

## ON ACUTE LINEAR DERMATOSES

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The distribution of a dermatosis in linear streaks is sufficiently striking to arouse interest in its identity as well as its origin. Clinically morphologically we distinguish between linear dermatoses, caused by exogenous moments and spontaneous linear dermatoses which have no external factors to account for them. The latter group can be divided into:

- a) the linear dermatoses where the affection plainly manifests itself as a line
- a) the mixed systematized dermatoses where the affections consists of bands and plates and the systematisation is the most striking point.

As to the course we distinguish:

- 1) the chronic forms. The nevi-like pictures are grouped under this heading. They are often congenital and can be divided into hyperpigmentations, warty growths with hyperkeratosis, anilateral acne-like pictures, or vascular nevi. After a gradual progression up to a certain point the lesion remains stationary for the remainder of the patient's life. Morphologically the mixed systematized picture comes to the fore.
- 2) the acute forms, where either the onset is acute, as with most lichenificated forms, linear psoriasis or lichen ruber, or the whole course is characterized by a short duration as with lichen striatus or the acute linear eczema. This group of linear dermatoses have preserved their true linear character.

To this group of acute forms we can add a few more cases.

The first case is a *linear erythema exudativum multiforme*.

In the literature no case description of a linear course of erythema exudativum multiforme could be found.

### Case 1

A woman, aged 28, had been regularly treated since 1951 for a recurring erythema exudativum, mainly localized on the extremities, while vesiculae and bullae were seen occasionally. Internal examination showed no abnormality; the bloodpicture was normal, while therapy consisted of acid acetylosalicylicum, antibiotics, and antihistaminica.

In 1954 the patient returned for treatment with an extensive bullous exanthema, mainly on the hands and arms. The right arm showed an exquisite arrangement of typical efflorescences. From the base of the thumb slightly arching to medial on the volar side of the upper arm and ending with the attachment of the m. deltoïdes, the cockarde-like efflorescences arrange themselves into a distinct line (photo 1). Looking at this linear course and comparing it to the various line-systems such as the hairstreams, the borders of the metameres, the lines of Voigt, the lines of Blaschko, no resemblance can be found. Nor is there similarity to the running of blood and lymphvessels. On the forearm there is only a resemblance to the lines of cleavage of the

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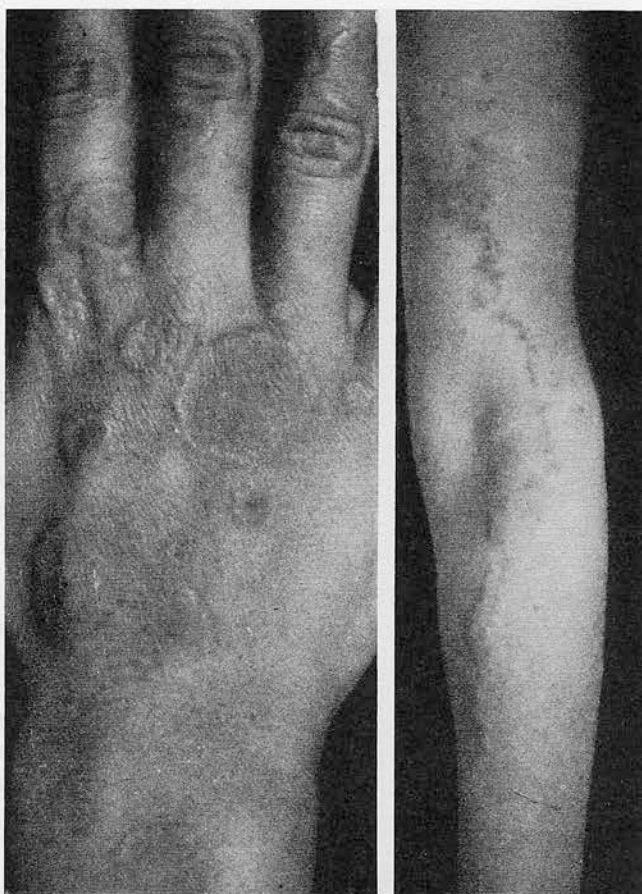


Fig. 1.

skin, but this resemblance does no longer exist on the upper arm, so that this linear system does not offer an explanation of the course either.

The second case is a case of *linear psoriasis*.

The cases of linear psoriasis are not frequent, when the cases of linear course, caused by a streak-shaped Köbner's phenomenon are not taken into account. Salomons, Clark, Gunnar Auken, Brocq, Thibierge, Kern, Fraser and Vellozzi, and Stangenberg described a case of real linear psoriasis. Diagnosis was often possible owing to the presence of psoriasis and the histological picture of the affection. In the cases described, the affection occurred in women six times, in men once. The linear psoriasis occurred four times on the lower extremities three times on the arm, and once on the trunk. The age-distribution was one case of 4, one of 8, one of 15, one of 22, 27 and 28 and one case of 44 years of age.

