A SERIES OF ONE HUNDRED CASES OF HYPOPYON ULCER, WITH SPECIAL REGARD TO A METHOD OF TREATMENT

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ALL will agree that it is of primary importance to arrest at the early stage any infected ulcer of the cornea. In industrial practice one sees many such cases at a stage where hypopyon has not appeared. These may have a considerable infiltration area and even sometimes a posterior abscess of the cornea, as proved by Mr. B. Samuels in his recent paper.[1] My method of treating these, of which I have had a considerable number in the period under review, is the same as that elaborated for the more severe type with a developed hypopyon, *viz.*, prompt application of a modified Wessely cautery, with or without rest in bed. Such cases are not included in my series. They have given with this method 100 per cent. of successes, *i.e.*, recovery with vision 6/12 or more. One or two out of several score have developed a minute hypopyon on the day following, but this has rapidly cleared.

This series comprises cases only which when first seen by me had a hypopyon visible to the naked eye.

In a previous communication[2] I adopted a rough but practical classification of results in another, earlier series, also of 100 cases, thus:—

(*a*) Good, with vision 6/6 to 6/18, or very slight scar.
(*b*) Fair, 6/18 partly to 6/60, or with denser scar.
(*c*) Bad, less than 6/60 or very dense scar.
(*d*) Loss of eye.

The vision alone is of course not always a criterion, *e.g.*, in nystagmus cases (most of my cases are miners), refractive error, amblyopia, etc., and in these the degree of scarring must form a basis of classification. One arrives by experience at a position in which one can say with some confidence "This is a scar that should allow 6/18 or only 6/60, or even less." Not half-a-dozen cases, which gave a visual result altogether out of proportion to the amount of scarring, have been so dealt with, *i.e.*, moved into a class one higher in the scale. One moderate application of the cautery referred to does not cause dense scarring.

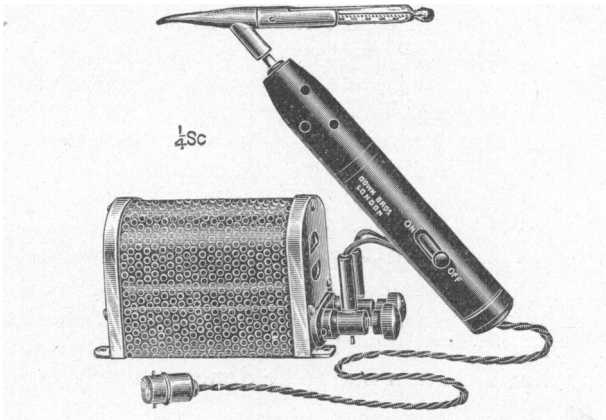
The question of bacteriological diagnosis need not detain us. We take for granted that the pneumococcus is the causal organism in the vast majority and that the tendency is for its spread to be along the surface, undermining the epithelium which rapidly breaks down. The spread occurs mainly, I think, outwards in all direc-

tions equally from a centre; and does not penetrate more deeply than 1/4 of the corneal thickness, in the stage at which one usually first meets with the ulcer. Thus the deep abscess need not be attacked, as it is sterile like the hypopyon itself. A few cases may be due to an organism of the diplobacillary group. In one of my earlier series I found one of the Petit type. In one of this series, No. 75, which showed chronic blepharitis of diplobacillary type perforation occurred. Perhaps these cases are more liable to perforate.

In my former series I argued for an early section of the cornea by a special incision which I described as likely to avoid iris prolapse, but in this new series I abandoned early section and reserved section for later cases that had done badly, usually with methods other than my cautery. Early section may be efficient in very many cases but it is a more severe method and (one grave objection) it does not allow of prompt dealing with an infected tear sac. It is too dangerous to open an eye within, I think, three days of excision of a sac. This objection does not hold in the case of the mild cauterization I am recommending in this paper.

I have come to the conclusion that the safest and most satisfactory method of treating all hypopyon ulcers at whatever stage they present themselves is one or more applications of a cautery of the Wessely type along with certain adjuvant methods which I will refer to later.

