LOCALIZED EDEMA IN THE LUMBAR REGION FOLLOWING THE USE OF SALVARSAN (606)

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At present, while our knowledge of the effect of the Ehrlich-Hata preparation on man is still in the making, a careful tabulation of the various phenomena that occasionally develop after its administration is often of value and always of interest. Since the latter part of October, 1910, I have employed salvarsan in forty-two cases of syphilis and one case of chronic pemphigus. Up to this time, I have noted no untoward action in any instance. The method of administration employed has been that of Alt,¹ phenolphthalein being used as an indicator; and all of the injections have been made in the interscapular region.

In three instances an urticarial eruption, confined to the trunk, resulted, and in one case a scarlatiniform rash developed. These manifestations were quite evanescent, and completely disappeared in the course of eighteen or twenty-four hours. In two of my cases, however, a peculiar subcutaneous elevation, which I have not seen described by other writers, appeared in the lumbar region forty-eight hours after the administration of the drug. In each instance the tumor was oval in outline, and measured 4 by 10 cm., its long axis being parallel with that of the spine, and its lower border on a level with the top of the sacrum. The two were of the same height, about 2 cm. The lesions appeared suddenly, and attained their full size in five or six hours. They were painful, and very tender to the touch. At no time could fluctuation be obtained. They gradually disappeared, in the course of five or six days, leaving no trace. In each instance, the drug had been injected at a point 30 cm. or more from the tumor site, and there was no traceable connection between the needle-wounds and the elevated area.

The first case occurred in a married woman, housewife, aged 43. The disease was of six years' duration, and there were present numerous tubercular syphilids on the face and chest. The initial Wassermann reaction (the serum tests were made by Dr. W. K. Trimble) was decidedly positive, while the second, made ten days after the administration of 0.6 gm. of salvarsan, was negative. No albumin or casts could be found in the urine at any time. The temperature rose to 101.5 F. on the second day, and the patient suffered considerable pain.

I at first thought the lesion was one of "giant urticaria," but the symptoms and course were not those of Bannister's disease. The subjective symptoms were practically nil.

The second patient was a man, sales agent, aged 38. The affection had been acquired fifteen years previously, and there were no visible lesions. The first Wassermann test was positive, and the second, made nine days after the injection of the drug, was negative. In this instance also the patient suffered rather severely, and there was considerable fever (101 F.) forty-eight hours after the treatment was administered. Urinalyses made before, during and after the attack showed nothing abnormal.

In neither instance was there any tenderness over or on either side of the spine in the space intervening between the injection wounds and the tumor. The skin overlying the mass appeared normal. Permission to do a biopsy could not be obtained in either case.

I am at loss to account for the cause of these edematous tumors, unless we consider them as lesions of urticaria gigans. The explanation accepted for Herxheimer's phenomenon is hardly admissible here, unless

there was present a subcutaneous luetic focus in the affected region prior to the use of the drug. The severity of the reaction that followed the administration of the agent in both cases, however, together with the brevity of the space intervening between the injection of the salvarsan and the occurrence of a negative serum test, are very suggestive of the results that sometimes follow the sudden liberation of large amounts of treponemal endotoxins.

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THE REMOVAL OF SEWING-NEEDLES FROM SUBCUTANEOUS TISSUES

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The removal of a sewing-needle, or other similar sharp-pointed foreign body, from the soft subcutaneous tissues becomes, at times, a more complicated procedure than the simple injury would seem to indicate. A local anesthetic is usually injected, and an incision made through the punctured wound with the hope of seeing

Method of removal of sewing-needle or other sharp-pointed foreign body from the tissues. A, long axis of needle; B, incision through which forceps is introduced to grasp the foreign body.

or feeling the broken end of the needle in the bottom of the incision. Often one is surprised at the difficulty encountered in the search for the needle. Even after the end of the needle is located with the finger, it is not always readily grasped with a forceps and pulled out.

The broken end of the needle is blunt and rough. In making the incision considerable pressure is brought to bear against this end of the needle, and the sharp point at the other end is pushed still farther ahead, if the tissues in front be easily penetrable. After the incision is made, a forceps is usually pushed down as far as possible in an effort to grasp the end of the needle. It may succeed. More often, however, it is found necessary to push the forceps repeatedly into the tissues in various directions, each time pulling up nothing but small

1. Alt: München. med. Wehnschr., 1910, lvii, 1774.

lumps of fat and a few connective tissue fibers, and each time pushing the needle in a little farther. The soft parts, which are raised with the forceps, and then let go when it is found that the bite did not contain the needle, also help to protect the broken end and to push it still deeper. The finger introduced to feel for the needle is apt to have the same effect.

