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318 DERMATOPHYTE FLORA IN THE DISTRICT OF VARNA

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The culture investigation of dermatophytes as a basic method of accurate diagnosing and thorough study of dermatomycoses is introduced in Bulgaria ever since 1925 by L. Popov (18). During the original culture investigation, he finds out that *tr. violaceum* causes superficial trichophytosis of the capillitium in 68% and furthermore, that a 2 : 1 ratio exists between trichophytosis and favus.

P. Botzov, Il. Petkov and T. Filkov (4), on the ground of 155 cultures, establish that the most frequently met trichophyton is *tr. gypseum*—36,1%, next ranking *tr. violaceum* — 24,5%. I. Shaulov (35) likewise isolated most frequently *tr. gypseum*, followed by *tr. violaceum*.

It is moreover established by T. Filkov (30) — on a nation-wide scale, M. Hristova (32) — for the Russe district, B. Zahariev and assoc. (11) — for the Sofia district that microsporia (Guby's disease) is by no means a rare disease in this country.

According to I. Shaulov (34), the only cause of favus is *achor. Schönleini*, whereas T. Filkov (30), M. Hristova (32), along with the parasite just cited, also observe *achor. violaceum* and *achor. Quinckeanum*; the latter is reported by L. Popov (19) as early as 1931 and by Sv. Stefov (27) in 1964.

The commonest causing agent of microsporia in Bulgaria is the anthropophilic species *m. ferrugineum* (2, 8, 9, 11, 22, 30, 32, 36, 37), described for the first time by B. Zahariev and coined with the term *m. bulgaricum* (8, 9). Later studies confirmed this finding (30, 32, 36). Cases have been also described of microsporia, caused by *m. fulvum* (1954/10), *m. lanosum* (1954) and *m. gypseum* (1955, 1959) (2).

The zoophylic trichophytions and *tr. gypseum* in particular and more seldom the zoophilic Microspora are found to be very common cause of professional mycotic affections (3, 21, 29). The percentual of trichophytosis, caused by zoophilic species is increased in the past several years (21, 35). The latter phenomenon is conditioned, on one hand, by the reduction of anthropophilic species (brought about by the active dispensarization of patients) and, on the other, by the absolute increase of zoophilic species (determined by the social-economic changes in this country) (21, 35).

As regards dermatophyte flora in the Soviet Union, a number of publications exist, covering various regions. In the Dnepropetrovsk district (23) and Adjar SSR (15) *tr. violaceum* is the most frequently met trichophyton, whereas in the Sverdlovsk district, the zoophilic trichophytions prevail (28). Recently, *M. ferrugineum* appears to be more and more frequently isolated in the Soviet Union (1, 5, 6, 8, 12, 13, 14, 24, 25, 26, 31, 33). Within the past several years, *m. ferrugineum* was isolated also in Roumania (45),

whereas other investigators (38) claim that the highest incidence, recorded in the district of Bucarest, is of *m. lanosum* and *m. Auduini*. In Eastern Slovakia (39), zoophilic trichophytions and achorions have been discovered very often. In Poland, the most commonly met dermatophyte is *tr. violaceum*, next ranking *achor. Schönleini* and *tr. gypseum* (44). In France, the morbidity rate of microsporia is gradually increasing as compared to and contrary to other dermatomycoses (43). The most frequently isolated causative agent of the favus is *achor. Schönleini*, and of microsporia — *m. ferrugineum* and *m. Auduini* (40). Microsporia epidemics have been recorded rather often by German authors (41, 42, 46).

Material and method

The present study is carried out on the basis of data gathered in the Dermatovenereal Dispensary — District of Varna, jointly with the Chair of Skin and Venereal Diseases — Higher Medical Institute — Varna. The results of culture investigations on mycotic patients are analyzed within the territory of the Varna district, covering a period of ten years (1956 through 1965).

The standard hard nutrient medium of Saburo is utilized as fundamental nutrient medium for the isolation and identification of dermatophytes. Identification is effected according to micro- and macroscopic signs of the dermatophyte cultures.

The present work aims determination of the widespreading and estimation of epidemiologic significance of dermatophyte species and thereby — providing for adequate measures for combating mycoses.

Results

Over the period 1956—1965, 1240 clinical records of mycotic patients with trichophytosis, favus and microsporia are reviewed. Of the total number, 543 patients (43,7%) are randomly investigated for cultures with dermatophytes being isolated and identified in 414 patients (amounting to 76,2%). Thus, clinical diagnoses were confirmed by culture data in 33,2 per cent of mycotic patients. Of the 428 patients undergoing culture investigation (40,2%), 302 are with clinical diagnosis trichophytosis (71%) and the culture obtained is positive, or 30% of all patients with clinical diagnosis trichophytosis. Of the trichophytions isolated, the parasites preferring human beings (anthropophilic) amount to 176 species (58,3%), whereas parasites preferring both animals and humans (zoophilic) are 126 or 41,7%. It is beyond doubt that anthropophilic trichophytions predominate.

