Re-evaluation of the Pathergy Test in Behçet's Disease

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A positive pathergy test in patients with Behçet's disease has been accepted as a diagnostic criterion by many authors, but in recents years it has been claimed that the test has a decreased positivity. We have examined the test in 92 proven cases of Behçet's disease, using 20G and 26G disposable needles and evaluated them after 48 h. Maximum positivity was found to be 65% when we used needles of size 0.9 mm (20G), but the reactivity was considerably less when 0.3 mm diameter (26G) needles were used. The disposable needles used nowadays are less traumatic to initiate the reaction than were the non-disposable ones used in the pre-AIDS era.

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The development of a papular or a pustular reaction at the test site within 24–48 h after a needle prick or injection of autologous serum or physiological saline, histamine or acetylcholine is known as 'skin hyperreactivity' or 'pathergy' (1). The positivity of the reaction has been accepted as a diagnostic criterion for Behçet's disease (BD).

Pathergy was found to be 79–84% in Japanese and Turkish patients (2, 3) but was lower in patients from Britain and the USA (4). In recent years we have noticed a decrease in the test's positivity and therefore asked the opinion of other centres in the country and found similar results. We also remarked that although some patients had no reaction on the skin test site, they did develop a pustule at the venous puncture site when they had blood drawn. The diameter of the needle used for the skin test was 0.3 mm = 26G and for the venous puncture, 0.9 mm = 20G.

The effect of needle size for the test has never been investigated and found to be important.

MATERIALS AND METHODS

A pathergy test was applied to 92 proven BD patients (54 females and 38 males, mean age 32.4 years). The duration of the disease ranged between 2 months and 35 years (<5 years = 37 cases, 5–10 years = 25 and > 10 years = 30; average 7½ years). Sixty-seven of them were undergoing different treatment regimens, while 35 were not receiving treatment. Twenty-nine had no symptoms during the test and the rest (n = 63) had either aphthous ulcers or some other symptom(s).

The same test was carried out on a control group consisting of 25 healthy hospital staff and medical studens (7 females and 18 males, mean age 23.4) and on 22 subjects having common oral aphthae but no other symptoms of BD (12 females and 10 males, mean age 35.6).

The pathergy test was performed on an apparently avascular site on both forearms down to a depth of 3–4 mm in the dermis as a puncture and 0.2 ml physiological saline injection by using a 20G disposable needle for right, 26G for the left.

The evaluation was made after 48 h. Simple erythema was accepted as negative, erythema and papule as positive. The severity of the reaction has not been taken into consideration.

Yates' modification of the four-fold square test was used for the statistical analysis.

RESULTS

The results of the pathergy test are given in Table I. In 2 of the patients with aphthae a weak positive reaction developed with the 20G needle whereas a negative reaction developed with the 26G. One patient with aphthae reported, a pustular reaction with both the 20G and the 26G needles. Three patients with apthous ulcers who had a positive pathergy test were evaluated as potential BD patients. Healthy control subjects proved negative with both needles.

The total number of the patients having positive results with the 20G needle was 60, giving a prevalence of 65.2%. This figure fell to 35.8% (33 cases) when 26G needles were used (P <0.001). Disease activity treatment status and sex were not correlated to the results of the pathergy test.

DISCUSSION

It has been noticed that pathergy positivity decreases when the disease persists for more than 5 years. In our study group the mean duration was 7½ years. In the series by Dilsen et al., the prevalence of pathergy was 67% and the average duration of the disease was 8 years (5). This low pathergy positivity may have been due to the fact that all recent work

Table I. *Results of the pathergy tests.*

Groups	20G (+) 26G (+)	20G (+) 26G (–)	20G (–) 26G (–)	Total
BD	33	27	32	92
Aphthae	1	2	19	22
Healthy controls	–	–	25	25

has been carried out on older patient groups. However, we suggest that the most important factor influencing the test results is the gauge of the needle used for the test, which has not been mentioned in most publications. The aim of this test is to provoke a neutrophilic or leukocytoclastic vasculitic reaction in the dermis (6). This study has shown that pathergy positivity increases in relation to the diameter of the needle. It is evident that a fine needle causes less trauma therefore seems unsuitable for this particular purpose.

Pathergy positivity never fell below 80% in studies carried out in Turkey before 1984. In 1985, 1986 and 1987, three different BD centres reported the results as 70.4%, 67% and 65% (7, 5, 8).

Non-disposable needles were used in Turkey until 1985. They were always sterilized in boiling tap water. Because of the prevention program for AIDS, the use of disposable syringes has been compulsory since 1985. We thought that there must have been a difference between the calibres of the needles used in the past and the disposable needles now used. The surface of needles repeatedly boiled and used probably becomes rough due to the collection of calcium on the bent parts of the needles, which is why they are more traumatic than the disposable ones. We suggest that the decrease in pathergy positivity encountered since 1985 can be explained by this fact.

REFERENCES

1. Matsumura N, Matsumura Y. Studies on cutaneous hyperreactivity and leucocyte chemotaxis in Behçet's disease. In: Dilsen N, Koniçe M, Övül C, eds. Behçet Disease. Amsterdam: Excerpta Media 1979: 219–223.
2. Behçet's Disease Research Committee of Japan. Behçet's disease and guide to diagnosis of Behçet's disease. Jpn J Ophthalmol 1974; 18: 291–294.
3. Saylan T, Özarmagan G, Azizlerli G, et al. Morbus Behçet in der Türkei. Z Hautkr 1986; 61: 1120–1122.
4. Davies PG, Fordham JN, Kirwan JR, et al. The pathergy test and Behçet's syndrome in Britain. Ann Rheum Dis 1984; 43: 70–73.
5. Dilşen N, Koniçe M, Aral O, Aykut S. Standardization and evaluation of the skin pathergy test in Behçet's disease and controls. In: Lehner T, Barnes CG, eds. Recent Advances in Behçet's Disease. London: Royal Society of Medicine Services, 1986: 169–172.
6. Jorizzo JL, Solomon AR, Cavolo T. Behçet's syndrome. Immunopathologic and histopathologic assessment of pathergy lesions is useful in diagnosis and follow-up. Arch Pathol Lab Med 1985; 104: 747–741.
7. Yazici H, Tüzün Y, Tanman AB,, et al. Male patients with Behçet's syndrome have stronger pathergy reaction. Clin Exp Rheum 1985; 3: 137–141.
8. Gürler A, Erdem C, Kundakçi N. Behçet hastaliginda üç aşamali paterji ile elde edilen sonuçlar. Lepra Mecmuasi 1987; 18: 73–84.