

Prurigo Nodularis in Hepatitis C Infection: Result of an Occupational Disease?

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Chronic pruritus is a frequent symptom, which also presents in fields other than dermatology. A number of internal diseases can be accompanied by severe chronic pruritus (CP). A new classification for CP was developed in 2007, suggesting three categories according to the clinical presentation of CP and six categories according to its aetiology (1). Prurigo nodularis (PN) is a chronic inflammatory skin alteration that is usually caused by severe CP, with secondary development of excoriated and ulcerated papules and nodules being the result of frequent scratching (2). According to the clinical classification described above, PN corresponds to group III (Pruritus with chronic secondary scratch lesions) and, due to its aetiology, PN can be caused by dermatological, systemic, neurological or psychosomatic/somatoform diseases, or may have mixed causes (1).

CASE REPORT

A 40-year-old nurse contracted hepatitis C, subtype I B in 1996 as a result of a needle-stick injury. She received treatment for this disease, including interferon, and it was acknowledged as an occupational disease no. BK 3103 in 1998, according to the German Law on Occupational Diseases ("infectious diseases, when the affected person worked in the health service, welfare institutions or in a laboratory, or was strongly exposed to infection in a similar way during another occupation"). Despite interferon treatment and other therapeutic measures, the patient had to give up work due to increasing fatigue, weight loss and polyneuropathy in 1998. In 2000, she became occupationally disabled and entered the pension scheme. A reduction in earning capacity of 30% in the gastroenterological area was determined due to the chronic infection with hepatitis C subtype IB.

Since 1997, the patient had developed CP, leading to papules and nodules on the body dominating on the right arm, right leg, and on the back. Various topical treatments (glucocorticosteroids, antiseptics, antibiotics, urea) and systemic therapies (antihistamines and montelukast) did not relieve the CP. In 2005, the patient presented to the itch clinic of the University Hospital Münster, Germany. Systemic therapy with a μ -opioid receptor antagonist (naltrexone 2 \times 50 mg daily) was started, which led to a decrease in CP for some months, but did not abolish it completely. The patient is currently still treated at the clinic. Cold showers and ice packs also had a positive effect on CP. Warmth, close-fitting clothes and warm bathing and showering, however, aggravated pruritus. She also reported sleeplessness and mood changes, e.g. aggressive feelings, especially in public, when "itch attacks" seized her.

In 2005, the patient claimed a further reduction in her earning capacity due to CP. She claimed that the CP was a consequence of the occupational disease (hepatitis C). According to the German Law on Occupational Diseases, one had to determine whether there was a correlation between CP, PN and the hepatitis C acquired occupationally in 1996. Three expert opinions (dermatologists) were required to decide whether the CP was a consequence of the occupational disease. They are summarized as follows:

First expert opinion in 2006. Based on the presented documents, and without seeing and examining the patient, a correlation between the hepatitis C and PN was not considered probable. This opinion was based on the fact that the patient underwent psychotherapeutic treatment in 2001 and 2002, as the family doctor found her increasingly depressive. Therefore, the expert considered CP to be of somatoform or psychogenic origin. According to the patient's records, she had been treated with various antidepressants and centrally effective substances, e.g. tranquilizers. Thus, the expert considered the skin disease to be a manifestation of a psychiatric disease. In addition, he argued that the patient had taken, over months to years, psychotropic drugs, (pre)menopausal hormone preparations, non-steroidal anti-inflammatory and analgesic drugs. Thus, he concluded it was drug-induced pruritus.

Second expert opinion (first author of this manuscript) in 2007. The patient presented with multiple, partly excoriated nodules on the extremities, the back and the gluteal region, up to a diameter of 1 cm (Fig. 1), and multiple post-inflammatory hyper- and hypo-pigmentations on the lower legs, the arms and, especially, on the back. There was no atopic skin diathesis. Laboratory testing showed a discrete leukocytosis, with 10.01/nl, increased transaminases and cholinesterase, a clearly increased GGT of 174 U/l. Alkaline phosphatase, total bilirubin, direct bilirubin, creatinine and glucose were normal. Ferritin was increased, at 384 μ g/l. Further laboratory test results, including thyroid gland, iron serology, and zinc were without pathological findings. Prick and patch testing which had been performed before were not repeated, as there was no evidence for allergic contact dermatitis or type I allergy. In addition, the patient was taking a μ -opioid receptor blocker, a medication that is known to influence the test reactivity. No clinical relevance of the already-known type IV sensitizations against nickel sulphate and mercapto mix was detected.

