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A CASE OF RHINOSPORIDIOSIS ON THE EYE

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THE presence of Rhinosporidiosis in the human eye is of very rare occurrence especially in the Union of South Africa where only five cases have been reported, including the present case (Simson and Strachan); the parasite has often been reported from parts of India, and an excellent paper was published in 1936 by Allen and Dave in the Indian Medical Gazette.

The first published case of this disease was reported on by Seeber (1900) and the parasite is thus correctly called *Rhinosporidium Seeberi*; in Berens' Diseases of the Eye the parasite is termed *Rhinosporidium Kinealyi*, for in 1903 O'Kinealy published the report on a nasal polypus that he had removed from an Indian.

Altogether the parasite has been reported about 156 times as occurring in man where it causes an exfoliative, non-infiltrating granuloma usually situated in the nose, but also occurring in the pharynx, larynx, in the ear and the lacrymal sac, and on the conjunctiva and in the skin.

In South Africa it has been published as occurring in horses (Zschokke) and in mules (Quinlan and de Kock).

The case I am describing was reported on by Simson and Strachan in the South African Journal of Medical Sciences, but in their report of my case the disease had affected only the conjunctiva and its involvement of the limbus of the eye from a recurrence had not yet been recorded.

The patient was a young European boy, aged 16 years, who was sent to me by Dr. Dietrich in February, 1935, for an opinion concerning two large polypi that were protruding from the right eye; it appears that the boy had for several months complained



Photograph by Jane Plotz, Johannesburg.

Rhinosporidial Polypus on Limbus.

of a discharge, tinged with blood, that had come from the right eye; the lad had then noticed that there was something protruding between the right eyelids and that had made him seek medical advice. On examination I found two very large cock's-comb-like excrescences springing from the palpebral conjunctiva and situated in the fornices; the larger polypus was attached to the upper fornix and measured 10 mm. x 6 mm. x 6 mm., whilst the smaller one measuring 7 mm. x 4 mm. x 4 mm. was attached to the lower fornix near the outer canthus; the clinical picture made one suspect tuberculosis but there was no enlargement of the preauricular lymphatic gland.

I removed the polypi by excision at their bases and stitched the

raw areas to control profuse bleeding. I had no idea as to the pathological condition of these polypi and was very surprised to receive the report back from the South African Medical Research that the polypi were of the nature of Rhinosporidiosis. I naturally made enquiries as to the correct future treatment but the literature was rather unconvincing on this particular subject. I ordered $\frac{1}{2}$ per cent. quinine drops and told the boy to report each month. His nasopharynx showed no evidence of polypi.

I lost touch with the boy until October, 1937, when he came to me with the complaint that there was now a red swelling on the white of his right eye. I found that the fornices of this eye were quite clear and showed no sign of the previous operations; on the limbus of the right eye there was however, a raised reddish-looking plaque with several large distended veins coursing towards it; it looked in fact like a severe case of episcleritis. On examination with the slit-lamp I realised that I was seeing a recurrence of the original parasitic infection; the reddish area was a flat type of polypus which was encroaching on and causing a mild secondary infection of the edge of the cornea; the polypus was covered by vascular conjunctiva with several large veins running over its surface; on focusing beneath the conjunctiva I was struck by the presence of numerous yellowish cystic areas giving the general impression of a discoloured strawberry. On careful examination of the cornea I failed to find the typical yellowish specks but there were opacities in the stroma which might have been modified cysts or more likely a reactionary secondary infection.

I excised the polypus with a wide margin of healthy conjunctiva, carefully cauterised the surface of the sclera and also the edge of the cornea and finally covered the whole area with a conjunctival flap. Following the advice of Wright I ordered frequent drops of 2 per cent. antimony tartrate in the infected eye. The convalescence was uneventful, the eye has now whitened and the opacities in the cornea seem to have practically gone; in view of the long interval between the original infection and the recurrence one must wait at least two years before regarding the eye as free from infection; examinations of the conjunctival secretion have so far yielded negative results for the presence of the characteristic sporangia.

In all the cases the polypi present similar macroscopical and histological features:—first the finding of a villous polypus which appears wholly or in part composed of granulation tissue which bleeds readily when touched should arouse suspicion; then on examination with the loupe one sees a fleshy growth covered over by vascular glistening conjunctiva with just beneath the surface the typical characteristics of numerous yellowish-white specks vividly contrasting with the red background.

