THE TREATMENT OF PERFORATED GASTRIC AND DUODENAL ULCERS.

WITH A REPORT ON FORTY CONSECUTIVE CASES.*

BY

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THIS paper is a plea for the performance of gastro-jejunostomy whenever possible at the time of operation for perforation. Beginning with some apprehension, I have been led to do so more and more frequently with increasing experience, and I now regard it as almost a routine part of the operation.

The cases analysed below are all those I have treated in hospital since my return from the war: 16 were duodenal, 15 pre-pyloric, 5 in the body of the stomach, and in 4 the situation of the ulcer is not stated in the notes. There were 38 males and 2 females.

Treatment.

Every case but one was operated on. This patient was moribund on admission, and failed to rally with treatment. The death is included in the mortality statistics. In early cases, seen within about twelve hours of perforation, suture of the ulcer and gastro-jejunostomy was performed without drainage of the peritoneum, except in three instances of very severe soiling, in which a suprapubic drain was put to the bottom of the pelvis. I have long discontinued drainage through the main wound. The same treatment was adopted in a few late cases in which the patient, in spite of long perforation, was still in good condition. In the majority of late cases suture of the ulcer and pelvic drainage was all that was attempted. A single row of sutures covered by omentum was used, and this proved mechanically efficient to prevent further leakage. I believe it is waste of valuable time to put several rows of sutures.

Mortality.

Of the whole series 11 died, including the case not operated on—a gross mortality of 27.5 per cent.

Of 22 cases in which immediate gastro-jejunostomy was done, one died—a mortality of 4.5 per cent. The death was due to pneumococcal peritonitis seven days after operation.

Of 17 cases in which suture and drainage without gastro-jejunostomy were done, 9 died—a mortality of 52.9 per cent. This high mortality, of course, reflects the fact that the operation was reserved for the worst cases. Five of them died within twenty-four hours of operation of peritoneal shock, three a few days later from peritonitis, and one from acute nephritis and uraemia.

A striking fact about the series is the complete absence of what I used to regard as a common complication—subphrenic abscess. I attribute this to the fact that I put no drainage tubes into the upper abdomen. It might be supposed that subphrenic abscess would be commoner in these circumstances, but clearly the reverse is the case, for since I gave up draining the upper abdomen I have had no subphrenic abscess.

End-results.

All the patients operated on over six months ago were written to, and several were seen personally. Of the 29 survivors 22 were traced.

Cases without Gastro-jejunostomy.—Traced 8, perfectly well 1, still serious gastric trouble 5, relieved by subsequent gastro-jejunostomy 1, died of carcinoma 1. Thus of eight cases only one was cured.

Cases with Gastro-jejunostomy.—Traced 14, perfectly well 10, at work but some gastric discomfort at times 4.

Commentary.

The difference in these end-results is very striking, and shows clearly the advantage of performing gastro-jejunostomy at the time of perforation whenever the patient is in a condition to stand it. Moreover, there is no doubt that with gastro-jejunostomy the patients do better and

have a shorter convalescence than without it. A perforated ulcer is an active ulcer, and it is only natural that to put it at rest should increase the patient's chance of recovery. On the other hand, to do more than is absolutely necessary to a patient suffering from a grave abdominal emergency is to invite certain criticism that the immediate mortality will be increased. If my mortality for the whole series, however treated, is greater than the average mortality for perforating ulcer, my method stands condemned, and this is why I have been careful to state my gross mortality of 27.5 per cent., which is, I believe, less than the average.

Obviously, considerable judgement is required to decide when to perform gastro-jejunostomy in these cases, but I find from my notes that I have gradually come to do so more and more frequently. Of the last 15 cases operated on I have performed gastro-jejunostomy in 13; all of them recovered, while the two in which I did not do so died.

