

February to July their numbers were at a low level and from August to January their numbers were comparatively increased having the highest peak in November. On a study of the relative percentage of the three species of malaria it was seen that *Plasmodium falciparum* was decidedly the predominating species, then came *P. vivax* and lastly *P. malariae* being in the lowest level; from April to June *P. vivax* showed a predominating character which might be due to the spring relapse of the species.

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PHENYL CELLOSOLVE IN THE TREATMENT OF PEDICULOSIS

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DAVIS and his co-workers (1944) experimented with phenyl cellosolve (monophenyl ether of ethylene glycol) using a mixture of phenyl cellosolve, ethanol and water in proportions of 1 : 2 : 2 with enough methyl salicylate to give it a slight pleasant odour. The material was used against head lice. The results, though not fully evaluated, were however thought to have been completely satisfactory.

Hansens (1945) later carried out tests on the heads of school children with mixtures containing 20, 10, and 5 per cent phenyl cellosolve respectively. When examined at intervals after treatment it was noticed that all lice and eggs were killed by all three concentrations. The composition of the weakest preparation was 5 per cent phenyl cellosolve, 37.5 per cent alcohol, 56.5 per cent water, 0.9 per cent methyl salicylate and 0.1 per cent 'Tergitol' penetrant 7. No toxic effects were noted with any of the preparations.

Messrs. Carbide and Carbon Chemicals Corporation, New York, the manufacturers of phenyl cellosolve, were kind enough to place an adequate quantity of this material at our disposal for experimentation on lice.

Laboratory studies on the penetrative properties of this mixture into the substance of

the nit, as can be deduced from the surface tension, were made by pouring a minute drop on a big surface of water. The rapidity and the extent of its spread were very suggestive of its ability to pass through the pores of the operculum and reach the embryo within the nit.

In order to determine the actual efficacy of phenyl cellosolve against eggs of lice, nits attached to hairs were just dipped in the mixture and were quickly taken out. These were examined from day to day. In all cases so treated the nits did not hatch.

The experiments conducted by us were carried out on hospital patients and for the purpose of evaluating the results only those who stayed for at least two weeks after treatment have been considered.

The mixture was applied to the hair of the scalp by means of a wad of cotton wool, sufficient quantity being used to wet the hair thoroughly. Care was taken to prevent the fluid from running into the eyes.

The tests were made on 22 patients of different ages varying from 4 years to 54 years, and except 2 patients, all were females and all had long hair. The infestation was generally heavy and in every case both adult lice and nits were present. All tests were made with preparations containing 5 per cent phenyl cellosolve and in 8 cases isopropanol instead of absolute alcohol was used. The composition of the mixture was as follows :

Phenyl cellosolve	..	5 c.c.
Absolute alcohol or isopropanol	37.5 c.c.	
Water	..	57.5 c.c.

It is worth noting that phenyl cellosolve does not mix with any mineral oil, nor with rectified or methylated spirit.

When necessary the patients were allowed to wash their hair two hours after the treatment was completed.

The results showed that phenyl cellosolve when used in 5 per cent strength is potent against both adult lice and nits. Regarding any untoward symptoms, only two patients complained of slight sensation of heat and tingling which were not marked and these passed off within 5 minutes. There were no remote effects.

The above preparation was also tested against *Phthirus pubis* on a patient who was heavily infested. Both adults and nits were found on beard, and on hairs on the axillae and in the pubic and perineal regions. Only one application brought about the destruction of the louse population including the eggs.

In passing it may be mentioned that we have noticed for the first time the presence of *P. pubis* on beard and on axillary hairs in sufficient numbers.

Tests with the same material on heads complicated with secondary pyogenic infection and ulceration are in progress and the results will be communicated in due course.

One of us reported a short time ago on the successful treatment of pediculosis of the head with pyrethrum extract diluted with kerosene. This affects both adult lice and nits and only one application is necessary to effect a cure (Roy, 1946).

