In first-stage (acute) toxoplasmosis skin reactions are negative, and are usually negative in the second stage positive during the third stage of the disease, but that and in making population surveys (Frenkel and Friedlander). According to these workers the term 'third stage of toxoplasmosis' includes both chronic and past cases showing clinical or laboratory evidence of infection. They maintain that toxoplasmin skin-tests are useful aid in the diagnosis of third-stage toxoplasmosis, for the family to look for a scapegoat. Always be suspicious of an inflammatory mass round a tooth or suspicion of having caused the carcinoma. Osteogenic sarcomas cause teeth to become loose, and when a lovely child dies a few months after an extraction, it is only human extraction a fungating growth may appear in the socket and the dentist may be blamed by an ignorant family for having caused the carcinoma. Osteogenic sarcomas cause teeth to become loose, and when a lovely child dies a few months after an extraction it is only human for the family to look for a scapegoat. Always be suspicious of an inflammatory mass round a tooth or a tooth socket.

Derangement of the Temporo-Mandibular Joint. This may give rise to all sorts of pain in the face and oral cavity. We dentists call it our joint, because it affects us so much—naturally it affects the patient too. One has no time here to go into this vast subject. A 700-page book has been written by a dental surgeon on this joint and its disturbances, and there is indeed a vast amount of literature on the subject. The pains caused by derangement of the T.M. joint may be from myositis or fibrositis due to strains in muscles and ligaments with changes in the joint. Rheumatoid arthritis affects the T.M. joint as well as osteoarthritis. We must remember that osteo-arthritis is not due to a focus of infection. Cleidocranial Dysostosis. Dentists are interested in this disease, in which we get incomplete ossification of the fontanelle, lack of scapula and non-eruption of teeth with many supernumerary teeth as well. In osteitis deformans or Paget's disease the first changes are often those seen in the maxilla, whereas in acromegaly it is the mandible that first grows so large, and in leontiasis ossea you see the typical lion face. Radio-therapy. These days dentists see some unfortunate results of radio-therapy, such as radio-necrosis going on to an intractable radio-osteo-myelitis. Lastly, a few words about mouth odours. These are not all due to mouth conditions. Nose and sinus conditions may be the cause or lung abscesses or many other conditions. Onion and garlic are absorbed in the intestines and the odour is due to elimination through the lungs.

In closing may I leave this thought with you? Our two professions are so closely allied biologically, that in the interest of the patient we have to work in the closest co-operation. This may account for the perfect harmony and understanding that exists between the two professions, who after all are working with but the same object—to benefit the patient.

A TOXOPLASMIN SKIN-TESTING SURVEY AMONGST A GROUP OF SOUTH AFRICAN BANTU


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The toxoplasmin skin-test has been described as a useful aid in the diagnosis of third-stage toxoplasmosis, and in making population surveys (Frenkel and Friedlander). According to these workers the term 'third stage of toxoplasmosis' includes both chronic and past cases showing clinical or laboratory evidence of infection. They maintain that toxoplasmin skin-tests are positive during the third stage of the disease, but that in first-stage (acute) toxoplasmosis skin reactions are negative, and are usually negative in the second stage (subacute form) of the disease as well. From the foregoing it is obvious that toxoplasmin intradermal tests may be used to ascertain the prevalence of third-stage toxoplasmosis amongst the general population. The test is based on dermal hypersensitivity to toxoplasma antigen and in this respect resembles the tuberculin (Mantoux) test.

No references have appeared in the South African medical literature regarding the prevalence of third-stage toxoplasmosis amongst the general population of
Intradermal toxoplasmin tests were carried out on a group of 209 African patients in the medical, surgical and paediatric wards of Coronation Hospital, Johannesburg. It was thought this would give some indication of the prevalence of third-stage toxoplasmosis amongst the indigenous Bantu population.

The antigenic extract used was the one prepared at Hoechst, in Western Germany, according to the specifications of Westphal. Mohr's technique of toxoplasmin testing was adhered to during the entire survey. This consisted of the intradermal injection of 0·1 c.c. of a 1 : 3 dilution of antigen, and results were read at the end of 24 hours and 48 hours. An area of erythema and a central wheal measuring more than 10 mm. in diameter constituted a positive reaction, whilst doubtful results included wheals ranging from 5 to 10 mm. in diameter. All injections were given intradermally (by means of a tuberculin syringe) into the flexor aspect of the left forearm, at the junction of its upper and middle third. Intradermal injections were given on separate occasions to 4 groups of patients. Of the first 2 groups all those with positive skin-tests (28 in all) had blood taken from them for the purpose of correlating positive intradermal reaction with the results of the Sabin-Feldman dye test.

