

## LETTERS TO THE EDITOR

### Cold Panniculitis in Finnish Horse Riders

Anu Pekki<sup>1</sup>, Riitta Sauni<sup>1</sup>, Annikki Vaalasti<sup>2</sup>, Pauliina Toivio<sup>1</sup>, Riitta Huotari-Orava<sup>3</sup> and Taina Hasan<sup>2</sup>

<sup>1</sup>Finnish Institute of Occupational Health, Departments of <sup>2</sup>Dermatology and <sup>3</sup>Pathology, Tampere University Hospital, P.O. Box 2001, FI-33521 Tampere, Finland. E-mail: anu.pekki@ttry.fi  
Accepted November 25, 2010.

Cold panniculitis in horse riders, also known as horse rider's pernio or equestrian panniculitis, is a rare phenomenon. Most published reports present only a few patients (1–5). Cold-induced pernio has also been reported in cyclists, motorists, milk-delivery men, golf-buggy drivers, and, in the context of other outdoor activities practised in wet and windy conditions (6), in both males and females (7). We describe here 3 patients, and an estimate of the prevalence of, and predisposing factors for, cold panniculitis among Finnish stable owners and their personnel based on a questionnaire study.

#### CASE REPORT AND METHODS

We recently diagnosed cold panniculitis in three female horse riders (aged 18, 28 and 33 years), who had been riding for 10–20 years. They experienced skin symptoms during the cold winter months (from November to May) in particular (Fig. 1). The haematological and immunological parameters studied were normal (i.e. blood cell count, erythrocyte sedimentation rate, serum creatinine, creatine kinase, alanine amino-transferase, amylase, thyroid stimulating hormone, free thyroxin, rheumatoid factor, cold agglutinins, cryoglobulins, immunoglobulins (G, A, M), serum protein electrophoresis, components of complement (C3, C4), antinuclear antibodies, antibodies against extractable nuclear antigens and double-stranded DNA antigens, anticardiolipin antibodies, anti- $\beta_2$ -glycoprotein antibodies, and anti-neutrophil cytoplasmic antibodies). They did not experience any other disease in addition to the skin symptoms.

To examine the prevalence of cold panniculitis among horse riders, we sent an e-mail questionnaire on skin symptoms to the

members of the Equestrian Federation of Finland ( $n=234$ ). Two photographs of typical equestrian panniculitis, with ulcerating or oozing raised plaques, redness and hyperpigmentation on the lateral side of a thigh were included with the questionnaire in order to help the respondents recognize the symptoms.

Statistical analyses of the results were performed using statistical package SSPS 15.0 software (SSPS Inc., Chicago, IL, USA), applying cross-tabulation,  $\chi^2$  test, Student's *t*-test, Mann-Whitney *U* test and logistic regression.

#### RESULTS

Of the 234 questionnaires sent, 110 (47%) were returned. Three answers were incomplete. Thus, 107 answers (46%) were included in the analyses. Twenty-five (25%) respondents reported panniculitis-like skin symptoms during the winter. One-third of the riders reported the symptoms starting in October, and being worst in January and February (the coldest months of the year in Finland). One-fifth still had symptoms in March. The riders with symptoms were significantly younger than those who were symptomless ( $p=0.018$ ).

Those who smoked more than 10 cigarettes daily had symptoms significantly more often than non-smokers ( $p=0.025$ ). In addition, riders under 35 years of age and those who wore tight riding clothes for the whole working day (not only when riding) were at risk of skin symptoms ( $p=0.018$  and  $p=0.005$ , respectively). Furthermore, those with symptoms rode for significantly

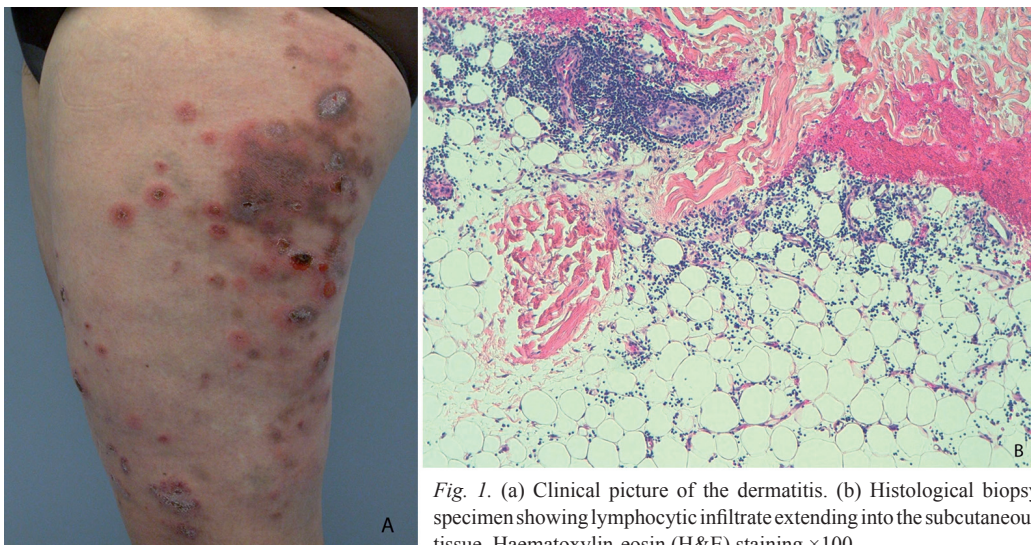


Fig. 1. (a) Clinical picture of the dermatitis. (b) Histological biopsy specimen showing lymphocytic infiltrate extending into the subcutaneous tissue. Haematoxylin-eosin (H&E) staining  $\times 100$ .