I found the German instruments very liable to get out of order and they could not be set right again without the delay involved in sending them back to Germany. Messrs. Down Bros. of St. Thomas's Street, S.E.1 have made some very practical improvements in the instrument and have given it the name Metri-cautery, in view of the very fine regulating mechanism, that allows of application at an exact temperature at the point, of between 70° and 90° C. A thermometer reaching almost to the tip registers this. 70° is



Block supplied by Down Bros.

said to be fatal to the pneumococcus. 90° is apt to do more damage to the cornea than is necessary. I advise, therefore, 75° to 85° as the optimum. A few seconds suffices for the point to be stroked over the surface, carefully exploring the edge where advance seems likely, and even breaking through into any fresh focus, without, as I said, attacking the secondary deep infiltration abscess, if present. I have abandoned the red hot cautery. This, used even with the care of Mr. Edgar Stevenson's[3] method of approach, *i.e.*, not actually in contact, has in my experience produced such dense scars and has led so often to perforation that I have come to regard it as too dangerous and damaging. This may be because the red and infra-red rays penetrate more and cause a deeper reaction than is necessary. My cautery does not act in virtue of rays. It is in contact the whole time of its application.

Every series will include cases brought too late for any method to offer any hope of success. Seven were classified as such and of these three were women. Women put up with things longer than men, and often come too late. Out of a total of seven females, two were so bad on admission that the eye was lost, and in two others the result was "bad."

These four female cases may be analysed thus:—

No. 98 came with a three weeks' history of an inflamed eye and the whole cornea on admission was deeply infiltrated with pus.

No. 97 with a 10 days' history, general condition poor, aged 69 years.

No. 92 also aged 69 years, a syphilitic with iritis and old standing chorio-retinitis, left with a dense scar.

No. 96 a 10 days' history. My house surgeon did a corneal section in my absence and as this was not checking the advance of the ulcer, I cauterized it two days later and arrested it, but vision was only 2/60. I do not recommend this sequence.

Cases 98 and 97 lost the eye.

But taking the severe and even hopeless cases along with the less severe and even mild cases, the series shows "good" results in 65. This compares favourably with the previous series which by various methods of treatment, of which this cautery was not one, gave only 48 "good." Further analysis is required. How many cases were of such a mild type that it might be said that any simple treatment would probably be a success?

I would here emphasise the fact that it is impossible to say at the earliest stage whether the ulcer will assume a virulent form or not. The case regarded as diplobacillary came at first with no history of injury and only a tiny subcentral ulcer. He was treated by being sent home with zinc lotion and atropine. He turned up a week later with his anterior chamber half-full of pus, eventually perforated, and evisceration had to be done.

Previous sad experience has brought home to me that every case coming within 24 hours of an injury with an ulcer that has any appearance of being infected should be seen again the next day, if, indeed, it cannot be admitted straight away to the ward.

There were in this series 18 cases of so mild a degree that methods other than cautery proved successful. They presented themselves either before we got the cautery, or during a period when it was out of action, or in my absence before I made it a routine treatment.

The results were "good" 17; "fair" 1. This last was in very poor health, was iritic, and insisted on home treatment.

In only two of these cases was the duration stated at over five days, in eleven it was less than five days, in the remaining five it was not stated. Two of these last were iritic, and it is difficult to be accurate about the date of onset.

But experience teaches that even these mild cases should be treated with respect. I insist now on every case being put to bed, laid on the back, allowed only one pillow, getting up only for needful calls, meals, etc., the idea being to diffuse the pus over a wider absorptive area. The patient is allowed a bowl of perchloride of mercury 1 in 10,000 beside him, and is instructed to bathe the eye freely every half hour during the day, and as often at night as he wishes. Argyrol 20 per cent. drops are instilled by a nurse every 2 hours. This is kept up for 48 hours. If then there is no advance, cautious sitting-up in bed is allowed, followed by getting up in the ward in another 48 hours; and two days after, if no advance, and the surface taking the argyrol stain all over, the patient is sent home. The most favourable cases thus demand six days in hospital.

In this series, as I said, various forms of treatment were given, and the application of *pure carbolic* which used to have a place with me, was one. 18 cases were treated by free swabbing with carbolic. In 11 of these it proved inadequate, and other methods had to be substituted. In fact I considered that valuable time was lost. I have given it up.

The red hot cautery, not touching, was applied in five cases. The results were very disappointing, *viz*: "good" 1; "fair" 2; "bad" 2. The good one perforated, but one cannot regard this as a triumph. In my former series, of a small group no fewer than six perforated. I regard the rays as dangerous.

