ON THE TREATMENT OF LUPUS.

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(Translated from the German by R. CRANSTON LOW,
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THE methods of treatment in lupus which are in general use at present are the following: (1) physical (Finsen light, Roentgen rays, and radium); (2) chemical (caustics); (3) mechanical (surgical methods); and (4) internally acting substances (cantharidin, tuberculin). There is no single method which can definitely cure every case of lupus so that no recurrence will take place. Therefore, as was specially drawn attention to at the International Dermatological Congress in 1904,¹ the one-sided method of applying the same treatment in all cases of lupus, and in all stages of a given case of lupus, is not to be recommended. But according to the prominent symptom, the surgeon should choose out of the different methods the one which is specially indicated and suited for the object in view. The treatment of lupus by physical means such as the Finsen light or the x rays requires so much time and such costly apparatus that these necessarily are only within the reach of a few specialists. For the majority of practitioners these methods are impossible unless they are associated with some public or private institution. A great number of specialists and almost all practitioners are therefore to-day still dependent on methods which are simpler and cheaper in their application. Every method for the treatment of lupus which can be used by the practitioner himself and which is handy and easy of application is to be heartily welcomed. The practitioner should be in a position to attack on its first onset a disease such as lupus, which causes so much disfigurement.

I introduced over two years ago a method for the treatment of lupus² which places the general practitioner in a position to treat it cheaply, easily, and with success. The method is as follows. The lupus patch which is to be treated is frozen by means of ethyl chloride (or by carbonic acid gas³ if a deeper effect is desired) till it is snow-white. Over this frozen surface crude hydrochloric acid is rubbed thoroughly and with a certain degree of force. According to Unna it is advantageous to saturate this crude hydrochloric acid with chlorine. The acid is applied in the following way. Cotton-wool is wound round one end of a small wooden stick of about the size of a penholder; this is dipped in the crude hydrochloric acid and rubbed on the frozen surface, pressing slightly, till the nodules become of a greyish-white colour (reaction). This greyish-white colour occurs first where nodules are and then in the skin surrounding the nodules. In this way a large surface can be treated at once by a succession of applications of the caustic. If the patch is very large it is best to administer chloroform. The spots are then similarly thoroughly frozen by preference with carbonic acid gas and then by the above-mentioned means the crude hydrochloric acid is energetically rubbed in. This freezing and cauterisation under general anaesthesia is especially suitable (1) in lupus multiplex and lupus exulcerans; (2) in lupus of the mucous membranes, the nasal cavities, the lips, and tuberculous abscesses and fistulae (cauterise from six to eight times in rapid succession); and (3) where the freezing is not well borne by the patient (e.g., nervous and sensitive patients) or where very energetic cauterisation is necessary—e.g., in tuberculous ulcers, lupus hypertrophicus and verrucosus.

In treating the nasal cavities during the anaesthesia all the tuberculous tissue is scraped away with a sharp spoon and the bleeding is stopped with adrenalin. The posterior nares should be previously plugged. Then the nose is thoroughly cauterised eight or ten times with the wooden sticks dipped in hydrochloric acid. So many applications are necessary because the hydrochloric acid becomes diluted and neutralised by the blood. The crusts which are formed in the nose are removed every two or three days by softening them with oil

and douching the nose. The after-treatment of all cauterised lupus areas consists in the application immediately after the cauterisation of a disinfectant and astringent powder which is dusted on with a piece of cotton-wool. I have found eugoform, which is a condensation product of guaiacol and formalin, the best. A bandage is usually unnecessary. Instead of the powder after a few days zinc gelatine or zinc sulphur paste may be applied. One or two days after the surface cauterisation a brown scab forms, which falls off in from two to four weeks. Together with the scab the most superficial lying nodules are cast off, while the deeper ones still remain as such and after four weeks can be recognised by the diascopy⁴ as brown points. In cases where several nodules are present close to one another from one to four applications of this surface cauterisation are made every four or six weeks. In the course of from three to six weeks a fairly extensive lupus is replaced by a tissue (lupus-fibroma) which is covered with epithelium and in which no nodules or only a few isolated ones remain. When isolated nodules are present they are removed by puncture cauterisation. For this purpose I recommended the use of obliquely pointed glass tubes. The nodule in question is first marked by a spot of ink and then frozen with ethyl chloride. A small-pointed wooden stick is then bored into the nodule and by means of the glass tube two or three drops of crude hydrochloric acid are introduced one after another deeply into the skin opening. For this method the nodules must be at least from 1 to 1.5 centimetres from one another, otherwise the cauterised areas become confluent.

