

Hypernatraemia with hyponatraemia has been described on several occasions in association with cerebral disease (for references see Taylor, 1962). The sites of brain damage are most usually the orbital surface of the frontal lobes, the hypothalamus, and the brain-stem. Such patients resemble ours in sometimes having a severe degree of hypernatraemia but only a moderately raised aldosterone output (Allott, 1957; Taylor, 1962). They differ in not showing hypokalaemia or alkalosis. For this reason, and because of the differing sites of brain damage, it is apparent that the pineal area cannot be the only part of the brain concerned with sodium homeostasis.

Nevertheless the balance of the evidence in our patient would favour a causative association between the pineal enlargement, the biochemical findings, and some of the clinical features.

Pineal and Thyroid Relationship

Finally, the significance of the enlarged, toxic thyroid gland of our patient must be considered. The palpitations, hypertension, and auricular fibrillation most probably sprang from this source. There is evidence in the rat that potassium iodide given orally causes pineal hyperplasia. Injection of pineal extract on the other hand produced histological changes in the thyroid suggestive of depression of function (Milne and Šćepović, 1959). There seems therefore no reason to attribute any of the other clinical or biochemical features of our patient to the thyrotoxicosis.

Summary

A patient in whom the pineal organ was cellular and enlarged to about three times the normal size exhibited many of the clinical and biochemical features of hyperaldosteronism, but the adrenal glands were histologically normal. The details of the case are compatible with the hypothesis that the pineal area of the brain is the site of production of adrenoglomerulotrophin, a hormone stimulating the adrenal secretion of aldosterone.

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REFERENCES

- Allott, E. N. (1957). *Lancet*, 1, 246.
 August, J. T., Nelson, D. H., and Thorn, G. W. (1958). *J. clin. Invest.*, 37, 1549.
 Bartlett, F. K. (1913). *Arch. intern. Med.*, 12, 201.
 Farrell, G. (1959). *Endocrinology*, 65, 29.
 — and McIsaac, W. M. (1961). *Arch. Biochem.*, 94, 543.
 Kilsnaw, D. (1962). To be published.
 Kitay, J. I., and Altschule, M. D. (1954). *The Pineal Gland*. Harvard Univ. Press, Cambridge, Mass.
 Mattox, V. R., and Lewbart, M. L. (1959). *J. clin. Endocr.*, 19, 1151.
 Medical Research Council Committee on Clinical Endocrinology (1951). *Lancet*, 2, 585.
 Milne, R., and Šćepović, M. (1959). *Ann. Endocr. (Paris)*, 20, 511.
 Moxham, A., and Naharro, J. D. N. (1956). *J. clin. Path.*, 9, 351.
 Nicholson, M., Keitel, H., Williams, J., Millican, F., Lourie, R. S., Lopresti, M., Stevens, H., and Guin, G. H. (1957). *Clin. Proc. Child. Hosp. (Wash.)*, 13, 133.
 Rabson, S. M., and Mendenhall, E. N. (1956). *Amer. J. clin. Path.*, 26, 283.
 Taylor, W. H. (1962). *J. clin. Path.*, 15, 211.

TRICHOPHYTIC GRANULOMA SIMULATING BAZIN'S DISEASE

BY

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Deep granulomatous reactions to ordinary dermatophytic fungi are uncommon and may easily be misdiagnosed. Ingram and Brain (1957) state that in exceptional cases ringworm may cause a deep inflammatory reaction with epithelioid and giant cells; Lewis and Hopper (1948) refer to it as a rare but classic form in which there may be indolent nodules and plaques. This report is prompted by two cases, the first of which remained undiagnosed for five months, when its similarity to the second case suggested the diagnosis of tinea profunda and this was readily confirmed microscopically.

Case 1

A married woman aged 53 had a 10-year history of small lumps appearing at the backs of the legs, more marked on the left leg, which had never been clear; sometimes the lesions developed purulent centres. Apart from the skin, her general health was good.

On examination there were clusters of reddish purple nodules mostly posteriorly over the lower half of the left leg, with a few on the back of the right leg (Fig. 1). They were 0.5–0.75 cm. in diameter and some were associated with hair follicles. A diagnosis of deep folliculitis or superficial Bazin's disease was made. A swab taken from the skin of the leg was sterile. A course of chloramphenicol and chlorhexidine cream was given without benefit and three doses of superficial x ray (125 r) also had no effect. On the supposition that it might be a nodular vasculitis she was given prednisone 5 mg. b.d. for three weeks, again without result. At that date the second patient was first seen and diagnosed as a case of trichophytic granuloma and the similarity with this patient was at once recognized.



FIG. 1.—Case 1. Nodular lesions caused by a fungus infection suggesting Bazin's disease.

At her next attendance on December 1 she was examined for fungus and this was found both in the toenails and in the lesions on the leg. Griseofulvin 250 mg. q.i.d. was given and she was admitted for avulsion of the toenails on January 8 by which time the leg lesions had begun to fade. She has continued on griseofulvin and Whitfield's ointment for her toes, and when last seen on March 2 she had had no fresh skin lesions and the old ones were only stains.