Only Gunnar Auken and Thibierge thought to find an explanation for the linear course in the similarity to the course of the n. saphenus.

*Case 2*

A labourer, aged 57, had been treated regularly since 1944 for psoriasis vulgaris, localised on head, elbows, knees and coccyx which involved the total skin in 1950, which made hospitalization necessary. Under treatment with chrysarobin, lianthral, Hg, and sulphur the affection receded for some time, until in 1953 another acute eruption occurred. In addition to an extensive psoriasis capitis, big plaques on the before mentioned parts of the body, the scrotum now also showed psoriasis, while a psoriasis guttata was diffusely spread over the whole body. The right arm showed a linear psoriasis, which was reported to have appeared within a few days. From the medial side of the palm, the line arches along the middle of the dorsal side of the forearm to the olecranon (photo 2 a). Under treatment with leningallol, chrysarobin, and podophyllin the affection recedes, a few spots excepted.

The patient then broke off treatment, to return in the spring of 1954 with a new relapse, which again showed the linear psoriasis in all its glory. However, the line did not now run on as far as the elbow, but stopped at two-thirds of the distal part of the forearm (photo 2 b). Histologically the affection also appeared to be a typical psoriasis. None of the known linear systems, nor the course of lymph or bloodvessels appeared to resemble the course of this linear psoriasis, so that they could not be used to explain this linear course.

A third case was *one of acute linear eczema*.

These acute linear eczema are not seen frequently. Siemens, Ruiter, Halter, Balzer, Beek, Bertamini, Lutz, Heller and Samek described 11 cases of this affection. A striking point was, that most of them developed subsequent to an existing disease of the skin, whereas in 4 cases namely those of Lutz, Halter, Heller and Beek a resemblance was seen to the course of the lymphtracks or a distinct lymphangitis was accompanying the eczema.

*Case 3*

Our case concerns a 62 year old man, who was admitted because of hypertension. Hydronephrosis due to aberrant vessels was found and the patient was operated upon by Dr. Wackers of the urologic department. Dolantin was injected subcutaneously into the left upper leg. In the course of twenty-four hours a linear eruption developed, which consisted of manifold streaks (photo 3 a) and took its beginning on the spot of the injection where four hours after the injection an eczematous wheel had appeared. The eruption appeared to consist of papulae, vesiculae, a few pustulae and erythematous-squamous spots (photo 3 b). The course was peculiar, straight upward on the upper leg, then arching over the trochanter, furcating towards the umbilicus and an inch lower downwards, where many disseminated, no longer strictly arranged papulae were present. There was a slight itch. Under treatment with a 10% sulphur mixture the affection was cured in two weeks time without leaving any trace.

Histology: regularly arranged epithelium with pigmentation. Slight acanthosis, distinct spongiosis and crustae formation in stratum corneum. In the papillary and subpapillary layer a perivascular lympho-leucocytic infiltrate, which accompanies the vessels rather deep into the cutis. There is no relation to one of the before mentioned linear systems, nor to the course of lymph- or bloodvessels. In this respect this case is similar to the cases of Siemens, Bertamini, Ruiter, Balzer and Beek's earlier cases.

Senear and Caro argue that the disposition of these lesions in linear streaks cannot due to pure chance. Neither the known linear systems such as the hair-