To recapitulate, my lupus treatment consists in thorough surface cauterisation from two to four times every four or six weeks of the previously frozen areas (under general anaesthesia if necessary). This cauterisation is repeated as often as necessary till only a few nodules are present (lupus fibroma). The remaining nodules are cured by puncture cauterisation. If necessary recurrences from remaining foci are treated in the same cheap and convenient way immediately they appear, so that eventually the seat of the disease heals up as completely as is possible in a pathologico-anatomical sense. The following diagrammatic drawing (Fig. 1) may be instructive for the practitioner. It represents a case of non-ulcerated lupus of the forearm which has already been

FIG. 1.

The larger dots (a) represent deep-seated nodules in the cutis. The smaller dots are mere superficial nodules (b) which lie just under the epidermis. The dotted lines (c) represent connecting bands of tuberculous tissue (cf. Fig. 2).

treated and which shows by the diascopy perceptible nodules; five of these nodules (darkly marked in the drawing) lie deep in the cutis (cf. illustration), while the remaining ones are close under the epidermis. Every effective chemical and physical treatment destroys the superficial nodules and the superficial connecting bridges first. Only in the later treatment can the deeper tuberculous tissue be affected. In the course of treatment more and more of the tuberculous deposits disappear to be replaced by new connective tissue. Finally, only isolated lupus nodules, which are recognisable by their brown colour under the diascopy, are to be seen. These are then treated in any suitable way till they are no longer visible and in their

¹ See Transactions of the Fifth International Dermatological Congress in Berlin, 1904. Published by August Hirschwald.

² Monatshefte für Pract. Dermatologie, vol. xxxvii., p. 193. Transactions of the Fifth International Dermatological Congress, vol. ii. Berliner Klinische Wochenschrift, 1904, No. 17.

³ Berliner Klinische Wochenschrift, No. 10, p. 260. "Freezing Treatment of Skin Diseases" by Dr. Max Juliusberg, from the Royal Dermatological University Klinik in Breslau (Director Geh. Med. Rat Professor Neisser).

⁴ Diascopy depends on the following facts. If pressure is made with a glass spatula, a glass pleximeter, or a microscope slide on the normal skin it becomes quite pale because the blood is pressed out of the capillaries. In lupus, instead of fibrous and elastic tissue and capillaries, there are collections of cells (lupus nodules) which lie closely packed together and fairly sharply limited in the cutis. These cells appear through the glass as brown areas, whilst the surrounding bloodless areas are light in colour. It is best to use a glass pleximeter and to apply some fatty material to the skin beforehand.

place pure connective tissue is left, as Juliusberg⁵ and I⁶ have found 12 weeks after the treatment with hydrochloric acid that microscopical examination shows the lupus tissue replaced by scar tissue with no remains of lupus foci (cf. Fig. 3). If after a few or many sittings all nodules have so far disappeared that none are to be seen either with the naked eye or with the dioscope, or after injections of tuberculin, or in an excised piece of the tissue, then it is allowable to say that recovery is probable. (Instead of giving tuberculin injections Unna's method of rubbing in tuberculin soap may be followed.) In place of the nodules which had destroyed the connective tissue, elastic tissue, and vessels, new connective tissue appears with the formation of new epidermis, under which there is an absence of papillæ and elastic tissue (see Fig. 3).

