Prognosis and Atopic Background of Juvenile Plantar Dermatosis and Gluteo-femoral Eczema

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Svensson Å. Prognosis and atopic background of juvenile plantar dermatosis and gluteo-femoral eczema. Acta Derm Venereol (Stockh) 1988; 68: 336–340.

A 10-year follow-up of patients with juvenile plantar dermatosis and gluteo-femoral eczema disclosed a worse prognosis than previously assumed, with a course in some cases protracted into adult age. The presence of atopy was established with a clinical point score system. It was found that 52% of the patients with juvenile plantar dermatosis and 80% of those with gluteo-femoral eczema were atopic. In many cases the childhood dermatitis was followed in adult age by a hand eczema. This was the case in 14% of the gluteo-femoral eczema patients, and no less than 26% of the juvenile plantar dermatitis patients. *Key words: Dermatitis plantaris sicca; Atopic winter feet; Atopic dermatitis.* (Received August 14, 1987.)

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A clinically distinctive dermatosis of children's feet was described 1972 by Möller (1) and Enta (2). This condition, which usually appears for the first time between the ages of 5 and 15, has been given various names: atopic winter feet (1), peridigital dermatitis in children (2), recurrent juvenile eczema of the hands and feet (3), dermatitis plantaris sicca (4), juvenile plantar dermatosis (5), fore-foot eczema (6), shoe dermatosis in children (7), atopic eczema localized to the fore-foot (8), dry feet syndrome (9), wet and dry foot syndrome (10). The name juvenile plantar dermatosis (JPD) seems to be the most commonly accepted and will be used in this work.

Eczema localized to the gluteal and posterior femoral regions is recognized as another fairly distinctive clinical entity (11, 12). This dermatosis will also normally appear between 5 and 15 years of age (12). The term gluteo-femoral eczema (GFE) will be used in this work.

A relationship to atopy has been claimed for JPD (1) as well as for GFE (11) but this has never been corroborated by objective methods. In the present work a clinical diagnostic instrument (13) was applied in order to identify atopic subjects among these two categories of patients. A second purpose was to evaluate the duration of the two diseases.

MATERIAL AND METHODS

The purpose of the study was to re-examine patients from our Department who had received the diagnosis JPD and/or GFE 10 years previously, when aged 5 and 15 years. The patients with flexural dermatitis at their first visit 10 years earlier were excluded from re-examination; true, this would have added further atopic cases to the materials, but would also imply arguing in a circle in the diagnostic procedure.

Of the 64 patients (24 males, 40 females) with GFE, 14 could not be traced. The other 50 patients were asked whether their lesions had healed or not. They were also offered re-examination, which 20 of them declined. Thus 30 patients (15 males, 15 females) with previous GFE were re-examined. Mean age at re-examination was 19.3 years.

Of the 77 patients (38 males, 39 females) with JPD, 12 could not be traced. The other 65 patients were asked whether their skin disease was healed and they were also offered re-examination, which 23 accepted (10 males, 13 females). Mean age at re-examination was 20.1 years.

All patients re-examined were investigated with regard to the presence of atopic dermatitis. For this purpose a previously devised score system was used (13). Various symptoms and signs were evaluated

and each patient obtained a score sum. To be identified as an atopic the patient's score sum should reach more than 15 points. A patient with a history of atopic dermatitis, allergic rhinitis or asthma was regarded as an atopic even if he did not score more than 15 points.

This score system was originally based on patients selected because of a chronic and itching flexural dermatitis which consequently was not included in the system. In the present study, previous or present flexural dermatitis was therefore added to the various symptoms and signs registered. I have done this for two reasons. Firstly, this is the most typical sign of atopic dermatitis and it would be of interest to account for the frequency of this single sign. Secondly, I have chosen to regard patients with this sign—as well as with allergic rhinitis and asthma—as atopics, even if they did not obtain a score sum of more than 15 points.

An optimal degree of accuracy of anamnestic data was ascertained by sending the patient a questionnaire a few days before the office examination. For statistical analysis, the Fischer exact test was used.

RESULTS

Of the 30 patients with *gluteo-femoral eczema* (GFE) 17 could be classified as atopic, according to the score system. Among the other 13 patients there were 7 with a present or previous personal history of atopic disease (allergic rhinitis 4, asthma 1 and flexural dermatitis typical of atopic dermatitis 4). In 6 cases there was no personal or family history of atopic disease. 15 of the 30 patients with thigh eczema had been healed for at least 1 year. The eczema ceased between 10 and 18 years (mean 13.8 years). The other 15 patients (mean age 18.8 years) had recurrent though diminishing symptoms.

Hand eczema was noticed in 3 of the 30 patients re-examined, and reported in 4 of the 20 patients who declined reinvestigation. Thus 7 of the 50 patients with GFE (14%) had had hand eczema sporadically or continuously during the last 12 months.

Of the 20 patients (5 males, 15 females) with previous GFE and declining further investigation, 15 had been healed for at least 1 year. One male and 4 females reported they had problems with GFE every winter.