Of all the trichophytions (anthropophilic and zoophilic alike), the anthropophilic species *tr. violaceum* is ranked on the first place — 152 cultures or 50,4% of all trichophytions. In 98% of the cases it is being isolated from patients with superficial trichophytosis of the capillitium, comparatively more seldom from superficial trichophytosis of the smooth skin and from deep lesions of the beard (2 cases) and of the capillitium (1 case).

The zoophilic species *tr. gypseum*, isolated from 114 patients (37,7% of all trichophytions), is ranked on the second place according to incidence.

It is similarly, most frequently isolated from the superficial trichophytosis of the capillitium, but insofar etiology is concerned, it ranks second. It proves to be the most frequently isolated species in deep trichophytosis of the skin — in 88,5% of all investigated for culture patients with similar affections.

The following species, according to incidence of isolation, is the the anthropophilic species *tr. cerebriforme* — from 14 patients (4,6% of all trichophytions). It was isolated merely from patients with superficial trichophytosis of the capillitium, but plays by far a lesser role in the etiology of this form.

The zoophilic species *tr. sulfureum* (4%) comes in the fourth place. More rarely isolated are: *tr. crateriforme* — 2,3%, *tr. rubrum* — 0,7%, *tr. acuminatum* — 0,3%. The ratio found between anthropophilic and zoophilic trichophytions among rural population is 57:43, whilst among the urban population it amounts to 62,5 : 37,5.

The yearly follow-up of the dynamic development of isolated trichophytions is impressing owing to the fact that the ration anthropophilic/zoophilic species is altered to the benefit of the latter. According to clinical data, in 1965 the morbidity rate of trichophytosis is decreased with one fourth as compared to 1956, whereas the relative part of zoophilic species is augmented from 17,6 to 44,6% (without consecutiveness in the course of evolution per years).

Out of 231 patients with favus, culture investigation is carried out in 112 cases (48%). Positive cultures are obtained in 101 or 91%. Thus, in 47,5% the clinical diagnosis favus was confirmed by the culture. *Achor. Schönleini* was the only species isolated. In the annual dynamics, the importance of this parasite for the etiology of mycoses in general, and in favus in particular, is diminished, especially among urban citizens.

Microsporia (12 patients of whom 9 are diagnosed after correction of the clinically established diagnosis "trichophytosis") is caused most frequently by *m. ferrugineum* — 82% and rather more rarely — by *m. lanosum* (18%).

Trichophytions are isolated on cultures in 73,3%, *achorioni* — in 24% and *microspora* — in 2,7%. Anthropophilic parasites are isolated in 69% whereas zoophilic — in 31% of the cultures investigated.

Discussion

The ratio established by the authors between anthropophilic and zoophilic trichophytions (58,3 : 41,7) is almost completely coincident with the findings, reported by M. Hristova (32) for the Russe district, covering the period 1953—1957. The latter is easily explainable, especially when bearing in mind that the data are derived from a neighbouring region and cover nearby time-intervals. Our data concerning the localization and incidence of the anthropophilic species *tr. violaceum* (50,4%) and the zoophilic species *tr. gypseum* (37,7%), differ from the data presented by M. Hristova (32), I. Shaulov (35), P. Botzov [I. Petkov, T. Filkov (4)]. In accordance with the findings of the authors just cited, the first place insofar incidence is concerned is occupied by *tr. gypseum*, next ranking *tr. violaceum*. Such difference might be explained with geographic and climate, social-economic and ethnical peculiarities, specific for the Varna district.

Our data conform with the statements of various authors concerning other regions (22,35) insofar the percentual of trichophytosis, caused by zoophilic species is augmented lately. The zoophilic species in the region investigated by the authors of the present paper amounted to 44,6% for 1965 and 17,6% for 1956.

The only achorion isolated from 101 patients with favus was achor. Schönleini, a finding in accordance with data reported by others (34), whereas M. Hristova (32) in addition to the latter, isolated also achor. violaceum and achor. Quinckeanum.

The data herein reported and concerning the most frequently met causing agent of microsporia — *m. ferrugineum* — coincide with the observations made by other Bulgarian authors (2, 8, 9, 30, 32, 36), laying emphasis moreover on the significance of the culture investigation of mycotic patients for the diagnosis of this affection.

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ДЕРМАТОФИТНАЯ ФЛОРА В ВАРНЕНСКОМ ОКРУГЕ

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РЕЗЮМЕ

Из исследованных культурально 1240 больных, авторы получили положительные культуры у 414 больных (76,2%). Чаще всего изолированным трихофитомом был антропофильный вид: *tr. violaceum* — 50,4%, следующий *tr. gypseum* — 37,7%, *tr. cerebriforme* — 4,6%, *tr. sulfureum* — 4% и реже *tr. crateriforme* — 2,3%, *tr. rubrum* — 0,7%, *tr. acuminatum* — 0,3%. В последние годы нарастает относительная часть зоофильных трихофитомов, в особенности среди населения сел. Фавус вызывается единственно *achor. Schönleini*, а микроспория — *m. ferrugineum* — в 82% и реже — *m. lanosum* — 18%.