Case 2

A married woman aged 46 had a four-year history of recurring nodules on the back of the left leg with free periods of up to two months. Sometimes their tops have come off but they have never formed true ulcers. Her general health was otherwise excellent. She had dermatitis of her hands many years ago and also tinea pedis which was occasionally active.

On examination there were half a dozen red deep papules on the back, front, and sides of the lower two-thirds of the left leg. The right leg was normal. The toenails on both feet were thickened and friable and the foot was a little dry and scaling. Microscopical examination showed fungus in the nails, on the foot, and also in a hair extracted from the centre of one of the papules. The patient was put on griseofulvin 250 mg. q.i.d., and when she was admitted to hospital for avulsion of the nails two months later no fresh papules had developed and the old ones were disappearing.

Comment

These two cases presented a similar picture of chronic papular lesions on the legs which had persisted for ten and four years respectively. The appearance was not unlike Bazin's disease, but was not typical as the lesions were asymmetrical, in one case unilateral, and also rather more superficially situated and not limited to the calves.

Histological examination showed a circumscribed granulomatous infiltration in the lower part of the dermis. The infiltrate consisted of endothelioid cells, some of which were tending to form giant cells, histiocytes, lymphocytes, and many polymorphs. In places these latter were aggregated to form small abscesses. There was also a patchy perivascular infiltrate consisting chiefly of lymphocytes and histiocytes. With P.A.S. staining mycelium could be seen in the central hair (Fig. 2) but none was found outside the hair sheath. Culture of the fungus showed *Trichophyton rubrum* in both patients.

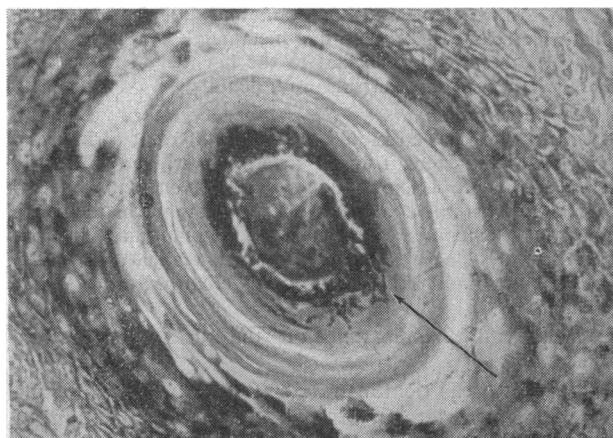


FIG. 2.—High-power picture of a hair follicle in the deeper dermis showing mycelium.

Trichophytic invasion of hair follicles is usually followed by an acute inflammatory reaction, sometimes producing a swollen carbuncle-like lesion or kerion. As a result of this the hair becomes loose and is ultimately shed so that the infection is eradicated and the lesion heals spontaneously. The cure can be expedited by removing the hairs manually when they are found to lift out of the hair follicle like a sword from its sheath. The human reaction to *T. rubrum* infection is much less violent. This is shown by the picture it produces on smooth skin, which becomes rough, dry, and dusky red and rarely shows the obvious peripheral blistering that is characteristic of other trichophytic infections. Often *T. rubrum* may give a picture resembling tylosis or xeroderma of the hand or foot, and suspicion of fungus infection is aroused only by its asymmetry and possibly some tiny blisters which are found only on close inspection. Probably the reason for the development of granulomatous lesions is a failure of the skin to react violently to this particular fungus, so that the infected hair is not cast off and remains in the follicle, where it stimulates a more chronic type of reaction.

The response to griseofulvin was satisfactory but rather slow, because griseofulvin is fungistatic and not fungicidal. Thus while no fresh follicles could become infected the old lesions persisted until the hairs were ultimately shed in the ordinary course of events. No doubt manual removal of the central hair, if this could have been achieved without breaking the hair, would have hurried things up.

Summary

Two cases are reported of long-standing lesions of the legs, somewhat suggesting Bazin's disease, due to infection with *T. rubrum*.

Histologically they showed a perifollicular granulomatous reaction in the deeper part of the dermis.

The condition responded to griseofulvin with avulsion of the infected toenails.

I thank Dr. C. J. La Touche for cultural identification of the fungus and for Fig. 2.

REFERENCES

- Ingram, J. T., and Brain, R. T. (1957). *Diseases of the Skin*, 6th ed., p. 484. Churchill, London.
- Lewis, G. M., and Hopper, M. E. (1948). *An Introduction to Medical Mycology*, 3rd ed., p. 89. Year Book Publishers, Chicago.

The British Standards Institution has recently published B.S. 3531 "Metal Surgical Implants, Drills and Screwdrivers used for Bone Surgery." The request for this standard was made by the Ministry of Health as a result of representations by the British Orthopaedic Association. The specification deals with surgical implants made of wrought stainless steel (En58J) and of cast cobalt chromium alloy, together with materials and certain essential features of design for twist drills and screwdrivers. The materials specified for implants are considered by the B.S.I. technical committee to be the most suitable in the light of present experience to provide optimum mechanical properties in relation to requirements for corrosion resistance and physiological compatibility with living tissues. Further consideration is to be given to the preparation of a specification for surgical implants made of wrought titanium for subsequent issue as a supplement to B.S. 3531. (Obtainable from B.S.I. Sales Branch, 2 Park Street, London W.1. Price 6s. each, postage extra to non-subscribers.)