CONJUNCTIVITIS IN THE TROPICS.*

BY

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I WAS once told by a surgeon with many years of tropical ophthalmic practice behind him that he did not recognize such a thing as tropical ophthalmology. Such a position premises to my mind a great lack of perception and of imagination. Tropical practice differs so materially from that in temperate climates as to demand a very special study in order to fit a man for success. We are all of us, as we grow older, conscious of regrets for lost opportunities, but there is no department of ophthalmology which brings up to my mind more often or more acutely the sense of what I might have done and did not do than the study of inflammations of the conjunctiva. I feel that the young man who starts his ophthalmic work in the tropics, awakened to an appreciation of the avenues of research opened up by this line of study, has great possibilities in store for him. With the view of stimulating the interest of some of the younger men in this very interesting subject I propose to review it in a more or less summary manner, and to indicate some of the lines along which I think that research can profitably be conducted.

There is another side to the question. The expansion of our colonies and the movement of great bodies of men to and from the tropics during the war has brought tropical disease to our very doors, and has stimulated an interest in the subject amongst our own medical men practising in Great Britain and in its temperately situated colonies. It is my hope that this bare outline of a great subject may therefore be of some interest to them too.

The habits of the residents in tropical lands, and the climatic conditions which prevail there, are favourable to the implantation of germs within the conjunctival sac and to their growth on its lining membrane. Sun, dust, and wind constitute a triad of evil influence adverse to the maintenance of conjunctival health. All who have lived in Eastern countries are conscious of the drying up of the skin and the rapid exfoliation of its surface layers which are experienced in the hot weather, and which are greatly aggravated when the hot air is in motion, and especially so when it is laden with dust, as it so often is in tropical lands. It used to be suggested that the epidemics of conjunctivitis with which every tropical worker is so familiar are due to the infection of the conjunctivae of the population by germ-laden air. As a matter of fact, the majority of the organisms responsible for the Eastern epidemics of ophthalmia are non-sporeing, and we know by experiment that such are easily killed by drying. I will revert to this subject later on, being content here to lay stress on the view that the action of dust, like that of heat and wind, is probably traumatic, abrading the surface epithelium, causing local congestion, and so preparing the membrane for the growth of pathogenic organisms.

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* A lecture delivered at the London School of Tropical Medicine on October 24th, 1924.

It is not always easy in studying epidemics to eliminate other factors and so to concentrate attention upon those which are most vital. This has, however, been done for us most admirably by Sichel in his investigation of an epidemic of conjunctivitis which occurred on Christmas Island. The climate in this locality shows a well marked wet season (January to May), and an equally distinct dry season (May to December), whilst the temperature is extraordinarily uniform. The mean annual temperature is 80.7° F., the extremes in the monthly averages throughout the years under observation showing a difference of only 2°, whilst the diurnal range does not exceed 14°. The industry of the island is the production of phosphate of lime; the phosphate quarries reflect the sun and cause an extreme glare, whilst the phosphatic dust is extremely irritating. Complete meteorological and hospital records were available for a period of fourteen years. It was thus possible to construct charts showing the close relationship existing between dry weather and the epidemics of conjunctivitis. The influence of glare and dust upon the causation of inflammations of the conjunctiva is clearly proved. The elimination of the temperature factor is most valuable and instructive.

The epidemics of conjunctivitis with which tropical practitioners are so familiar appear, wherever they occur, to have certain common and very definite characteristics. They have probably been better studied in Egypt than anywhere else in the world, but it would seem probable that what is true of them there is equally true, with minor variations, throughout the tropics. They present certain features of interest which should be carefully borne in mind—namely, (1) the great variety of organisms met with in these epidemics; (2) the very definite subdivision of what at first sight might be taken for a single epidemic into a number of subepidemics, each of which shows its own curve of rise and fall in more or less independence of the others; and (3) the curious evenness with which the same class of subepidemic repeats itself at the same time in each successive year, subject of course to variations in intensity, duration, etc., from year to year.