The following procedure has served me well, and is now the one of choice in emergencies of this kind:

The position of the broken needle should first be determined. It may not be perpendicular to the skin, but may have taken a slanting course and lie nearer the surface on one side of the punctured wound than on the other. The history of the injury, together with careful palpation, will aid in this examination, but in the x-ray we have the most valuable adjunct in determining the position of the needle. After this is settled, a local anesthetic should be injected and an incision made some little distance from the point where the needle entered, and on that side toward which it traveled when entering. The distance may be one-half inch or more, depending on the depth and slant of the needle. The incision should be made so as to strike the long axis of the needle in a plane approaching as nearly as possible a right angle. The knife will thus cut down on the side of the needle, which is readily made out and grasped by means of a small forceps.

It is often impossible to extract the needle through this right-angled incision without danger of breaking it, or of causing anatomic injury. The needle should then be held firmly by the forceps while another small incision is made through the skin at the point where the needle entered. It will be found an easy matter to push the needle out through this opening by means of the forceps.

THE USE OF COLOPHONIUM IN DIFFERENTIATING THE EOSIN-METHYLENE-BLUE AND OTHER STAINS *

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One of the most important of the regressive staining methods used for general histological work is the eosin-methylene-blue method, hitherto only applicable to tissues fixed in Zenker's fixative. A successful stain by this method yields better results for cell-differentiation and the study of fine structures than any other single staining method. Its use has been limited because of the difficulty of securing constant results. Inquiries made in various laboratories, and the results of personal experience in a number of laboratories, have shown that the one uncertain step in the staining method is that of differentiation. It has been generally known that alcohols from different sources do not act alike when used for differentiation. The result of an attempt to determine the variable ingredient in the commercial 95 per cent. alcohol has yielded a method for differentiation which has given uniform results over a period of one year with a large number of alcohols.

The eosin-methylene-blue stain is fully described elsewhere.¹ In brief, the method is that of overstaining with eosin and then with alkaline methylene blue, followed by differentiation with 95 per cent. alcohol. The commonest failure is an imperfect eosin stain. Experi-

ments made with absolute alcohol diluted with distilled water show that a pure alcohol abstracts the eosin too rapidly. The same results were obtained with freshly prepared methyl and ethyl alcohols furnished to the laboratory by a Canadian distillery. In the attempt to obtain an alcohol that would yield constant results, the addition of small quantities of organic and inorganic acids was tried. Similarly, minute traces of alkali were tried, and while it was found that the reaction of the alcohol had an appreciable effect, the results were not satisfactory. As most of the alcohol used in the United States has been kept in bond for a considerable time, it was thought that substances extracted from the wood might affect the behavior. Accordingly, the addition of colophonium in varying amounts was tried, and it was found that the presence of this substance furnished a certain method for obtaining any desired effect achievable by the eosin-methylene-blue stain. Furthermore, the addition of colophonium in large amounts has made the eosin-methylene-blue method applicable to tissues fixed either with formaldehyd solution or alcohol, and permits the use of commercial grades of methyl alcohol and methylated spirits in place of the more costly 95 per cent. ethyl alcohol used in differentiation. For these reasons it was decided to publish this apparently trivial laboratory "wrinkle."

At first, only carefully selected pale colophonium was used; later the darker variety has been used with ordinary methylated spirits, and the results are fully as satisfactory as those given by the more expensive materials. As far as could be learned from one year's experience, the permanency of the stain is not affected. The amount of colophonium necessary naturally varies with the length of time that the alcohol has been in the wood. For general tissue staining, the best results have been obtained by the addition of 0.75 to 1.5 per cent. of colophonium by weight; for special purposes the addition of larger amounts is necessary. In general, it may be stated that the greater the amount of colophonium in the alcohol, the more intense is the eosin stain, so that, by varying the amount of colophonium, we can attain any desired effect; a useful procedure, when one becomes interested in structures that stain faintly with one or the other stain.

For the differentiation of tissues fixed in formaldehyd solution or alcohol, the amount of colophonium required is much larger; 10 per cent. by weight has given the best results for general purposes. It is believed that the use of methylene blue and eosin method with tissues fixed with formaldehyd solution offers many advantages for the study of cells indifferently preserved by Zenker's fixative. As examples, in formaldehyd-fixed tissues, mast cells are brought out prominently and the contents of mucus-secreting cells are clearly defined, and in the early stage of secretion appear as deeply stained, bright blue granules. The only difference in the application of the stain to tissues fixed in formaldehyd solution and alcohol, is a slight reduction in the time that the methylene blue is allowed to act. As a rule, as soon as the sections have become deep blue in color, they are sufficiently stained.

Very good results have been obtained in staining Gram-negative bacteria in tissues fixed with formaldehyd solution. Ten per cent. of colophonium in acetone has given slightly better results than the corresponding alcoholic solution. It is possible to obtain deeply stained bacteria in tissue, such as the typhoid bacillus, and still preserve a fair nuclear stain in a deep eosin tissue-stain.

* From the Pathological Laboratory of the Montreal General Hospital.

1. Mallory and Wright: *Pathological Technic*, Edition 4, 1908.