Results

Some results are tabulated (Table I). Of 209 African patients (130 males and 79 females) tested for evidence of dermal hypersensitivity to toxoplasmin, 65 (31·1%) exhibited positive reactions and doubtful results were seen in 13 patients. No positive results were obtained in the youngest age-groups, which consisted of 25 children up to the age of 9 years. The highest percentages of positive reactors (43·8% and 42·8%) were noted in the 30-39 and 40-49 year age-groups respectively.

The value of the Sabin-Feldman Dye Test and its Correlation with Positive Intradermal Tests

The dye test was originally described by Sabin and Feldman in 1948. Sabin refers to the dye-test titre as "the highest original dilution of a serum which in the presence of a constant, adequate amount of accessory factor, is capable of depriving the cytoplasm of 50% of the Toxoplasma of its affinity for methylene blue at pH 11·0". The Sabin-Feldman dye test becomes positive shortly after infection, and titres ranging from 1 : 250 to 1 : 1000 or even higher may be observed in acute cases. The detection of a lower titre (1 : 16 or higher) would perhaps suggest that the third stage of the disease had been reached. Some doubt exists as to the specificity of the dye test in toxoplasmonic infections—a possibility that Sabin and Feldman originally commented upon. Michalzik found dye-test titres of 1 : 25 in 64% of pregnant women with Trichomonas vaginalis infections. Muhlpfordt, Awad and Lainson and Awad have also produced evidence to show that the dye test is not specific for toxoplasmosis. Awad devised a new...
dye test for Toxoplasma and Sarcocystis infections by the use of Sarcocystis tenella spores.

The present investigation attempted to correlate positive intradermal tests with the Sabin-Feldman dye test. The latter test was carried out on the sera of 28 patients with evidence of dermal hypersensitivity to toxoplasmin. Of these, 9 showed dye-test titres of 1 : 64 and 9 of 1 : 16, whilst 5 gave negative dye-test results. The remaining cases (2) showed titres of 1 : 4. It has been suggested that failure to demonstrate positive serologic reactions would not necessarily exclude toxoplasma as the etiologic agent. The authors think, however, that failure of correlation between the Sabin-Feldman dye test and positive intradermal tests may be a point of some significance. It lends support to the view expressed by both Sabin and Hart et al. that positive intradermal tests may also be due to infection with an unknown agent having similar antigenic structure to toxoplasma. In Fisher's series of cases there was complete correlation between positive intradermal tests and the dye test, with the exception of 2 cases. Frenkel and Friedlander assert that the complement-fixation test, on the other hand, is of little help in population surveys or in the diagnosis of chronic toxoplasmosis.

The Significance of the Intradermal Test in Toxoplasmosis

Considerable differences of opinion exist on whether the intradermal test possesses any diagnostic value. Fisher concludes that the toxoplasmin reaction is a reliable means of detecting toxoplasma infection in population surveys and as a screening test for suspected clinical cases. Thalhammer, from Austria, says that the skin test indicates the presence of allergy to toxoplasmin protein and that the reaction is specific but is only of diagnostic value after the age of 2 years. On the other hand, Hart et al., in England, after quoting the results of toxoplasmin surveys in the USA state: 'It is possible that these results are not due to subclinical infection with toxoplasmosis but to infection with other agents possessing a similar antigenic structure, but no other organism possessing such a similar antigenic is at present known'. An interesting assertion is that of Scholta, a German worker, who maintains that there is some evidence of positive toxoplasmin dermal reactions in cases of typhoid and paratyphoid fevers. Garin goes as far as to say that the intradermal test appears to be of no diagnostic value—a view that has also been expressed by Feldman and Sabin. The latter think that the toxoplasmin skin test is not useful in diagnosis because a strongly positive test bears no relationship to the titre of toxoplasmic bodies in the blood, whilst a negative test is encountered too often in the presence of antibody.

Sabin's appraisal of the significance of the skin test is invaluable: 'I regard the skin test as being of no value for diagnostic purposes because a negative test does not indicate absence of antibody or infection, and a positive skin test does not differentiate between individuals having a titre of such dubious significance as 1 : 4 and those with the highly significant titres of 1 : 256 or more. The skin test may, nevertheless, be used as a crude tool for population surveys and group correlation studies, provided such studies are properly controlled as to normal antigen, age grouping, and place of birth or residence.'

It is obvious that important workers in the field of toxoplasmosis hold widely divergent opinions, regarding the diagnostic value of the intradermal test. Most investigators seem to agree that it has its use in population surveys. If Frenkel and Friedlander's postulates are accepted then it is clear that population surveys will not detect first-stage and second-stage toxoplasmosis (i.e. acute and sub-acute infections) because skin tests are usually negative in these stages. Population surveys merely help to ascertain the prevalence of third-stage (which includes chronic and past cases) toxoplasmosis amongst the general population. Furthermore, if waning of dermal hypersensitivity occurs with advancing age, as previously suggested, cases of third-stage infection may be missed.