CP with clinical manifestation of PN in the setting of a chronic hepatitis C subtype I B infection was diagnosed, and the patient's PN was seen as secondary patch lesions caused by a persisting hepatic pruritus (3–8). This hepatic pruritus was considered to be a consequence of the hepatitis C infection, and hence a secondary effect of the acknowledged occupational disease no. BK 3101. The additional reduction in earning capacity caused by CP was assessed as 10%.



Fig. 1. Prurigo nodularis on the right lower arm, with several excoriated nodules and papules, crusts and patchy hyperpigmentation, as well as multiple whitish hypopigmentation.

Court decision. Based on these two expert opinions, the Social Court rejected the patient's claim on 19 June 2008, on the grounds that PN could not, with the required probability, be considered an effect of the occupational disease BK 3101. The patient appealed on 30th July 2008. Thereupon, the court required a third dermatological expert opinion in January 2010.

Third expert opinion in 2010. The third expert followed the line of the second expert, that the hepatic disease must be seen as the cause of the skin disease (PN) with adequate probability. The reduction in earning capacity relating to the dermatological field (PN, CP) was rated as 20%, due to the chronic character of the disease, the described subjective loss in quality of life and the large extension of the skin lesions. Thus, a total reduction in earning capacity of 50% was proposed. The Higher Social Court hence decided that the PN should be seen as an indirect consequence of the occupational disease BK 3101 (hepatitis C). The Employers Liability Insurance Association offered the patient a compromise agreement, which the patient accepted. She currently receives a pension of 40% of earning capacity.

DISCUSSION

Germany has statutory accident insurance for the protection of all employees, which is liable in the case of occupational diseases. If a disease is recognized as occupational disease, the reduction in earning capacity is determined. In our case, this occurred in 1998, when the patient received a pension to compensate for a reduction in earning capacity. The pension amounted to 30% of her last salary. This system theoretically allows patients with occupational diseases in Germany to continue to work in another, usually less qualified profession, while receiving a pension for the rest of their life for the occupationally-acquired disease. Statutory accident insurance as well as the recognition of an occupational disease are completely independent of statutory pension insurance. In the case described here, it was certified that the patient was permanently unable to work (i.e. not able to fulfil any work) in 2000 due to the hepatitis C infection with the described consequences, such as fatigue, weight loss, and polyneuropathy. The patient has received a disability pension since then from the pension insurance. In addition, the experts were asked to define whether the CP was an effect of the occupational disease recognized in the patient in 1998, and thus the pension rate should be increased to compensate for the additional reduction in earning capacity caused by CP.

CP may occur in many hepatic diseases, such as primary biliary cirrhosis (PBC), bile duct stenosis, drug-induced cholestasis, and viral hepatic diseases, and particularly chronic hepatitis C infection (4–8). It was shown that an infection with hepatitis C must be considered as an important possible cause of PN (8). The first expert argued that the increased results of the liver function test might have been induced by the μ -opioid receptor antagonists. According to the authors' experiences, however, naltrexone does not usually affect the liver function if applied under medical supervision. It could not be proved that the CP had been induced by

the intake of other drugs. Also, it could not be proved that CP was of primary psychosomatic or somatoform origin. Prior to her infection with hepatitis C, neither had she ever received any psychiatric or psychosomatic treatment. In 2005, she presented to the Department of Psychosomatic Medicine of the University Hospital Münster, and "psycho-social influencing factors in the course of PN, and a depressive episode" were diagnosed. As she had contracted hepatitis C in 1996 she required treatment with interferon, which led to an impaired general condition, with fatigue, weight loss and polyneuropathy. Finally, in 2000, at the age of 44 years, she was forced to quit her professional career as a nurse due to the effects of the disease. This led to depressive episodes. The disease had a high impact on her life, e.g. job loss, disability and social withdrawal. However, this does not justify the classification of the CP as being of somatoform or psychogenic origin. In recognition of all possible aetiological causes, the most probable cause of CP in this case is hepatitis C.

By publishing this complex case, we wish to draw attention to the fact that CP may be the consequence of an occupational disease, such as hepatitis C infection, presenting clinically as PN. Medical doctors also working as field experts should be aware if patients report CP. Also in view of the intense psychological strain and the great reduction in quality of life caused by CP, they should always decide (according to the clinical course and the scientific literature) whether the CP is related to the occupational disease.

The authors declare no conflict of interest.

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