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SPOROTRICHOSIS OF THE SKIN IN INDIA

(A NEW SPECIES DESCRIBED) *

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In a tropical country like India the incidence of sporotrichosis is expected to be common with other dermatomycosis, but excepting one case there is no other record on the subject. This scarcity of reports may be due to actual rarity of the disease or its non-recognition by physicians. The only case reported was by one of the authors (Ghosh, 1932). During the last 15 years 12 more cases have been recorded at the School of Tropical Medicine, Calcutta, but those were clinically diagnosed without any laboratory confirmation.

The incidence of sporotrichosis as recorded in other countries is more common amongst farmers, gardeners, florists, industrial workers, etc., and the case under report falls in the first group.

Case report.—An Indian female, 40 years old, a vegetable dealer by occupation. She had a small ulcer about $\frac{1}{2}$ inch in diameter on the lateral side of the right wrist and a small nodule $\frac{1}{4}$ inch in diameter about 4 inches proximal to the ulcer. The patient gave a history of a slight injury—a prick—at the site of the ulcer while handling vegetables. It healed up soon; but subsequently a small nodule developed at the site, red, hard and painful; this gradually softened and burst into an ulcer with seropurulent discharge. Another nodule appeared very soon about 4 inches above the first one when she came for medical help. The second nodule was red, painful and softening at the time of examination.

Clinical findings.—Blood serum—Wassermann reaction and Kahn test were negative.

Blood count—Within normal limits.

Urine analysis—Normal.

Diagnosis.—The nodule was incised and the material from it was put up for culture in

Sabouraud's medium. On the 7th day a visible growth appeared on the surface of the medium. Microscopic examination showed the growth to be a sporotrichum.

Treatment.—The patient was put on potassium iodide grs. x three times daily and recovered soon.

Study of the fungus.—The primary culture was made on Sabouraud's proof medium. A visible growth appeared on the 7th day at room temperature (varying from 22° to 32°C.). At first it was cream coloured and raised with uneven and corrugated surface. As the age increased the colour changed to brown and then to dark brown and the growth became wrinkled and cerebriform at the centre but flush with the surface of the media at the periphery (see figures 1a and 1c, plate IX). In old cultures excrescences appeared on the surface of the growth (see figure 1b, plate IX). On potato the growth was appreciable on the 6th day, cream white in colour at first but gradually blackening. In a month's time the entire surface of the potato was covered with thick, coal-black cerebriform growth. In other common laboratory media the growth was like that on the Sabouraud's medium.

Microculture in hanging drop preparation.—Growth was profuse, the mycelial hyphae were septate and about 2 microns in diameter. The conidial spores were either round or oval, mounted on short stems (sterigma) and situated along the length of the mycelium and also grouped in fours or eights at the ends of the mycelial branches. The round spores were about 3.2 microns in diameter and the oval ones about 4 microns in length and 3 microns in breadth. Chlamydo spores were very few (see figure 2, plate IX).

Biochemical reactions.—

Glucose gelatine—Growth was satisfactory, gelatine not liquefied (18° to 20°C.).

Serum (inspissated)—No proteolysis.

Litmus milk—No change.

Fermentation of sugars—Sugar fermentations were remarkably constant on repeated experiments. The original culture and cultures of the fungus recovered from experimental passage through laboratory animals gave the same reaction, viz, acid without any gas formation in dextrose, lævulose, maltose, galactose, mannose, dextrin, xylose and mannite (late fermenter). There was no reaction in lactose, sucrose, inulin, sorbite, inosite, arabinose, adonite and raffinose.

Pathogenicity to animals.—The fungus was pathogenic to all the laboratory animals, e.g. mice, rats, guinea-pigs and rabbits. Intra-peritoneal injections of an emulsion produced typical lesions on the testes, such as multiple abscesses developing into caseating ulcers with intensive destruction of the glandular tissue. The virulence of the fungus was intensified by passage through animals, as in the later experiments the animals had very severe infections

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