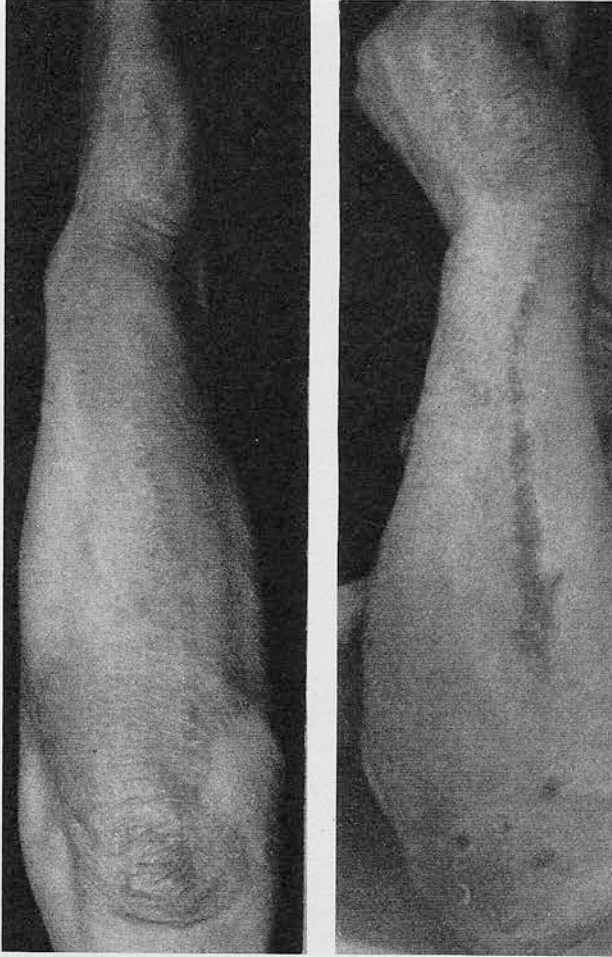


Fig. 2.

streams, the lines of cleavage in the skin, the borders of the metameres, lines of Voigt and those of Blaschko, nor the course of the nerves, the lymphtracks or the bloodvessels can offer a satisfactory explanation of all cases. In some cases of linear eczema only, which developed subsequent to an existing disease of the skin it is possible that the course of the lymphvessels offers a plausible explanation. But in all other cases of acute linear eczema, lichen ruber, lichen striatus, and lichenoid linear eczema no satisfactory explanation is possible. Senear and Caro then draw up the hypothesis of the existence in the skin of *fragile zones of congenital origin*.

In order to get to know more about these fragile zones of congenital origin we have collected from the literature nine cases of linear psoriasis, twelve cases of acute linear eczema, sixteen cases of linear lichen ruber and twenty seven cases of lichen striatus. In table I we have put down all the principal data.



Fig. 3 a.

From this table the conclusion may be drawn that as the occurrence of the disease in male and female patients, there is no clear distinction between the sexes; that the age-distribution of the acute linear eczema, and of the linear psoriasis altogether answer the expectations based on the age-distribution of a total population, as was also found for eczema and psoriasis (Beek), whereas lichen striatus occurs most frequently under twenty years of age, and the linear lichen ruber is most frequent between twenty and forty, which is entirely in agreement with the views of Ormsby and Montgomery, namely that lichen ruber planus rarely occurs in children.

As to the localization of the linear dermatoses, no difference was seen between the right and the left side; these dermatoses were practically always found to be unilateral; of the 64 collected cases only 2 cases of bilateral, non-symmetrical linear dermatoses have been described.

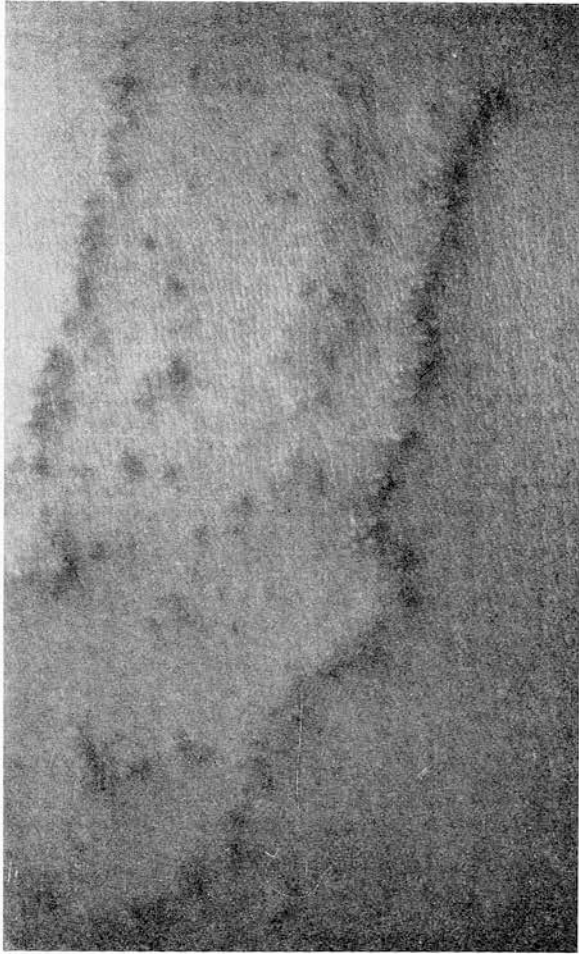


Fig. 3 b.