SUMMARY

1. A toxoplasmin skin-testing survey was conducted on 209 African patients in the medical, surgical and paediatric wards of Coronation Hospital, Johannesburg.
2. Positive reactions were detected in 65 Africans (31·1%).
3. No evidence of dermal hypersensitivity to toxoplasmin was detected in 25 African children in the youngest age-groups (0-4 years and 5-9 years).
4. The highest percentage of positive reactors was observed in the 30-39 year age-group (43·8%) whereas the oldest age-group (50-81 years) contained only 37·7% of positives.
5. It is suggested that waning of cutaneous allergy, to toxoplasmin may be responsible for the lower percentage of positive skin-tests in the oldest age-group.
6. Complete correlation of the Sabin-Feldman dye test with positive intradermal tests was not obtained—the dye test being negative in 8 out of 28 cases with positive skin-tests.
7. The significance of the toxoplasmin intradermal test is discussed.

Thanks are due to the Medical Superintendent of Coronation Hospital (Dr. J. Frack), the Senior Physician (Dr. S. Grieve), and Dr. J. F. Murray (South African Institute for Medical Research), for permission to submit this article for publication. We are grateful to Dr. S. Grieve for constant interest and encouragement. We are indebted to Dr. R. Wohlrab, Head of the Staatliche Medizinal Untersuchungsamt, Department of Toxoplasmosis, Hanover, Germany, for doing the Sabin-Feldman tests.

REFERENCES
CASE REPORTS

A STRANGE COINCIDENCE

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Case 1

Mrs. J.M., a European aged 58, was first seen on 11 October 1954 suffering from severe central abdominal pain with nausea and vomiting. The pain had commenced 4 days previously but had not been severe until 12 hours before admission.

On examination, the patient looked desperately ill and severely shocked, temperature 96° F, pulse rate 120 per minute, blood pressure not recordable. The abdomen was tender and rigid all over. She was given intravenous fluid and the presumptive diagnosis was made of a perforated gall-bladder or a volvulus of the intestine with perforation.

When her condition improved sufficiently, she was operated upon. At laparotomy about 6 feet of small bowel was found to be gangrenous as the result of mesenteric thrombosis, and was resected. She rallied for 24 hours and then collapsed and died on 13 October. It was found that the thrombosis had extended to involve the entire small gut and also the right half of the colon.

Case 2

Mr. H.A.M., a European aged 33, was seen at home on 13 October 1954 with haematemesis, which had begun 12 hours previously. He had had upper abdominal pain for 10 days, gradually getting worse. There was no previous story suggestive of ulcer pain. He was admitted to hospital immediately.

On examination, he was seen as a very well built man in severe pain and with considerable shock, vomiting large quantities of blood-stained fluid—not pure blood. He was put on intravenous drip and intragastric suction and blood transfusion. As the aspirate remained profuse and unchanged in colour, operation was undertaken. The upper 6 feet of small intestine were gangrenous from mesenteric thrombosis and were resected. The patient was put on anti-coagulants and on the 2nd day his bowels acted. On the 3rd day he deteriorated and his wound began to exude great quantities of bile-coloured fluid. This continued for the next 10 days. The loss via the wound and the gastric suction was such that it required as much as 20 litres of fluid intravenously in 24 hours to achieve some sort of balance. On 27 October he finally succumbed.

These patients were mother and son and were living in the same house.

Both patients had mild febrile illnesses in the 10 days prior to the onset of the fatal mesenteric thrombosis. Further enquiry revealed the following interesting facts:

1. re Mrs. M. Two weeks after the birth of her son she contracted flu and then developed bilateral deep-vein thrombosis of the lower limbs, which left her with a disability for the rest of her life.

2. re H.A.M. At the age of 14 he was caught in the mist on Table Mountain and contracted pneumonia, and during this illness his one leg became painful and swollen. Later he developed ulcers on this leg and had always had to wear elastic stockings to keep the leg healed.

I am indebted to Dr. R. Gasson, previously R.M.O. at the Victoria Hospital, and presently of Lusaka, N. Rhodesia, for the details of previous history in these patients. It was due solely to his untiring care—and the patient's marvellous cardio-vascular system—that H.A.M. survived so long.

This remarkable coincidence is recorded in the hope that some clue to the causation which has not been apparent to the writer or his colleagues will occur to a reader.

UNION DEPARTMENT OF HEALTH BULLETIN

Epidemic Diseases in Other Countries.

Plague: Nil.

Cholera in Calcutta (India).

Smallpox in Herat, Kandahar (Afghanistan); Phnom-Penh (Cambodia); Ahmedabad, Bombay (India); Dacca (Pakistan).

Typhus Fever: Nil.