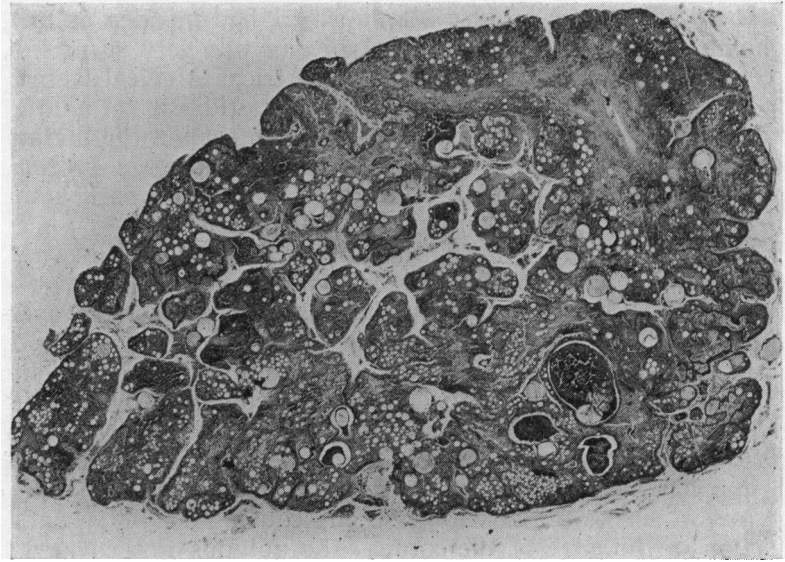


FIG. 1.

Microphotograph of a cross section of an entire polypus. Very numerous rhinosporidial cysts in epithelial and sub-epithelial tissues. Crypt formation is well demonstrated.

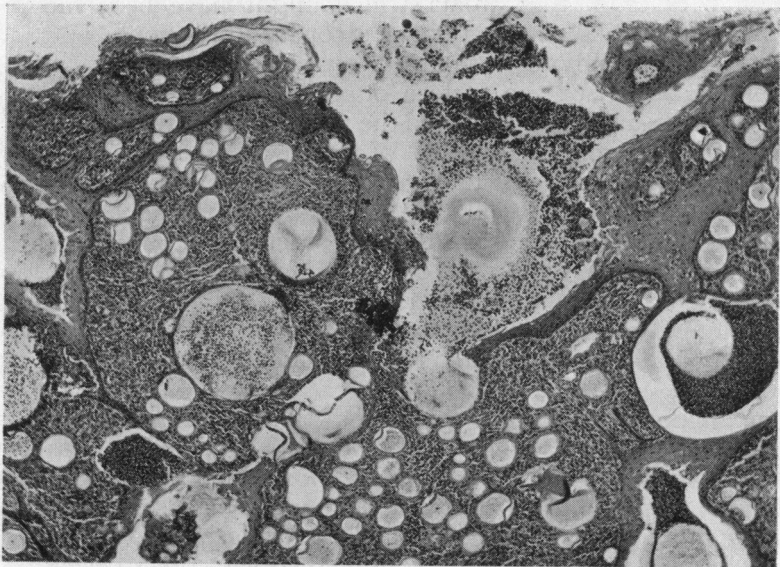


FIG. 2.

Microphotograph of a crypt lined by epithelium and containing a mature sporangium which has burst and discharged its spores into the crypt.

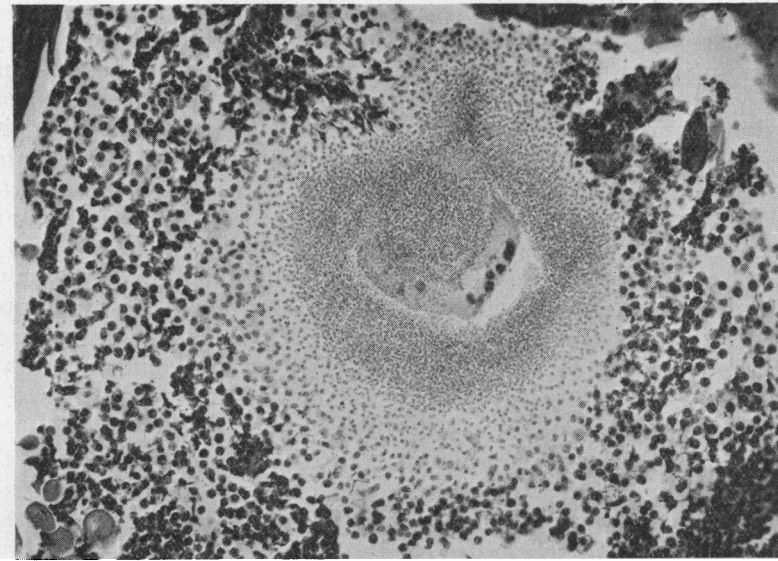


FIG. 3.

High power view of the discharged contents of the burst sporangium seen in Fig. 2.