To illustrate these statements I may say that, with the exception of the conjunctivitis of Morax-Axenfeld origin, Meyerhof found that all the forms of acute ophthalmia in Egypt (inclusive of those of gonococcal, Koch-Weeks, streptococcal, pneumococcal, and diphtherial origin) become epidemic during the summer. Lakah and Khouri noted in Alexandria that the Koch-Weeks epidemic appears before the gonococcal, the former attaining its maximum in June, the latter in September. Meyerhof verified these observations in Cairo and Upper Egypt, with the exception that he found the Koch-Weeks conjunctivitis to attain a primary acme in May or June and a second in September or October, the latter being concurrent with that of the gonococcal epidemic. In December the curve of incidence falls, and only sporadic cases occur until the first days of spring. This sequence is repeated yearly with astonishing regularity, though the epidemic varies from year to year in its virulence.

PECULIAR FEATURES OF CERTAIN EPIDEMICS.

Gonococcal Conjunctivitis.

We owe the main bulk of our knowledge of epidemic gonococcal conjunctivitis to the workers in Egypt, who have long recognized this variety of ophthalmia, and have studied its epidemiological features very carefully. Quite recently MacCallan and Beaton have drawn attention to the differences, long familiar to tropical practitioners, between gonococcal conjunctivitis as seen in Egypt and in some other tropical and subtropical countries, and the same disease—at least so far as origin is concerned—in Europe. Those differences may be briefly stated: (1) The tropical form usually results from contagion acquired from another conjunctiva instead of from the genital organs; (2) it is frequently subacute or chronic in its course; (3) it shows definite seasonal variations, becoming epidemic as the atmospheric temperature rises; (4) it is a far less virulent disease than that met with in Europe, the cornea often escaping injury. These observers are of opinion that the Egyptian disease is truly gonococcal, and that it is not due,

as has been suggested, to a different organism which morphologically resembles the gonococcus. Beaton is now engaged on a further study of the subject, and is preparing immune serums, with the object of throwing light on the specific vital characteristics of the Egyptian conjunctival organisms as compared with genital gonococci.

The same disease has been studied in Indo-China by Talbot, who has watched it spread in families, in limited areas, and in whole villages during the hot months of July, August, and September. He has attributed the diffusion of the disease to the carriage of infection from case to case by fingers and other soiled objects. Similar evidence has come from different parts of the world, and certainly one of the most interesting of these contributions is that which comes from Samoa. We know that about a century ago a form of purulent ophthalmia was prevalent in Samoa and other South Sea islands, and that it became epidemic "in the bread fruit or fly season." It is believed that its appearance in Samoa dates from contact with the Caucasian, and is therefore one of "the blessings of civilization," which have been such a curse to those islands. In any case we know that gonorrhoea was very prevalent throughout the South Sea islands at the close of the eighteenth century. More recently the epidemics of the disease, which has come to be known as Samoan conjunctivitis, have been milder in type and smaller numerically than they were formerly. The symptoms are those of gonorrhoeal ophthalmia, but in a distinctly modified form; the cornea and the uveal tissues may be severely affected in neglected cases, but in those submitted to suitable treatment serious complications are absent. Quite recently Hunt has investigated Samoan conjunctivitis bacteriologically and with the aid of cultures, and has found that it is due to a Gram-negative diplococcus which he believes to be a modified form of the gonococcus. Not the least interesting part of his investigation was the implantation of the virus of the disease on a healthy conjunctiva, on a healthy male urethra, and on a virgin vagina. Of the three subjects two were volunteers and one was a prisoner.

Enough has, I think, been written to show that this form of tropical conjunctivitis has very definite characteristics of its own, and that it merits the careful attention of all who would practise ophthalmology in the tropics.

Membranous Conjunctivitis.