At different sittings the operator may either always use the same method (e.g., always Finsen light, hot-air treatment, &c., or always freezing and hydrochloric acid), or a combination of methods, which I consider the best—namely, commencing with ethyl chloride and hydrochloric acid and then using the Finsen light after the surface has healed. This combination I consider very effective. For after-treatment with hydrochloric acid the nodules which remain become fairly accessible to photo-therapy. Of course, the hydrochloric acid treatment must not be so energetic as to produce a keloid. One of the properties ascribed to the effect of light is that it has a selective action in lupus and that it produces deep effects either by an imbibition of serum, an emigration of leucocytes, a direct destruction of tuberculous tissue, or, as is very improbable from bacteriological experiments, a direct destruction of the tubercle bacilli themselves. The treatment by freezing and hydrochloric acid, as recommended by me, has the property both of a selective and a deep action. If an area of skin affected with lupus is frozen and then energetically rubbed with hydrochloric acid the stratum corneum, where the superficial nodules are, is the first portion acted on (Fig. 2, *a* and *b*).

FIG. 2.

Microphotograph. *a* and *b* are two superficial nodules lying just under the epidermis. The epidermis was cauterised especially over these nodules. The piece of skin was excised immediately after a short application of the caustic. Nodule *a* is very dark, nodule *b* dark at places. If the acid had been more thoroughly rubbed in *b* would have been completely dark too. The deep-seated nodule (*c*) is still quite lightly stained, as the acid has not reached it. (*d*) Blood-vessels. (*e*) Epidermis.

During the application of the caustic it will be recognised that the spots under which nodules are suddenly become visible as dark brown points. On these spots the stratum corneum is always the first to be cauterised (Fig. 2, *a* and *b*). Therefore during the cauterisation more nodules are sometimes seen when the superficial loose epidermic scales have been rubbed away than were originally expected. The healthy skin in the neighbourhood of the nodules remains at first intact and only later becomes cauterised or by stronger treatment destroyed. Apart from this elective effect the hydrochloric acid also exercises a certain deep effect, as may be shown by a staining experiment. If a patch of lupus is rubbed with hydrochloric acid the natural result is that wherever there is a gap in the epidermis (Fig. 2, *a* and *b*) the acid penetrates into the cutis. Now, as already

mentioned, this gap in the epidermis first occurs where the tissue is less resistant, therefore where lupus tissue lies, and therefore this area becomes penetrated by the acid to a certain depth and destroyed. The depth to which the acid has penetrated may be accurately ascertained by stains treating an excised portion with a strong basic stain such as polychrome methylene-blue solution. It is clear that in the acid-impregnated cells a marked microchemical reaction occurs between the acid tissue and the basic stain. Microscopically, this is shown by the dark blue colouration of the cells into which the acid has penetrated. In Fig. 2 the nodule *a* is completely penetrated by hydrochloric acid, nodule *b* only in its upper part, and nodule *c* is not penetrated at all. The cells stained dark blue, which have been penetrated by the hydrochloric acid, are in a fair way to disappear and will be later replaced by connective tissue, while the cells stained light blue still require treatment. With regard to the histological changes produced after the application of hydrochloric acid, the nodules and surrounding tissues become saturated with serum and the vessels become enormously dilated. (Fig. 3.) In the piece of

FIG. 3.

Puncture-cauterisation. Point of puncture is *a*. The nodule *b* is dark—i.e., saturated with the hydrochloric acid. The vessels *c* are greatly dilated. The connective tissue is infiltrated with serum.

skin excised three nodules, of about the same size as in Fig. 2, were rendered visible by the dioscope before treatment. These were frozen and thoroughly cauterised. Four weeks afterwards the scab fell off and new epidermis took its place. In a piece of skin excised 12 weeks after the cauterisation there were no histological remains of the nodules which were present before. The limit of the cauterisation may be recognised (1) by the absence of papillæ between *a* and *b*; and (2) by the absence of elastic fibres between *a* and *b*; while in the uncauterised surroundings they are still present.

The above histological details, notes, and illustrations show that good results can be obtained in lupus by simple and inexpensive means. This is not only the case in recent cases of lupus but also in such as have existed for many years. With regard to the lasting effect of the treatment no exact opinion can as yet be formed, although I have had four cases under observation for two years without any recurrence. But even if there were an occasional recurrence it could be thoroughly and inexpensively treated in the incipient stage. Juliusberg, Rohden, and others have also reported the same good results as I have described. Juliusberg has employed the treatment by freezing and hydrochloric acid in Neisser's clinic and for the freezing has used carbonic acid gas. I only approve of this method when many cases have to be treated, because then the cost is reduced. Carbonic acid produces an effect extending to a considerable depth and with a general anæsthetic it can be used over large areas. After discussing the effect of freezing.

