benefit. The dose given was 0·07 or 0·08 and consequently a stitch in the superior rectus muscle was used to depress the globe.

In highly nervous patients this is an ideal method, but in our opinion no artificial fixation of the globe is so satisfactory as the continuous control by the patient when he looks well down towards his feet.

The cases of acute glaucoma were very successful. This operation is usually made much more difficult by the added congestion of the ether anaesthesia. With avertin anaesthesia the patient is quiet, respirations shallow, and the eye in the best possible condition for a successful section, and iridectomy.

In conclusion we consider that avertin anaesthesia well merits a trial in ophthalmic surgery. Naturally, before using it, a thorough familiarity with the method of administration given in the Bayer hand-book and in the other communications on the subject by anaesthetists who have tried it extensively is necessary, but from our experience and that of others, we can conclude that it is not a dangerous drug when given with care, and we think that most of the contra-indications and difficulties have been mentioned in this paper.

A CASE OF MIKULICZ' DISEASE

BY

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UGANDA

AN African, aged between 50 and 60 years, was admitted to Mulago Hospital, Kampala, Uganda, on February 10, 1930.

The accompanying photographs give a good idea of the appearance presented by the patient on admission. There were enormous swellings in both orbits, and bulging of the lids, greater above than below. On the right side was a firm movable mass, occupying the upper region of the orbit in front of the eyeball, evidently a greatly enlarged lacrymal gland. Below this was a similar smaller growth springing from the palpebral conjunctiva. Occupying the lower region of the orbit was a mass of moderate size originating in the palpebral conjunctiva of the lower lid. On the left side was a similar condition, but the lacrymal gland showed greater enlargement, and the palpebral conjunctiva of the upper lid was the seat of a much more profuse growth with oedema of overlying skin and ulceration of the conjunctival portion of the lid margin. In the lower region of the orbit was a comparatively small mass again taking its origin

MIKULICZ' DISEASE

from the palpebral conjunctiva. In the left eye the bulbar conjunctiva showed extensive general invasion by growth, while in the right it was but slightly affected near the fornices. Ocular movements were limited for this reason, the limitation being slight on the right side and marked on the left. A divergent squint was present on the left side and was presumably due to the same mechanical cause. Except that senile lenticular opacities were present the internal structures of the eyes were normal. While the parotid glands were not enlarged, the submaxillary and sublingual salivary glands showed very considerable firm, nodular enlargement. There were a number of small, firm, nodular swellings in the lips and cheeks adherent to the mucous membrane and derived from the buccal glands. The hard palate showed a similar condition, though the swellings were smoother and smaller. The tongue was not affected. The cervical and axillary glands were markedly enlarged, being firm, discrete, and movable. The remaining superficial lymphatic glands were not affected. X-ray examination showed no evidence of enlargement of bronchial glands, nor could any change in the abdominal groups be detected by palpation. The spleen was just palpable, an observation of no real significance in this country. The tonsils were enlarged, but there was no sign of nasal obstruction. Dental caries was not present, though pyorrhoëa was well marked; the latter, however, is almost universal among elderly natives. No bony tumours were present. Petechial haemorrhages were not observed at any time, though it must be confessed that small petechiae might easily escape observation in a dark skin. The patient stated that the condition began early in 1929 in the upper part of the left orbit, followed shortly afterwards by changes in the upper lid and lower part of the orbit. The condition on the right side commenced in a similar manner six months after the left, and developed in the same way. Approximately at the same time the submaxillary, sublingual, cervical, and axillary glands began to enlarge. The condition has been slowly progressive. The patient was very vague as to the onset of the swellings of the lips and cheeks, and believed them to be of recent origin. No complaint was made of loss of lacrymal secretion, though the mouth was thought to be drier than it used to be. The general health was certainly as good as one expects of the average native peasant of advancing years. There was no history of any other members of the family being affected in the same way. Evidences of syphilis were absent, and the Sachs-Georgi test was negative.

On examination of the heart, slight hypertrophy of the left ventricle and a faint aortic regurgitant murmur were noted. Blood pressure 134/68. Examination of the lungs showed general harshness of the breath-sounds, these being weaker at the right

base than at the left. The patient also was the subject of ankylostomiasis, though he showed no definite symptoms of the disease. Elimination of ankylostomes by carbon tetrachloride produced no appreciable effect either on the general health or the red cell count. Ten days after admission an attack of bronchitis occurred and lasted about a fortnight.

Operative treatment was obviously indicated, as the patient was quite unable to open his right eye except by lifting the lid with his finger, while even thus the left lid could not be raised sufficiently to use the eye. On account of bronchitis operation was delayed until March 1, when the enlarged lacrymal gland and the lower orbital mass of the right side were removed under a general anaesthetic. The former shelled out easily, while the latter was firmly adherent to the palpebral conjunctiva, and also less firmly to the surrounding orbital tissue. An axillary gland was excised for microscopic examination at the same time. On March 21 a second operation was performed on the left side. The first part was carried out somewhat like excision of the tarsus for trachoma, and the large mass of growth springing from the upper palpebral conjunctiva was excised. The conjunctiva of the fornix, here still much thickened by growth, was sutured to the lid margin. This being completed, the enlarged lacrymal gland was removed, shelling out easily as on the former occasion.