Corneal section was reserved for the worst cases, after other methods had failed. In only two was this method adopted after the Wessely cautery. In one of these, No. 23, my H. S. applied the cautery and on the following day, as the ulcer did not seem to be arrested, I sectioned the cornea. The eye went from bad to worse and had to be removed. I had at that time not a sufficient

faith in the instrument. I should have persevered with it, even to several applications if necessary. The other case, No. 97, was that of an old woman, aged 69 years, with a ten days' history, in whom three applications proved inadequate and as a last hope I sectioned the cornea. The eye had to be sacrificed. Three valuable days were lost before the cautery was applied, owing to my absence. If the case had been attacked with vigour on admission the result would, I feel sure, have been more favourable.

The results of section done under these conditions were: "fair" 6; "bad" 4; "eye lost" 5, total 15.

One learns more sometimes from failures than from successes. An analysis of the ages of 11 cases that resulted in "loss of eye" shows that 11 of these were over 60 years and only 3 under 50 years. Poor general condition, tear sac infection, septic teeth and of course the duration of the ulcer weigh heavily against success. One was a thorn injury with severe iritis on the second day. Thorns seem to contain some very irritating substance. In 4 of these 11 was the Wessely cautery tried:—

No. 23 above referred to.

No. 33, with a 10 days' history, continued at work and came with cornea necrotic, and anterior chamber half full of pus, the eye perforated.

No. 75, already referred to as possible diplobacillary, lost a week of valuable time on inefficient home treatment. After two cautery applications, free swabbing with 2 per cent. zinc sulphate was tried but proved ineffectual.

No. 97 is referred to under corneal section.

In three of these lost cases then the cautery was applied too late, *viz.*, after the tenth day. In the remaining one it was applied half-heartedly after the fourth day and I think wrongly followed by section.

Turning finally to the total group of cases treated by the Wessely, we have the following encouraging results:—"good" 31 or 68·8 per cent.; "fair" 9; "bad" 1; "loss of eye" 4, total 45, of which only 4 after seventh day:—resulting in "fair" 1; "bad" 1; "loss of eye" 2, showing again the importance of early effective treatment.

In 38 the Wessely was the only special treatment. In two iritic cases intravenous Sodii Salicyl. was also given. In five the eye was sectioned, in only one of which was the result "fair," the others being "bad" or "loss of eye."

Comparing now the over-all results in my two series, we have:—

First Series. "Good" 48; "fair" 13; "bad" 30; "loss of eye" 9=100.

Second Series. "Good" 65; "fair" 16; "bad" 8; "loss of eye" 11=100.

And when the Wessely treatment alone is taken, the figures are even better, as above.

I fear we shall aways be left with say 10 per cent. of cases that will be too far gone to expect a good result with any method.

REFERENCES

1. *Trans. Ophthal. Soc. U.K.*, Vol. LI, p. 485.
2. *Lancet*, 1929.
3. *Trans. Ophthal. Soc. U.K.*, Vol. XLVII, p. 55.

MARKED PAPILLOEDEMA IN PULMONARY EMPHYSEMA

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THE following case appears to be unique and consequently may be of interest.

P. B., a male, aged 34 years, a coalminer, was admitted to the medical wards of the Royal Infirmary, Edinburgh, on October 26, 1932, under the care of Professor Murray Lyon, to whom my thanks are due for access to the notes on the general condition.

His complaints were:—

(1) "Shortness of breath of two years' duration."

(2) "Defective vision in both eyes of two months' duration."

On examination by Professor Murray Lyon the case was diagnosed as one of extreme emphysema, unusual in the fact that the cyanosis and congestion were confined to the upper part of the body.

Examination on admission showed:—

A well-developed deeply cyanosed man, lips and ears dull purple; centre part of the face deep bluish red; breathing shallow and apparently difficult; eyes prominent and congested; fingers clubbed.

Blood pressure normal, 130 mm. Hg systolic, 85 mm. Hg diastolic. Heart: sounds closed.

Alimentary system: no history of vomiting at any time.

Spleen not enlarged.

Central Nervous System: no loss of motor or sensory power.

Reflexes: pupils equal and active to light, direct and consensual, and to accommodation. Other reflexes showed no abnormality.

Cranial Nerves:

(1) Subjectively unimpaired.

(2) Mistiness, dimness and, occasionally, vision only for movement.