Table I. *Presence of atopic disease in patients and first-degree relatives in previous reports of juvenile plantar dermatosis*

Author(s)	Personal history of atopy	Family history of atopy	Personal or family history of atopy
Möller	4/13	7/13	–
Enta	15/52	17/52	32/52
Schultz & Zachariae	0/21	6/21	6/21
Friis	8/30	9/30	–
MacKie & Husain	12/102	11/102	23/102
Millard & Gould	12/21	14/21	–
Neering & van Dijk	5/23	9/23	–
Hambly & Wilkinson	3/28	4/28	–
Voss Jepsen	5/19	6/19	9/19
Shrank	0/38	0/38	0/38
Romaguera, Grimalt & Ferrando	4/15	–	–
Kint, Van Hecke & Leys	2/22	6/20	8/22
Thiru Moorthy & Rajan	13/64	22/64	27/64
Lachapelle & Tennstedt	30/80	55/80	73/80
Young	7/28	9/28	12/28
Ashton & Griffiths	76/218	107/218	152/218
Jones, English et al.	15/50	–	21/50
Total	211/824 (26%)	282/757 (37%)	363/694 (52%)

Of the 23 patients who 10 years previously received the diagnosis *juvenile plantar dermatosis* (JPD), 10 could be classified as atopic, according to our score system. In the other 13 there was 1 with a previous flexural dermatitis, 1 with present allergic rhinitis and 3 with a family history of atopic disease. In 8 patients there was no personal or family history of atopic disease.

In 11 patients (4 males, 7 females) the dermatosis of the feet had been healed for at least 1 year. Their symptoms ceased between 10 and 17 years of age (mean 14.3 years). The other 12 patients (7 males, 5 females) with a mean age of 19.6 years had recurrent though diminishing symptoms. Only 1 patient of the 12 had a personal history of flexural dermatitis, compared with 5 of the healed patients ($p<0.05$).

Altogether, 11 of the 23 re-examined patients (5 males, 6 females) had a history of hand dermatitis. In 9 of the 23 patients there was current dermatitis, in 7 patients localized mainly to the volar aspects of the fingers and to the palms. 4 of the 11 patients had already had hand dermatitis 10 years ago, the others had developed their symptoms later.

Of the 42 patients with JPD who declined re-examination, there were 8 with an anamnestic hand dermatitis. All of them had had problems with their hand dermatitis during the last year. Altogether 17 of the 65 patients with JPD had a history of hand dermatitis during the last 12 months.

Of the 42 patients with JPD who declined re-examination, 38 had been healed for at least 1 year. Thus 4 had a persisting disease, though only during winter months.

Only 1 patient is included in both JPD and GFE groups. This patient, a female, also had a present flexural dermatitis. Her GFE was not healed but her JPD healed 5 years ago. She had hand eczema localized to the volar aspects of the fingers and interdigitally.

In the GFE group only this patient had JPD. Among the re-examined patients with JPD, 3 other patients had a personal history of GFE. All 3 patients had developed GFE after their first visit to the clinic.

DISCUSSION

This investigation has shown that the majority of patients with GFE are atopic. Seventeen of the patients were atopic according to our score system and 7 additional patients had a personal history of atopic disease. Out of these 7 patients, 5 had been cured of their eczema for at least 1 year. Six patients had no personal or family history of atopic disease. Fifteen of the re-examined patients and 4 of the patients who declined re-examination had had problems with their GFE during the last 12 months. Since 19 of the 50 patients still had problem with their GFE, the disease seems to run a more prolonged course than previously assumed (14).

Ten of the 23 patients with JPD fulfilled the criteria of atopic dermatitis according to our score system and 2 other patients had a personal history of atopic disease. Thus about half of the patients were atopic, an estimate that agrees with most (though not all) previous investigations (Table I) (1–6, 9, 15–24). Twelve of the re-examined patients with JPD and 4 who declined reinvestigation had had disease activity during the last 12 months. As 16 of the 65 patients still had problems with JPD during the last 12 months, the disease seems to run a more prolonged course than previously assumed (25, 26), but others (17, 20, 24) have also reported several patients with a more prolonged course and their results are in accordance with this investigation.

There is a controversy as to whether there is a seasonal variation or not in JPD. Many authors have reported exacerbation in the winter months (1–4, 8, 21) but others have found that their patients get worse during the summer months (6, 22), or have found no marked seasonal variation at all (5, 15, 16, 18, 26). In this study 10 patients were worse in winter, 1

in summer and in 5 there was no seasonal variation. Thus, when seasonal variation occurs the majority of patients get worse in winter time.

JPD has previously been associated in some cases with dry fissurated dermatitis on fingertips and palms (2, 3, 16, 20–22, 26, 27). The present follow-up points to a clinical picture of a similar hand dermatitis localized to the palms and the volar aspects of fingers. Of the patients with JPD, no fewer than 26% had hand eczema at re-examination. 58% of the patients with both atopy and JPD had hand eczema.