During the first part of the operation the skin of the lower part of the upper lid was observed to be thin and friable, and a small portion subsequently sloughed. Later, clippings of skin from the thigh were grafted on to the denuded area, and after three repetitions due to failure of some of the grafts the whole area skinned over. The new skin, however, did not develop a normal healthy appearance, being disposed to remain thin and to wrinkle and crack. That even partial success was achieved was somewhat surprising as the grafts were placed on what appeared to be lymphomatous tissue. This removal of the main masses had the effect desired, and the eyes could be opened by muscular effort. The removal had no effect on the size of the remaining tumours, causing neither increase nor diminution in size. Further, no apparent diminution of lacrymal secretion ensued. In the hope that arsenic might be of use a course of six injections of neotreparsenan was begun on April 14, intervals of a week being allowed between injections. The first injection was 0.3 gramme, the second 0.45 gramme, the next three 0.6 gramme and the last 0.9 gramme. When the patient left hospital at the conclusion of this course, a little over 14 weeks after admission, there was no appreciable change in the size of the tumours or enlarged lymphatic glands, there was no evidence of local recurrence at the sites of excision and the general health was unchanged.

BLOOD COUNTS

	11.2.30	15.3.30	29.3.30	19.4.30	8.5.30
Total Reds	4,040,000	3,287,500	3,525,000	3,687,500	4,262,500
Haemoglobin ...	60%	—	—	—	—
Colour Index ...	0.75	—	—	—	—
Total Whites ...	11,000	22,480	17,784	16,536	20,280

Diff. Count

Polymorphonuclears	1,760	5,620	5,690	4,465	5,070
Monocytes ...	220	225	—	—	405
Eosinophiles ...	330	225	—	1,819	203
Lymphocytes ...	8,580	16,410	11,560	10,252	14,602
Mast Cells ...	110	—	534	—	—

N.B.—The actual figures in the differential leucocyte counts were compiled from total leucocyte counts and percentage differential counts.

The tumours excised from the palpebral conjunctiva and the lacrimal gland, as well as the enlarged lymphatic gland from the axilla, were examined. Naked-eye inspection showed firm, elastic whitish growths, with no signs of interstitial haemorrhage. No tissue corresponding to that of the original lacrimal gland could be distinguished microscopically. The upper orbital tumour, although non-capsulated, appeared to have had no tendencies towards invasion of adjacent tissue. The lower tumour seemed also to have acquired only a few fibrous adhesions by which it had been attached to the surrounding tissue.

Microscopically, no traces of the original lacrimal glands could be discovered in the sections, the tumours consisting of a dense mass of lymphoid cells with an occasional cell of endothelial type, the whole imbedded in a fine stroma. Neither giant-cells nor eosinophile cells were present. The tissue was poorly supplied with blood-vessels. No tendency towards fibrosis was present, and in the lymph gland the original fibrous trabeculae had practically disappeared. No distinction between cells causing the enlargement of the lymph gland and the original lymphoid cells could be discovered. The microscopical appearance of the sections from all three situations did not vary.

During the period of observation, the blood-picture remained fairly constant with regard to a point which would seem to bear some relation to a disease involving an increase in the total lymphoid tissue of the body, namely, the number of lymphocytes. Five differential leucocyte counts were made during the three months of observation. The lowest number of lymphocytes recorded was 8,580 out of 11,000 leucocytes, while the average lymphocyte and leucocyte counts were 12,280 and 17,616

respectively. The blood showed slight anaemia, the lowest count recorded being 3,287,000, with an average of 3,760,000. The colour index when the patient first entered hospital was 0.75. The case can be shortly stated as that of an elderly individual in whom symmetrical lymphomatous growths appeared, affecting both true lymphatic glands and other glands not remarkable for their content of lymphoid cells, together with a leucocytosis due to a great increase in the number of lymphoid cells in the blood. All glands invaded by these lymphomata were above the level of the umbilicus.

It is difficult to classify this case with precision under any one of the headings proposed by von Brunn. Cases of Mikulicz' disease presenting alterations in the blood are divided by him into two groups, those with severe anaemia, lymphatic pseudo-leukaemia and aplasia of the bone-marrow, and those with a frank leukaemia. The case described above cannot with certainty be assigned to either of these groups, but it is, of course, impossible to say whether the condition, at present apparently benign, may or may not take on malignant (*i.e.*, leukaemic) characteristics. Some cases, such as that reported by Stock, have only developed the typical leukaemic blood-picture late in the disease. In the classification suggested by Howard cases are divided into three groups, (i) Mikulicz' disease proper, without alteration in the blood or enlargement of lymphatic glands, (ii) pseudo-leukaemia, *i.e.*, Mikulicz' disease plus involvement of lymphatic glands and often of the spleen, but with no increase in the number of leucocytes in the blood, and (iii) leukaemia.

Is the blood-picture sufficiently characteristic to justify a diagnosis of leukaemia? Quite frankly, we do not know. It would seem that time alone can show whether the case described above is to be placed among the leukaemias or whether it is to form one of a group differing markedly from those cases of Mikulicz' disease which have been hitherto reported.

Our information is principally derived from Thursfield's⁽¹⁾ review of the literature. It would have been desirable to refer to the original accounts which he quotes but such a course is impossible in Uganda. We can therefore do little more than report our observations, in the hope that they may be of some value as an addition to cases already recorded. We are indebted to the Director of Medical and Sanitary Services, Uganda, for permission to publish, and to Dr. Schofield of the Church Missionary Society for the photographs of the case.

1. *Quart. Jl. of Med.*, Vol. VII, p. 237, 1913/14.