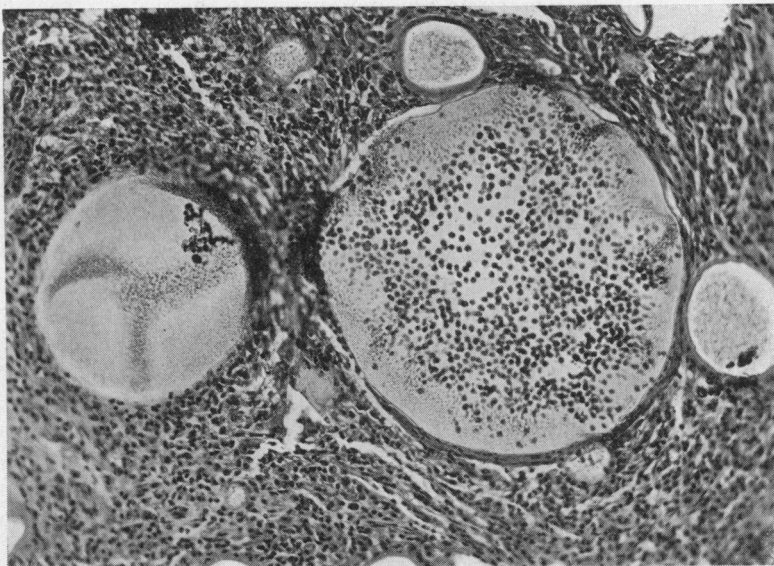


FIG. 4.

Microphotograph showing various stages of the parasite. Accompanying inflammatory changes are well shown.

Microscopically the polypus proper is covered by an irregularly thickened layer of epithelium which is continued into and forms the lining of numerous branching crypt-like spaces extending deeply into the substance of the growth; the stroma in the central portion of the polypus consists of cellular connective tissue which, in some parts is infiltrated by chronic inflammatory cells; the peripheral part of the stroma, especially that lying subjacent to the covering epithelium, is largely replaced by chronic inflammatory granulation tissue and pus cells and some of the crypt-like spaces contain pus. The predominant inflammatory cell is the plasma cell. In the sections reproduced one can see numerous cysts lying chiefly in the subepithelial tissues. The mature sporangia tend to find their way through the epithelial layer and numbers are seen lying free in the crypts and frequently the sporangia are seen in the act of discharging spores.

The bacteriological diagnosis is comparatively easy; the growth is gently squeezed with the forceps, the contaminated blades are teased in a drop of saline and with the low power of the microscope the sporangia are easily seen; the alternative method is to make a smear and stain this with Romanowsky's stain or better still Heidenhain's iron haematoxylin stain and the spores are seen containing the characteristic ten to sixteen refringent spherules.

The parasite is a vegetable one belonging to the order Phycomycetes such as the Chytridineae and placed in the suborder near Olpidiaceae.

There is no evidence to show that a spore, having passed out beyond the epithelial covering of a polypus can re-enter the subepithelial tissues through an unbroken surface; reinfection appears to occur by way of lymphatic currents normally present below the epidermis.

The mode of infection is very difficult to explain. My patient has had no pet animals in his house nor has he handled horses or mules; there has been no history of trauma or of any history of bathing in infected pools. The other members of his family are all quite free from infection and the parents are at a loss to account for its origin. I doubt whether trauma could be the main cause, for the recurrent limbal growth was far removed from the original area of excision of the primary polypi. It may be, however, that a few sporangia had remained dormant in the conjunctival sac for the very long time of 18 months and then had gained admission through a fresh area perhaps by rubbing the eye.

In operating upon these polypi one should always wear gloves as the spores are quite likely to gain admission into an abraded

surface or be carried to the eye or nose by the contaminated fingers. All instruments after operating should be treated with strong lysol in order to dissolve the chitinous envelope of any spores that might have remained on the points.

Electrotherapeutics may come to play a large part in the treatment of this disease, for in the more inaccessible regions the electrolysis needle might be of advantage; should my patient show further corneal involvement I shall have to consider the use of radiant energy perhaps in the form of radon seeds.

One must never use the snare for the removal of the polypi as reinfection is likely to take place from the irregular crushing that this instrument causes.

Allen and Dave have had some measure of success by treating their cases with neostibosan (Bayer) which is given in the adult dosage of 0.3 grammes intravenously daily for 10 days until 2.4 grammes have been administered, but they mention that there is still the need for a more convincing drug, that the criterion of cure can only be established after three or four years, and that natural cure may also sometimes take place.

Dr. Simson has suggested that the violent dust storms that are so prevalent in the Transvaal might be the means by which the spores are lodged in the human eye. These dust storms cause an enormous amount of eye suffering in this country in that they seem to be the cause of the very frequent large fleshy pterygia which one so often sees.

I am indebted to Dr. Simson and Dr. Strachan for permission to reproduce the photographs of my sections.

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