extent than the skin, if œdema depend upon starvation and poisoning of the tissues. Voit's researches upon the proportionate losses in weight of the various organs in starvation offer an explanation, however, of this apparent paradox. It will be remembered that Voit's experiments show that those organs which are of the greatest importance to the economy are nourished in prolonged starvation at the expense of those organs which are of less importance. Thus, the brain and spinal cord lose only 3 per cent. of their weight while fat loses 96 per cent. Now, in the starvation which leads to œdema the same law no doubt holds good, and since the brain, for example, gets its full complement of food when the heart is failing or when there is renal disease, it follows that not only must the less important tissues, such as fat, skin, and muscle, get a diminished supply, dependent upon the cardiac or renal cause, but that that diminution must be further augmented by reason of the deficiencies which are being made up in the brain. The brain, therefore, does not suffer, but the skin, etc., suffer doubly. It is no cause for wonder, consequently, that œdema manifests itself principally in the skin.

It would be reasonable to expect that in renal disease the requirements of the brain should not be so fully met as in cardiac disease, on account of the greater degree to which poisoning enters into the question in renal disease. I speak with great reserve on this point, but I think the brain in renal disease is seen *post mortem* to be "watery," whereas such a condition is uncommon in other diseases. The question can be properly settled only by direct investigation.

The last point to which I wish to draw attention is that in 1889 Wooldridge gave reasons for believing that the œdema of cardiac disease depends upon poisoning by "tissue fibrinogen." He injected into the veins a solution made by extracting the tissues, and obtained œdema of the lower limb after ligaturing the femoral vein. Under normal conditions ligature of this vein does not cause any trace of œdema. It is obvious that what Wooldridge did in his experiment really was to increase the amount of metabolic waste products in the body, and to confine them to some degree in the lower limb by ligature of the vein. Under these conditions we have already seen that œdema occurs. Though the meaning of Wooldridge's experiment was unfortunately not seen during his lifetime, it was undoubtedly the first experiment which pointed to the importance of the storage of waste products in a part upon the occurrence of œdema in that part.

To sum up: 1. There are certain experiments which show that œdema does not depend upon purely mechanical causes even in the cardiac variety in which those causes have hitherto been deemed sufficient. 2. There is no evidence that the blood vessels are damaged in any other way than that which constitutes starvation. 3. Anæmia of the tissues, meaning thereby an insufficient supply of blood to carry out their proper nutrition, and the removal of waste products has been shown by experiment to lead to œdema. 4. Poisoning of the tissues by waste products is a more potent cause of œdema than pure anæmia. 5. Increase of volume of the circulating fluids in the body leads to an absorption of fluid from the blood by the tissues. 6. The processes occurring in œdema have their counterpart in the normal physiological state. 7. In both the pathological and the physiological conditions the tissues become œdematous, or tend to become so, as the case may be, through the medium of an active dilatation of the arterioles supplying the part. 8. The tissues of the body other than the affected part are drawn upon to supply the excessive amount of fluid which is being poured out in any particular region that is becoming œdematous.

Upon these facts I would base the view of œdema as being an excess of the normal process whereby the nutrition of the tissues and the removal of their waste products are carried out, this process being initiated by the tissues and not by the vascular system.

THE next meeting of the German Dermatological Society will take place at Graz on September 23rd and two following days. Among the questions proposed for discussion are the following: The Pemphigus Question; and the Relation of Tertiary Syphilitic Manifestations to Treatment in the Early Stage.

NOTES ON FIFTY-EIGHT CASES OF HÆMORRHAGIC DIPHThERIA.

BY
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DURING the years 1893-94 there have come under our care at the Western Fever Hospital, Fulham, a large number of cases of diphtheria which presented the symptom of hæmorrhages into the skin and from the various mucous membranes.

This variety of the disease is but scantily described in the literature of diphtheria, though most writers on the subject have recognised its extreme malignancy. The occurrence of cutaneous hæmorrhages is of especial value as a prognostic sign in cases in which the issue is otherwise doubtful, and it is more particularly for the purpose of describing this symptom that we record the cases which have come under our notice.

From January 1st, 1893, to January 31st, 1895, 880 cases of diphtheria have been treated at this hospital. Of these cases 58, or 6.59 per cent., presented cutaneous hæmorrhages, all of which, with one doubtful exception, proved fatal.

Sex and Age.—These 58 cases comprised 27 males and 31 females, at the following age periods:

0 to 5 years	... 24	29 years	... 1
5 to 10 years	... 27	41 years	... 1
10 to 15 years	... 4	65 years	... 1

Local Symptoms.—These were all cases easily recognised clinically as diphtheria from the presence of false membrane in considerable quantity (except in 3, in which there was but little membrane present), and acquired early a severe local character. In the majority of cases the false membranes, together with the surrounding and subjacent mucous membrane, became the seat of hæmorrhages of greater or less extent, and soon underwent decomposition, in spite of energetic local treatment. All the cases presented membrane on the tonsils, uvula, and soft palate, while in addition 18 were laryngeal, 3 nasal,¹ 2 glossal, and 2 nasal and laryngeal. Although so large a proportion presented laryngeal symptoms, the obstruction caused was only sufficiently severe to call for operative interference in 3 cases.

Other Symptoms.—All the cases had marked cervical adenitis, in many of great severity; in only 1, however, did the inflammatory process lead to suppuration. Another symptom common to all was profuse rhinorrhœa, and albuminuria was present in every case in which examination could be made.