A disease rare in Europe, membranous conjunctivitis is of far more frequent occurrence in certain tropical countries, and may even occur there in epidemic form. Thus between September 7th and 20th, 1922, an epidemic of nineteen cases, all of which were truly diphtherial, was seen at Assiout (Girgis), whilst three more diphtherial cases and forty non-diphtherial appear in the same year's report. The ophthalmologists of Egypt regard the subject as so important that they recently went so far as to devote a special session of their annual meeting to its discussion (Ophthalmological Society of Egypt, *Bulletin* of 1923). MacCallan and Rasheed Bey there dealt with the bacteriological side of the question, and pointed out that organisms other than the diphtheria bacillus may produce a membranous conjunctivitis; their list included the staphylococcus, the streptococcus, the pneumococcus, the gonococcus, and the Koch-Weeks bacillus in addition to the Klebs-Loeffler organism. The non-diphtherial cases are rather less severe than the diphtherial.

Infection with Klebs-Loeffler bacillus may take place (1) directly by contact, or by fly transmission from case to case; (2) through a diphtheria carrier who presents no symptoms; (3) by such a carrier suffering from nasal catarrh; (4) through dust infected by dry membrane, etc.; and (5) by want of care in the handling of eyes in the out-patient department.

Other points of interest which were brought out at this meeting may be briefly alluded to. The affection may be unilateral or bilateral, and one eye may be much more strongly infected than the other. Diphtherial conjunctivitis is not often accompanied by faucial or nasal diphtheria in Egypt. Paresis of accommodation may occur as the result of a previously undiagnosed attack of ophthalmia (Sobhy Bey), though such an event must apparently be regarded as

very rare; indeed, MacCallan and Rasheed Bey have never seen the accommodator muscle affected in any of their cases. All varieties of membranous conjunctivitis may be accompanied by glandular enlargement. When it occurs in epidemics true diphtherial conjunctivitis appears to pass from eye to eye, and it is rare to get a history of contact with patients suffering from the usual forms of diphtheria. Symblepharon is never seen after the disease in Egypt, but 63 per cent. of MacCallan and Rasheed Bey's cases had corneal ulceration, and 50 per cent. lost one or both eyes; this unfortunate record—so much worse than might have been anticipated from European experience—was largely due to the fact that diphtherial, like many other forms of tropical conjunctivitis, is often a mixed infection. When in doubt as to the cause of a membranous conjunctivitis a dose of antitoxin should always be given whilst waiting for the bacteriological report. Constant irrigations with eusol and painting of the conjunctiva with 2 per cent. silver nitrate solution are recommended; when the lids are swollen hot fomentations should be used. Fly-proof rooms or tents are advocated, and careful disinfection should be carried out at the end of each case, for diphtherial membranes, when dry and kept in the dark, may produce cultures months afterwards. Those in contact with the cases are advised to gargle with potassium permanganate solution (1 in 5,000) thrice daily, and to wear protected glasses; utensils should be disinfected in buckets containing solution of cyllin (1 in 200), and the same disinfectant should be placed in convenient spittoons.

Swimming Bath Conjunctivitis.

Of late years attention has been directed in various centres in Europe to the occurrence of severe epidemics of conjunctivitis which have had their origin in swimming baths. In one at least of these, which occurred in Berlin, the bath was well cleaned and well built. The interest of these observations to the tropical ophthalmologist lies in the clear implication that the conjunctiva may be readily infected from contaminated water, and that we have here a possibly fruitful line of investigation in our study of the epidemics of conjunctivitis with which we are so familiar in the tropics. It may well be that under tropical conditions water, and especially dirty water, may at certain times of the year breed in abundance some at least of the forms of organism which are responsible for such epidemics. No one who has visited Turkish baths in an Eastern city, or who has watched Oriental natives performing their ablutions in polluted water, can fail to be suspicious of the possibility of this form of transmission of infection.

Pediculous Conjunctivitis.

Some years back Ruata recorded the observation that the eyelids of negroes are especially liable to attack by the pubic louse. More recently Blanc has noticed a close connexion between pediculosis of the scalp and phlyctenular conjunctivitis both in France and in Tunis. It is of peculiar interest that the connexion between these two conditions in his tropical practice was equally marked both amongst Europeans and Arabs. He has had similar experiences also at Athens and in Crete. To confirm the connexion he injected into the eye of a monkey an emulsion of ground-up lice and produced a typical phlyctenular conjunctivitis a little over two months after the inoculation.

