EPIPHORA

A SYMPTOM OF EARLY HYPOTHYROIDISM*

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AMONG the many signs of hypothyroidism, puffiness of the eye-lids is a familiar feature of the facial appearance, but watering of the eyes is not usually reported as a prominent symptom. Recently we have seen five patients who presented to an oculist complaining of watering of the eyes in whom there was found evidence of hypothyroidism and whose symptoms were relieved by the administration of thyroid extract. In two other cases which presented to physicians, one of primary hypothyroidism and the other of hypopituitarism, watering of the eyes and puffiness of the lids were prominent symptoms which responded to treatment with thyroid extract.

Case Reports

Case 1, a married woman aged 62 years, reported to an oculist complaining of puffiness of the eye-lids for 2 years, especially in the mornings when the lids would stick together, and watering of the eyes, the left more than the right, for several months.

Examination.—The eye-lids were considerably swollen, there was minor crusting of the lids, the conjunctivae were moderately oedematous, there was thinning of the outer half of the eye-brows, and the face was pale (Fig. 1). Direct questioning revealed a preference for hot weather and constipation for many years. The patient was moderately obese. The brachial arteries were sclerotic, the blood pressure was 145/110, and the haemoglobin 12.7 g. per cent.

FIG. 1.—Case 1 before treatment.

Treatment.—Thyroid extract was given, gr. 2 increasing to gr. 3 daily, and 3 months later the patient reported great relief of her symptoms.

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Result.—The altered appearance of the eyes is shown in Fig. 2.

FIG. 2.—Case 1 after 3 months' treatment.

Case 2, a married woman aged 42, reported to an oculist complaining of watering of the eyes and puffy and sticky eye-lids following sub-total thyroidectomy 10 weeks earlier.

Examination.—The eye-lids were moderately puffy, with skin folds hanging from the upper lids (Fig. 3). On inquiry she stated that she "couldn't stand the cold", had put on weight, and had become nervy and irritable. The skin was dry, the nails brittle, and the blood pressure 160/90.

FIG. 3.—Case 2 before treatment.

Treatment and Result.—After 3 months on thyroid gr. 3 daily the ocular symptoms were much improved and the swelling of the eye-lids resolved (Fig. 4) although the nervous symptoms persisted.

FIG. 4.—Case 2 after 3 months' treatment.

Case 3, a married woman aged 70 years, reported to an oculist complaining of watering of the eyes, especially the right, for several years.

Examination.—There was fullness especially of the upper lids, oedematous conjunctivae, scanty eyebrows, and a full puffy face. Inquiry elicited a history of rheumatic pains in the back and fingers, worse in cold weather, and constipation for many years. The

patient was moderately obese, the voice was deep, head-hair and eye-brows were thinned, the blood pressure was 150/85 and serum cholesterol * 270 mg. per cent. (Fig. 5).

FIG. 5.—Case 3 before treatment.

Treatment and Result.—2 weeks after starting thyroid administration the symptoms had improved and after 3 months on gr. 2 and later gr. 3 daily they had completely resolved.

Case 4, a married man aged 62 years, complained to an oculist of watering of the eyes, especially the left, and of swelling of the eye-lids for 6 months.

Examination.—The eye-lids were puffy, the conjunctivae moist, and the face “pasty” (Fig. 6).

FIG. 6.—Case 4 before treatment.

The patient stated that he “always felt cold” and was constipated. He was short of breath on exertion, when he also experienced a constricting pain across the chest. He was moderately over-weight, the skin was dry, the vessels were moderately sclerotic, the blood pressure was 170/90, the serum cholesterol 395 mg. per cent., and the basal metabolic rate† minus 25 per cent.

Treatment and Results.—After 4 weeks on thyroid gr. 2 daily the eyes were no longer watering and he felt “100 per cent. better”. However, the angina became more frequent, and when the dose of thyroid extract was reduced to gr. 1 daily there was some recurrence of epiphora.

Case 5, a single woman aged 70, presented to an oculist with a 12 months’ history of watering of the eyes and sticking together of the lids in the mornings.

* Serum cholesterol estimated by the Sockett method (King, 1951).

† Basal metabolic rate measured by the Benedict-Roth closed-circuit method.

Examination.—The upper and lower eye-lids were moderately puffy, the conjunctivae were moist, the eyes watering, and the eyebrows scanty (Fig. 7). The patient reported a tight pain in the chest, upper arms, and throat on exertion for 6 years, dyspnoea, cough, and palpitation on exertion, sensitivity to cold, and moderate deafness. The skin was dry, the blood pressure was 200/160, and there were moderate left ventricular enlargement and a grade 2 systolic bruit at the aortic area. The serum cholesterol was 340 mg. per cent.

FIG. 7.—Case 5 before treatment.

Treatment.—Because of the cardiovascular symptoms, only gr. 0.25 daily of thyroid extract was given and the dose was gradually increased to gr. 1 daily.

Result.—After 8 months the patient reported “scarcely any watering of the eyes” and the lids were no longer sticky. However, there was some recurrence of the ocular symptoms when an episode of congestive failure and further chest pain prompted the patient to leave off the thyroid tablets.

Case 6, a married woman aged 54, complained of swelling and watering of the eyes for several years, especially during the previous 3 months.

Examination.—The eye-lids were swollen and the conjunctivae oedematous (Fig. 8).

FIG. 8.—Case 6 before treatment.

She had had a goitre at the age of 10 years, had put on weight from 10 st. to 14 st. 8 lb. over the past few years, and had latterly noticed hoarseness of the voice especially in cold weather. The thyroid gland was impalpable, there was considerable obesity, the skin was dry and rough, there was moderate deafness, the blood pressure was 160/115, the serum cholesterol 390 mg. per cent., and the basal metabolic rate minus 18 per cent. The electrocardiograph showed low voltage complexes with flat or absent T-waves.