⁵ Juliusberg: Treatment of Skin Diseases by Freezing, Berliner Klinische Wochenschrift, No. 10, p. 262.

⁶ Dreuw: Treatment of Lupus by Hydrochloric Acid, Transactions of the Fifth International Dermatological Congress.

on the normal skin and tuberculous tissue without subsequent cauterisation Juliusberg writes:—

From another point of view I made further experiments, as Dreuw had already reported, with the combination of freezing with ethyl chloride and then application of crude hydrochloric acid. The treatment was the same as that recommended by Dreuw with this exception, that ethyl chloride was replaced by carbonic acid gas. It was thereby possible without general anaesthesia thoroughly to freeze small foci in a few seconds and during the anaesthesia energetically to cauterise them. I usually repeated the whole process two or three times at one sitting. Four or five sittings in two months seemed to me sufficient to cure a fairly deep-seated process. In most cases the pain following the treatment was slight but in a few cases it was very considerable. For after-treatment I used poultices, powders, or pastes. The results appear, so far as can be judged from the relatively short time of observation, to be very favourable. My experience extends over cases of lupus vulgaris, tuberculous cutis verrucosa, lupus erythematosus, ulcus cruris, primary syphilis, psoriasis, and sycosis vulgaris. The hard sores, which were all ulcerated, healed over in a few days after one application of the treatment by freezing and hydrochloric acid. A specific treatment for all cases has not yet been introduced. I had less success in two cases of psoriasis in which after disappearance of the reaction a fresh outbreak of the disease occurred. Ulcers of the leg, on the contrary, were very favourably influenced. An astonishingly rapid diminution in size and epithelialisation of the sores occurred. In about ten days they were completely healed. In lupus erythematosus, three cases of which I treated, the same favourable result with healing occurred as by simple freezing. The latter method appears to me preferable considering the superficial nature of that disease. The real field for Dreuw's method, if necessary with my modification with carbonic acid gas, is in tuberculous skin affections, which cannot be conveniently treated by Finsen light, Roentgen rays, or radium emanations. I had very good success in lupus vulgaris. As mentioned above, three months after the treatment by the modified method the foci showed on microscopic examination pure scar tissue. (Then follow notes of seven cases of lupus vulgaris, in all of which Juliusberg saw a very favourable influence on the disease.) Putting all my experiences together I am brought to the conclusion that the treatment by freezing has chiefly a destructive and caustic effect. This effect consists in the simple freezing method in a superficial necrosis and in the freezing and cauterisation in a deep necrosis of the tissue. Whether the marked serous transudation and leucocytosis have a good influence on the disease or not I cannot decide. At any rate, it seems to me that the chief use of the freezing method alone is in lupus erythematosus and of Dreuw's method in lupus vulgaris and carcinoma.

Rohden (Bad Lippspringe) describes the same good results in No. 21 of the *Deutsche Medicinalzeitung*, 1905. He says:—

After many fruitless attempts and long treatment with Finsen light and x rays, in my experience of different caustics, besides the general and surgical treatment, I would recommend the ethyl chloride and hydrochloric acid method of Dreuw as surest and quickest. It gives lasting results and stands far above the Finsen light and the Roentgen rays in rapidity and simplicity. It can be carried out by any practitioner. Most cases which are represented as cured by Finsen light are not really cured, if one applies in the diagnosis the diascopie or the phaneroscopic light method of Oscar Liebreich. The still unhealed lupus remains visible as yellow masses when the scar is pressed away by the glass.

As is shown by the foregoing the treatment of lupus by freezing and hydrochloric acid gives relatively good results and has the advantage of being very simple and inexpensive. It can therefore be applied by any practitioner. Even long-standing cases give in a relatively short time good cosmetic results. The method can also be applied with advantage in all other ulcerating processes in the skin, such as ulcers of the leg, venereal soft sore, primary syphilis, &c. No definite opinion, of course, can yet be formed as to the permanency of the results obtained because for that purpose years of observation are necessary.