Koch-Weeks Conjunctivitis.

In lands where trachoma is rife, Koch-Weeks infection plays so important a part that prophylactic measures against it merit very careful study. Recently Nicolle, Conseil, and Cuénod have been studying the advantages of preventive inoculation against this form of conjunctivitis. Both subcutaneous and subconjunctival injections were employed, and the patients were then subjected to the instillation into the conjunctival sac of fresh cultivations of the Koch-Weeks bacillus without any serious symptoms supervening, whilst a control case showed typical infection. To those who know the havoc wrought in tropical countries amongst trachomatous patients by mixed infections—in which the Koch-Weeks organism plays a by no means unimportant part—these observations will have a very real importance.

THE TREATMENT OF VARICOSE VEINS OF THE LEG BY INJECTIONS.

BY

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DURING my student days I became greatly interested in varicose veins of the leg, on account of the number of operations performed and the number of recurrences which I saw at the dispensary. It was evident to me then that there was no one operation which could with certainty be relied on to effect a cure, recurrences taking place after each of them in a large proportion of cases. This impression has been greatly deepened since, and has led me to try some other means of benefiting these patients without the necessity of incapacitating them for work for at least six weeks and without the risk of a general anaesthetic.

Dr. Sicard in 1923¹ described his method of injecting varicose veins with sodium salicylate. Thrombosis of the veins is produced. The danger of producing thrombosis in veins, to my mind, was the fear that the thrombosis would extend up the vein or produce embolism. Having had at that time (May, 1923) a large experience of treating haemorrhoids by injection, and also having convinced myself from clinical experience and the examination of microscopic slides that thrombosis was produced in these haemorrhoids, that the thrombosis did not extend up the vein, and that embolism was not produced, I commenced injecting veins with sodium salicylate, and have now treated thirty cases by injection.

My first patient was a female shop assistant with varicose veins of both legs. The left leg, being the worse, was injected. She was kept in hospital for one week after the injection, but was allowed to go about the wards. At the end of the week she was sent home. I have seen her at various intervals since, and on the last occasion she asked me to inject the other leg. She has never been off work since May, 1923, on account of the varicose veins, while previously she had to take days off repeatedly. The other cases have all been treated as out-patients and have not been incapacitated beyond one day, except one case in which cellulitis was produced.

The method employed by Dr. Sicard when using sodium salicylate is as follows: The susceptibility of the patient to the drug is tested by injecting about 1 c.cm. of 20 per cent. solution into the veins. If there is no reaction next day a stronger solution is used, but it is recommended not to go above 40 per cent. Several sections can be injected at the same time, but the total dose of sodium salicylate should not exceed 3 grams. No constricting band is used. The patient, as a rule, complains of a very severe pain coming on immediately after the injection and lasting about one minute. Occasionally goose-flesh feeling and slight cramp in the leg or foot are noticed, lasting for a short period. Dr. Sicard states that this method is very suitable for varicose veins which are bunched together, and that one injection may effect a cure. If a cure does not result the treatment can be repeated. Immediately following injection the vein swells, and its contents can be felt becoming hard. When examined about a week afterwards one or two things will be found if a cure is going to be effected: (1) a hard mass is felt in the vein at the seat of injection, and (2) in addition it is found in some cases that thrombosis is extending down the vein. In no case was extension up the vein noted. Later the vein, if thrombosis has extended downwards, becomes replaced by a fibrous cord. If thrombosis has only occurred at the seat of injection, the veins below remain patent and varicose, but whatever happens the patient always states that the veins are reduced in size and the strength of the limb is greatly increased. On account of the severe pain experienced after injecting sodium salicylate, I have been trying the effect of mercury perchloride (1 in 500). A few minims only are injected at different points. There is less pain, the swelling of the vein is much less, and the results are as good. My method is to insert into the vein a fine needle pointing downwards. When the blood flows freely through the needle I attach the syringe containing the fluid to be