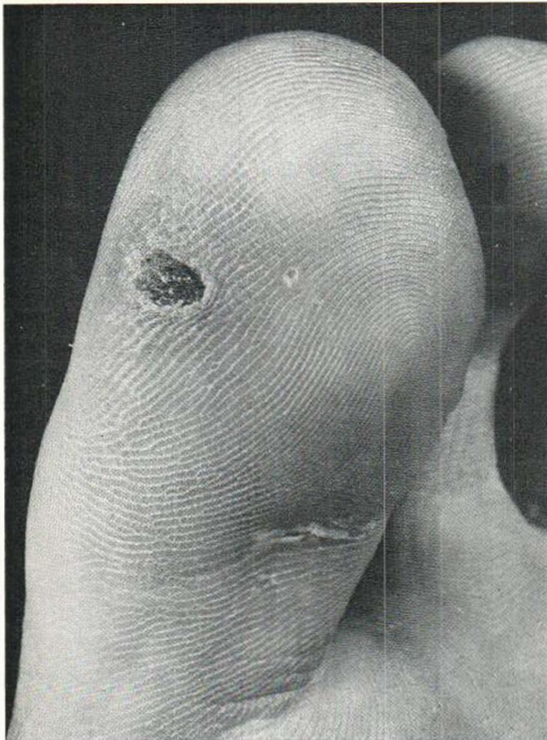


Fig. 1. Plantar wart in regression showing the typical darkness.

Table II. The occurrence of some histopathological features in common warts

	Warts in regression		Warts without signs of regression (controls)	
	Pos.	Neg.	Pos.	Neg.
Papillomatosis	26	0	27	0
Acanthosis	26	0	27	0
Parakeratosis	23	3	24	3
Hyperkeratosis	26	0	27	0
Vacuolated cytoplasm	23	3	22	5
Basophilic bodies	13	13	12	15
Eosinophilic bodies	18	8	17	10
Infiltration of lymphocytes	1	25	0	27
Thrombosis	4	22	0	27

Serum CF antibodies to wart virus were found in only 3 of 26 patients with warts in regression and in 2 of 27 patients in the control group. The titre in all 5 patients with a positive reaction was 4, expressed as the reciprocal of the dilution. A titre of 4 was the lowest which was considered a positive reaction. It is clear that the frequency of positive CF titres showed no significant difference between warts in regression and controls.

COMMENT

The lack of infiltration by lymphocytes may be considered as evidence against cellular immunity being an important mechanism in the spontaneous cure of common warts. Our serum antibody results do not agree with the findings of Ogitvie (9) and Pyrhönen & Penttinen (10). They found a correlation between the spontaneous regression of warts and various serum antibodies, including CF antibodies. Differences in technique and selection of material may very well contribute to this discrepancy. Our results are in agreement with studies of the regression of rabbit skin papillomas, where no correlation between virus antibody titre and regression was found. It should be mentioned, however, that evidence was adduced for development of immunity to autologous rabbit papilloma cells (1, 2, 3, 5).

The clinical signs predicting spontaneous cure seemed to be reliable in our patients too, since all the patients with multiple warts in regression were cured spontaneously within $\frac{3}{4}$ to 2 months. On the other hand, all the patients with multiple warts in the control group still had their remaining warts 2 to 12 months after removal of one wart for investigation.

As warts in regression appear dark, or have dark spots, one might expect that thrombosis would be an obligatory finding. This was not the case in our material. It cannot be ruled out, however, that thrombosis in capillaries and venules had been removed during the embedding and staining procedures in some cases.

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