The lichen striatus occurs nearly exclusively on the extremities, on arms just as often as on legs. The linear psoriasis and lichen ruber also occur isolated on the trunk, but the eczema on the trunk is only subsequent to a linear affection on the extremities. Another possibility is that the linear psoriasis and lichen ruber occur more frequently on the lower extremities than on the arms, whereas the opposite seems true of the acute linear eczema. However, in view of the small number of the cases described the difference is not so great, that it can be called significant. The distribution over dorsal, ventral and dorso-ventral does not offer further data for the course of the fragile zones. The linear course of the various cases shows so much mutual difference, that it is impossible to build up a schematic linear system as e. g. Blaschko could do for the systematized naevi. The only striking point is that these acute linear dermatoses on the extremities-though arching-run lengthways. A ring-shaped circular course, per-

Table 1.

|                  | Percentage<br>to be expected | Linear<br>psoriasis | Ac. lin.<br>eczema | Lichen<br>ruber | Lichen<br>striatus |
|------------------|------------------------------|---------------------|--------------------|-----------------|--------------------|
| Men              | 50 0/0                       | 22 0/0              | 42 0/0             | 59 0/0          | 30 0/0             |
| Women            | 50                           | 78                  | 58                 | 41              | 70                 |
| Age-distribution |                              |                     |                    |                 |                    |
| 0—19 years       | 37                           | 22                  | 25                 | 23              | 63                 |
| 20—40            | 32                           | 56                  | 25                 | 69              | 26                 |
| 40 and older     | 31                           | 22                  | 50                 | 8               | 11                 |
| Localization     |                              |                     |                    |                 |                    |
| right side       | 50                           | 57                  | 50                 | 53              | 50                 |
| left side        | 50                           | 43                  | 50                 | 47              | 50                 |
| Arm              | ?                            | 37                  | 60                 | 13              | 30                 |
| Arm and trunk    |                              | —                   | 8                  | 13              | 22                 |
| Trunk            |                              | 13                  | —                  | 20              | —                  |
| Leg and trunk    |                              | —                   | 16                 | —               | —                  |
| Leg              |                              | 50                  | 16                 | 48              | 44                 |
| Head             |                              | —                   | —                  | 6               | 4                  |
| Dorsal           | ?                            | 50                  | 27                 | 58              | 45                 |
| Dorso-ventral    |                              | 37                  | 27                 | 21,5            | 20                 |
| Ventral          |                              | 17                  | 46                 | 21,5            | 35                 |

pendicular on the longitudinal axis of the extremity, was never seen. On the trunk, however, these acute linear dermatoses do stand perpendicularly on the longitudinal axis and no lengthways running streaks were seen. In one case only the median line was crossed.

Part of the dermatoses developed from the centre towards the periphery, another part from the periphery towards the centre, while a third group fully developed centrifugally as well as centripetally.

Recapitulating we can say:

- The fragile zones present themselves equally on the right and the left side.
- On the extremities the course is lengthways, on the trunk perpendicularly on the longitudinal axis.
- The course of these fragile zones differs individually to such an extent, that they cannot be schematized into a linear system.

#### SUMMARY

A description was given of a case of erythema exudativum multiforme, of a psoriasis vulgaris, and an acute eczema with a linear course. From the cases of acute linear dermatoses described in the literature we may conclude that the fragile zones in the skin, a hypothesis of Senear and Caro to explain the linear course, run lengthways on the extremities and perpendicularly on the longitudinal axis on the trunk, while mutually they differ so much as to their course that a schematization into a simple linear system is impossible.

#### RÉSUMÉ

L'auteur décrit trois cas de dermatoses lignières (psoriasis, erythème polymorphe, eczéma). En considerant des cas semblables dans la littérature on peut en tirer la conclusion que les zones de fragilités de la peau (Hypothese de

Senear et Caro) ont une disposition longitudinal aux extrémités et une disposition rectangulaire vis à vis de l'axe longitudinal au tronc. Leurs dispositions réciproques sont si variables qu'on ne peut pas les schématiser dans un simple système linière.

### ZUSAMMENFASSUNG

Es werden drei »strichförmige Dermatosen« (Erythema exsudativum multiforme, Psoriasis vulgaris und Eczema acutum) beschrieben. Aus derartigen Fällen im Schrifttum lässt sich schliessen, dass die Fragilitätszonen der Haut — Hypothese von Senear und Caro zur Erklärung der strichförmigen Anordnung der Effloreszenzen — an den Extremitäten in der Längsrichtung verlaufen und am Rumpf rechtwinklig zur Längsachse, während ihre gegenseitigen Lagebeziehungen dermassen wechselnd sind, dass man sie nicht durch ein einfaches lineares System schematisieren kann.

### RESUMEN

Se describen un caso de eritema exudativo multiforme, otro de psoriasis vulgar y otro de eczema agudo, de curso linear. De los casos de dermatosis lineares descritos en la literatura podemos concluir que las zonas frágiles de la piel, una hipótesis de Senear y Caro para explicar el curso linear, marchan a lo largo de las extremidades y perpendicularmente al eje longitudinal del tronco, mientras que por el contrario difieren tanto en su curso que resulta imposible esquematizarlas en un simple sistema linear.

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