longer periods (median 8 h weekly) than those without symptoms (median 6 h weekly) ( $p=0.045$ ).

Body mass index (BMI), the existence of Raynaud's phenomenon and other skin symptoms except for equestrian panniculitis-like disease, type of clothing, length of the riding career, and geographical location of the stable (whether in Southern, Eastern, Western or Northern part of Finland) were not significantly associated with symptoms. The role of gender could not be statistically evaluated.

Half of the riders with skin symptoms reported that warm clothing and local treatment with a corticosteroid cream or emollients alleviated their symptoms.

## DISCUSSION

To our knowledge this is the first epidemiological survey of cold panniculitis in horse riders. Every fourth of our e-mail respondents reported panniculitis-like symptoms. Due to the rather low response rate this figure may be biased, but even if all the non-respondents were symptom-free, the prevalence of panniculitis-like symptoms would still be as high as 11%. Heavy smoking, age less than 35 years and tight clothes worn for many hours were associated with skin symptoms. This is in line with previous observations (8, 9). Furthermore, cold may lead to increased blood viscosity (9) and predispose to panniculitis. In concordance with most of the previously published patient cases, none of our three patients showed any aberrations in the comprehensive laboratory tests except for skin histology.

The diagnosis of equestrian panniculitis is not difficult when taking into account riding history, the typical location of skin lesions on the lateral aspect of the thighs, and the histology of the skin. It is important to take a skin biopsy deep enough to include subcutaneous fat, as the histological changes are most marked in deep dermis and adipose tissue. Since there are no diagnostic haematological or immunological changes, routine extensive laboratory tests are not necessary in clinically typical cases. It is worthwhile investigating cold agglutinins, since these immunoglobulins have been found in patients with equestrian panniculitis (12). Only in those cases in which vasculitis, lupus

erythematosus, erythema nodosum (10) or erythema multiforme are also possible are additional appropriate differential diagnostic investigations required.

There is no simple method to treat or prevent cold panniculitis, except for dressing warmly. Nifedipine is recommended for treatment, but the evidence to support its use is not convincing (11–13). One of our patients used nifedipine without success.

We conclude that cold panniculitis is common among active young female horse riders in Finland. Wearing tight clothing for long periods in cold weather, heavy smoking and age under 35 years predispose to panniculitis. Wearing loose-fitting warm clothing and giving up smoking are recommended to prevent this condition.

## REFERENCES

1. Haxthausen H. Cold in reaction to skin diseases. Copenhagen: Levin and Munksgaard; 1930, p. 66.
2. Beacham B, Cooper P, Buchanan G, Peyton E, Weary M. Equestrian cold panniculitis in women. *Arch Dermatol* 1980; 116: 1025–1027.
3. Stam F, van Meurs T, Koley C. Between hands and feet. *Neth J Med* 2005; 11: 447–448.
4. Weismann K, Larsen F. Pernio of the hips in young girls wearing tight-fitting jeans with a low waistband. *Acta Derm Venereol* 2006; 86: 558–559.
5. Quesada-Cortes A, Campos-Munos L, Diaz-Diaz R, Casado-Jimenez M. Cold panniculitis. *Dermatol Clin* 2008; 26: 485–489.
6. Price R, Murdoch D. Perniosis (chilblains) of the thigh: report of five cases, including four following river crossings. *High Alt Med Biol* 2001; 4: 535–538.
7. Vickers H, Bleehen S. Equestrian cold panniculitis in women. *Arch Dermatol* 1981; 117: 315–316.
8. Crowson A, Magro C. Idiopathic perniosis and its mimics: a clinical and histological study of 38 cases. *Human Pathol* 1997; 28: 478–484.
9. Page E, Shear N. Temperature-dependent skin disorders. *J Am Acad Dermatol* 1988; 18: 1003–1009.
10. Ter Poorten M, Thiers B. Panniculitis. *Dermatol Clin* 2002; 20: 421–433.
11. Editorial. Winter kibes in horsey women. *Lancet* 1980; 2: 1345.
12. De Silva BD, McLaren K, Doherty V. Equestrian perniosis associated with cold agglutinins: a novel finding. *Clin Dermatol* 2000; 25: 285–288.
13. Teixeira F, Punjabi S, Dazie O, Charakida E, Chu AC. The hazards of horse riding. *Aust Fam Physician* 2005; 34: 369–370.