To summarise once more the advantages of the method recommended by me, they are as follows: 1. The method is simple, cheap, rapidly effective, and gives good cosmetic results. 2. It can be carried out at home without hospital treatment, and that is especially important for patients of limited means. 3. Complicated apparatus is not necessary, therefore the method can be applied by any practitioner. 4. The method can be applied in all forms of lupus and in all situations, with the exception perhaps of the eye. Favourable results are obtained by repeated cauterisation, especially in lupus of the nasal cavity. 5. As a preliminary treatment for later Finsen treatment one gains time and gets favourable results.

Hamburg.

VACCINATION FEES.—The Loughborough (Leicestershire) board of guardians have fixed the following fees for public vaccinators: 4s. for each successful vaccination performed at the home of a person living in the same parish as the public vaccinator; 6s. for each case of successful vaccination performed at the home of a person living in a parish in the public vaccinator's district other than the one in which he resides.

A CASE OF ACUTE LEAD ENCEPHALOPATHY FOLLOWING THE USE OF (?) DIACHYLON PILLS AS AN ABORTIFACIENT.

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THE patient, a well-developed and previously healthy woman, aged 33 years, gave the following history. She was married and had had five children and two miscarriages; she had done nothing to procure these miscarriages and could assign no reason for them. The youngest child was 13 months old, and she had again become pregnant lately. After from six to eight weeks' amenorrhoea, however, she consulted a female friend who gave her three distinct kinds of pills with directions to take one pill of each kind every morning and night. One of the varieties, she was told, was pennyroyal and the nature of the others she does not know, but in view of subsequent events there can be no doubt that one or both of the remaining varieties contained lead in some form, probably diachylon. She took these pills as advised at the rate of six a day for four or five days only without any appreciable effect and then a sudden accident occurred to one of the children; she was very much frightened and ran for a medical man as fast as she could and almost immediately after this she had pains in the back and in the abdomen and began to lose blood copiously. She kept about, however, for a fortnight, although losing continually, and at the end of that time had to go to bed owing to the miscarriage coming on. The miscarriage was attended by a medical man and everything went well. She was kept in bed for four or five weeks owing to anaemia and pains in her back and limbs. All this time she was quite clear mentally so far as can be found out.

The patient was then admitted to the London Hospital and the condition was as follows. The heart and lungs were clear. There was very marked anaemia but no paresis anywhere. Knee-jerks were present and were normal. There was no ankle clonus or Babinski's sign. She complained of pain in the back and limbs and colicky pain in the abdomen, and there was a fine tremor of the hands. The speech was very defective and the memory was much affected. Constipation was a very marked feature, and to clear up the difficulties of the case a black line nearly a quarter of an inch wide was found on the gums at the base of the teeth. This line was so extraordinarily wide and black that one hesitated to make the diagnosis of lead poisoning, but in some places, and especially along the margin of the line, the more typical blue character was seen. Mental symptoms rapidly developed after admission and in some respects closely resembled those of delirium tremens. The patient had delusions that people were talking about her and construed objects about the ward, of an inanimate, nature into people and animals. For a time she employed herself busily in trying to catch imaginary fleas and such things, but was never violent. Hallucinations soon came on also and she fancied that she saw animals, chiefly dogs, moving horizontally in front of her. A red man was also supposed to be in constant attendance. She became very restless, especially at night, tried to get out of bed, and would hold long "telephone" conversations in which the sequence of her remarks was quite lucid, but, of course, only her side of the conversation was heard and one was left to conjecture with whom she thought she was conversing. This condition continued for about ten days, during which time she was being vigorously treated with the sulphates of magnesium and sodium and was having trional (20 grains) and veronal (ten grains) at night to promote sleep. Sulphonal (20 grains) was also tried but on the whole the best results were obtained from the former mixture.

Towards the end of this period the patient was quite lucid in the day-time and henceforth her mental condition improved rapidly at night as well as day. Natural sleep was obtained and the bowels at last became free. The very marked anaemia reacted well to the treatment of gradually increasing doses of Bland's pills and iodide of potassium was now added to her mixture of sulphates to eradicate the remainder of the lead. The line upon the gums diminished very rapidly and in a fortnight had all the appearances of the typical lead line; it became much narrower and definitely blue and dotted in character, and now (28 days after admission) she is up and about with the anaemia rapidly