In conclusion, the present study provides evidence of atopy in about half the patients with JPD and in 80% of those with GFE. These figures are considerably higher than the frequency of atopic disease in different population studies (28–30). The importance of a constitutional factor in at least JPD is evident from the occurrence of this disease in identical twins (31). It is quite possible that an atopic background is not a prerequisite for these two juvenile dermatitides to develop; obviously, however, the presence of atopy is so common that it must be considered the main cause for JPD and GFE.

This long-term follow-up of the two diseases has provided clinical data enabling me to make a somewhat worse prognosis than that previously assumed. Thus, in several patients both JPD and GFE were still active in adult age. In this age group it would be more appropriate to use the term dermatitis plantaris sicca instead of JPD.

REFERENCES

1. Möller H. Atopic winterfeet in children. Acta Derm Venereol (Stockh) 1972; 52: 401–405.
2. Enta T. Peridigital dermatitis in children. Cutis 1972; 10: 325–328.
3. Schultz H, Zachariae H. The trafuril test in recurrent juvenile eczema of hands and feet. Acta Derm Venereol (Stockh) 1972; 52: 398–400.
4. Friis B. Dermatitis plantaris sicca hos børn. Ugeskr Læger 1973; 135/28: 1466–1470.
5. MacKie R, Husain S. Juvenile plantar dermatosis: A new entity? Clin Exp Dermatol 1976; 1: 253–260.
6. Hambly E, Wilkinson D. Sur quelques formes atypiques d'eczéma chez l'enfant. Ann Dermatol Venereol 1978; 105: 369–371.
7. Shrank A. Shoe dermatosis in children. Br J Dermatol 1978; 99, Suppl 16: 22.
8. Verbov J. Atopic eczema localized to the forefoot. An unrecognized entity. Practitioner, 1978; 220: 465–466.
9. Romaguera C, Grimalt F, Ferrando J. Dry feet syndrome or juvenile plantar dermatosis. Contact Dermatitis 1982; 8: 219–220.
10. Steck W. Juvenile plantar dermatosis: the "wet and dry foot syndrome". Cleveland Clinic Quarterly, 1983; 50: 145–149.
11. Herzberg J. Wenig bekannte Formen der Neurodermitis. Hautarzt 1973; 24: 47–51.
12. Fredrikson T, Faergemann J. The atopic thigh: 'a starting-School' symptom? Acta Derm Venereol (Stockh) 1981; 61: 452–453.
13. Svensson Å, Edman B, Möller H. A diagnostic tool for atopic dermatitis based on clinical criteria. Acta Derm Venereol (Stockh) 1985; Suppl 114: 33–40.
14. Möller H. Clinical aspects of atopic dermatitis in childhood. Acta Derm Venereol (Stockh) 1981; Suppl 95: 25–28.
15. Millard LG, Gould DJ. Juvenile plantar dermatosis. Clin Exp Dermatol 1977; 2: 186–187.
16. Neering H, van Dijk E. Juvenile plantar dermatosis. Acta Derm Venereol (Stockh) 1978; 58: 531–534.
17. Voss Jepsen L. Dermatitis plantaris sicca: A retrospective study of children with recurrent dermatitis of the feet. Acta Derm Venereol (Stockh) 1979; 59: 257–259.
18. Shrank AB. The aetiology of juvenile plantar dermatosis. Br J Dermatol 1979; 100: 641–648.
19. Kint A, Van Hecke E, Leys G. Dermatitis plantaris sicca. Dermatologica 1982; 165: 500–509.
20. Thiru Moorthy TT, Rajan VS. Juvenile plantar dermatosis in Singapore. Int J Dermatol 1984; 23: 476–479.
21. Lachapelle JM, Tennstedt D. Juvenile plantar dermatosis: A report of 80 cases. Am J Indust Med 1985; 8: 291–295.
22. Young E. Forefoot eczema—further studies and a review. Clin Exp Dermatol 1986; 11: 523–528.

23. Asthon RE, Griffiths WAD. Juvenile plantar dermatosis—Atopy or footwear? Clin Exp Dermatol 1986; 11: 529–534.
24. Jones S, English J, Forsyth A, MacKie R. Juvenile plantar dermatosis—an 8-year follow-up of 102 patients. Clin Exp Dermatol 1987; 12: 5–7.
25. MacKie RM. Juvenile plantar dermatosis. Semin Dermatol 1982; 1: 67–71.
26. Ashton RE, Russell Jones R, Griffiths A. Juvenile plantar dermatosis. Arch Dermatol 1985; 121: 225–228.
27. Ferrando J, Bassas MJ, Torres yC et al. Dermatitis plantar juvenil (sindrome de los pies secos). Actas Dermosifiliogr 1981; 72: 551–556.
28. Edfors-Lubs ML. Allergy in 7000 twin pairs. Acta Allergol 1971; 26: 249–285.
29. Kjellman M. Atopic disease in 7-year-old children. Acta Paediatr Scand 1977; 66: 465–471.
30. Larsson P-Å, Lidén S. Prevalence of skin diseases among adolescents 12–16 years of age. Acta Derm Venereol (Stockh) 1980; 60: 415–423.
31. Stankler L. Juvenile plantar dermatosis in identical twins. Br J Dermatol 1978; 99: 585.