Treatment and Result.—After 5 months on thyroid gr. 2 initially, later gr. 3 daily, the ocular symptoms had resolved, the weight had fallen by 16 lb., the serum cholesterol had

fallen to 220 mg. per cent., and the electrocardiograph had reverted to a normal pattern (Fig. 9).

FIG. 9.—Case 6 after 5 months' treatment.

Case 7, a married man aged 62, presented with a history for 5 years of headaches, especially in the mornings, pain and stiffness of many joints, and watering of the eyes, especially in the mornings when the lids would be stuck together. He had undergone deep x-ray therapy to the pituitary for acromegaly 4 years earlier.

Examination.—The patient stated that he had been shaving only every second day, he was constipated, and the voice was often husky. There was marked puffiness of the upper and lower eye-lids and considerable oedema of the conjunctivae. The outer half of the eye-brows was scanty, and the face and skin were generally pale (Fig. 10). Nutrition was above average, the thyroid was impalpable, and the changes of rheumatoid arthritis were evident in finger, wrist, and elbow joints. The blood pressure was 190/105, the haemoglobin was 12.6 g. per cent., and the red cells were hypochromic and microcytic, the basal metabolic rate minus 40 per cent., and the serum cholesterol 280 mg. per cent. The electrocardiograph showed flat T-waves in lead AVL.

FIG. 10.—Case 7 before treatment.

Treatment.—Replacement therapy was begun with thyroid gr. 2 and cortisone 25 mg. daily.

Result.—After 2 months the patient reported an increase in energy, loss of half a stone in weight, and that the eyes felt "practically normal".

Discussion

With the exception of Duke-Elder (1952), who lists hypothyroidism as a cause of epiphora without specifying case reports or references, standard text-books on the diseases of the eye and the ocular manifestations of internal diseases do not include hypothyroidism as a cause of epiphora. However, Gilbert (1953) recorded one case of myxoedema with epiphora. It has surprised us that in the course of 2 years four cases of epiphora

associated with evidence of hypothyroidism have been seen by one oculist (K.G.H.), the fifth case described here having been referred by another oculist. In each case investigation of the lacrimal apparatus failed to reveal any cause for the epiphora and local treatments were ineffective until relief was obtained by administration of thyroid extract. We conclude that it cannot be rare for patients with mild hypothyroidism to present in the first instance to oculists with a complaint of watering of the eyes, often associated with stickiness of the lids in the mornings, which will be refractory to any form of treatment other than the administration of thyroid extract.

The observation most suggestive of hypothyroidism is puffiness of the eye-lids which may direct attention to the facial appearance as a whole—the placid, full face, pallor with or without malar flush, coarse features, and thickened skin. This swelling of the eye-lids was variable in degree, but was excessive in Case 2 where the appearance was that of “skin folds hanging down from the upper lids”; it caused another patient not reported in this series to complain of “eyes looking like cauliflowers”. The conjunctivae nearly always looked unusually moist and were sometimes obviously oedematous. Thinning of the eyebrows provided a clue to the diagnosis in four cases, but as a physical sign its value was limited in that it was absent in the other cases and is, moreover, common enough in people with normal thyroid function.

Once suspicion of hypothyroidism had been aroused, direct questioning revealed other features—an earlier goitre or thyroidectomy, sensitivity to the cold, constipation, dryness of the skin, “rheumatism”, huskiness of the voice, deafness, or associated angina pectoris. Further examination revealed one or more physical signs—moderate obesity, impalpable thyroid or thyroidectomy scar, deep husky voice, dry thickened skin, dryness and thinning of head hair, scanty axillary hair, moderate hypertension. However, the impression gained from this experience is that patients presenting with epiphora have only a mild degree of hypothyroidism, and the diagnosis must therefore be entertained in the absence of most of the classical symptoms and signs of the disorder. Presumably patients with more severe thyroid deficiency present elsewhere than to oculists. Little further investigation was practicable in this series, but the serum cholesterol level was found to be 300 mg. per cent. or over in three cases, over 250 mg. per cent. in two cases, and normal in another. The basal metabolic rate was minus 25 per cent., minus 18 per cent., and minus 40 per cent. in the three cases in which it was estimated. In one case the electrocardiograph was typical of hypothyroidism and reverted to a normal pattern after treatment with thyroid extract. The patient with hypopituitarism (Case 7) showed most of the features of hypothyroidism and may be labelled as a case of “pituitary myxoedema”. The ocular features were no doubt an expression of impaired thyroid function and they responded to thyroid extract given in conjunction with cortisone.

The most helpful confirmation of the diagnosis of hypothyroidism was relief of the ocular symptoms, together with loss or diminution of puffiness of the eye-lids, after the administration of thyroid extract; this sometimes occurred after months of ineffective local treatments. Relief was obtained by a dose of 2 to 3 gr. thyroid extract daily, but in two cases only small doses of thyroid were tolerated because of associated angina pectoris and in these cases relief of the ocular symptoms was only partial. It is considered that angina is not necessarily a contraindication to a cautious trial of thyroid administration, because it has been our experience, and also that of Goldsmith and Stanbury (1955) and of Gibson (1958), that anginal symptoms may occasionally be ameliorated rather than aggravated by the administration of thyroid extract, provided the initial dose be small (*e.g.* 0.5 gr. daily), and increase in dosage gradual.

Summary

Five patients presented to oculists because of watering of the eyes which was associated with evidence of hypothyroidism and was relieved by thyroid extract. In two other cases, one of hypothyroidism and the other of hypopituitarism, which presented to physicians, epiphora and puffiness of the eye-lids were prominent symptoms which responded to thyroid extract.

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