HÆMORRHAGES.

1. *Cutaneous.*—These presented two well-marked varieties, which, however, in a few instances assumed an intermediate type.

(a) *Ecchymoses* closely allied to ordinary traumatic bruises, varying in colour from a deep purple to a light green or brownish yellow. It was noticeable that the colour bore but little relation to the age of the ecchymoses, and gave a false impression of their duration to one not familiar with this characteristic. The shape was generally circular, with a tendency to oval elongation; the area from about 2 lines in diameter in the smallest to 1½ inch in the largest. They were in some cases palpably raised, and numbered from 2 to 20. In 23 cases they occurred on the face, in 36 on the extremities, being, as a rule, more marked on the extensor surfaces, but not uncommon in the flexures, and in 43 cases on the trunk, the lumbar and sacral regions being the most common site.

(b) *Purpuric Spots*, varying from minute petechiæ to hæmorrhages the size of a split pea. They were in some cases almost innumerable, in others not more than half a dozen were present. In 23 cases they were noted on the trunk, in 9 on the extremities, and in 1 case on the face. Unlike the ecchymoses, they showed a preference for the flexor surfaces.

These two varieties were not uncommonly combined in the same case, this occurring in 16, while in 25 cases ecchymoses alone occurred, and in 16 purpura. In 1 case the

¹ The term "nasal" is applied to those cases in which membrane was visible in the nasal passages.

character was not defined. The following table gives the day of disease on which the cutaneous hæmorrhages appeared, and the day of disease on which death occurred. In 10 of the cases the hæmorrhages were present on admission; of these 4 were admitted on the fourth day of disease, 1 each on the fifth, sixth, and seventh days, and 3 on the eighth. In 1 case no definite day of onset could be ascertained.

Day of Disease.	Onset of Hæmorrhage Cases.	Death Cases.	Day of Disease.	Onset of Hæmorrhage Cases.	Death Cases.
3rd	2	—	10th	1	6
4th	4	3	11th	2	2
5th	7	—	12th	1	4
6th	9	4	13th	—	2
7th	14	15	14th	—	2
8th	6	8	15th	—	2
On admission	10	—	doubtful	1	1
9th	1	8			

2. *Hæmorrhages from Mucous Membranes.*—Epistaxis, generally of a severe character, occurred in 18 cases. Hæmatemesis (excluding cases in which this symptom depended on swallowing blood from nose), 10 cases. Melæna was only noted in 2 cases, but it is probable that a few more escaped observation. Hæmaturia did not occur.

GENERAL COURSE OF DISEASE.

Apart from the invariably fatal termination of these cases, they presented no absolutely distinctive characters other than those already noticed. They early manifested the toxic effects produced by the disease: extreme pallor, a quiet but very sleepless condition, without seeming discomfort. The temperature was but seldom raised much above normal, and almost invariably subnormal for the last few days of life. Vomiting was a marked symptom in nearly all, the power of the heart rapidly failed, and there was a tendency to anuria, apparently depending upon the last two conditions. Lung complications were infrequent. Of the three mild faucial cases mentioned above, two had laryngeal diphtheria. The third was the only case of the series which recovered; three ecchymoses were present on the extensor surfaces, and were possibly traumatic; the mother stated that the child had always bruised easily. This case was treated with diphtheria antitoxin, coming under treatment on the second day of disease.

Death as a rule occurred within 48 hours of the appearance of the hæmorrhages, 30 of the cases dying within twenty-four hours. In 2 cases, however, life was prolonged until the ninth and eleventh day after the appearance of this symptom. In all cases death was due to cardiac failure, sudden or gradual.

POST-MORTEM APPEARANCES.

Examinations were made in the majority of cases, and in all (with one exception) internal hæmorrhages were present. They were most noticeable in the thoracic cavity, the serous surfaces being the usual seats. The hæmorrhages were frequent in the visceral layers of the pericardium and pleuræ. In the former the posterior and basal cardiac surfaces, and in the latter the anterior and posterior surfaces of the lower lobes of the lungs, were the usual situations. Extravasations of blood were invariably found in the loose tissues around the aorta, œsophagus, and trachea.

Endocardial hæmorrhage was present in one case. The cavities of the heart were frequently dilated, but the myocardium appeared normal.

In the alimentary canal hæmorrhages were found into the lower part of the œsophageal mucous membrane, and into that of the stomach, in the latter situation being sometimes so closely set and numerous as to entirely alter the aspect of the mucosa. In the intestines they were less frequent; being found in the duodenum in 3 cases, and in the Peyer's patches of the ileum in 2. In only 2 cases did they occur in the peritoneum.

The kidneys were rarely affected, but subcapsular extravasations occurred in 2 cases, and in 1 there were small hæmorrhages into the calices. The spleen and liver invariably appeared normal.

Hæmorrhages into the muscles were of frequent occurrence, and, when these had been superficial, were the cause of ecchymoses noted during life.

BACTERIOLOGICAL EXAMINATION.

Bacteriological examination of the fauces was made in the last 11 cases of the series, including the 3 mild faucial cases above referred to. In 5 almost pure cultures of the Klebs-Loeffler bacillus were obtained. In the remaining 6 large numbers of these bacilli were present, but associated with staphylo- and streptococci, the former more numerous. Diplococci were present in 1 case, single cocci in 2 cases, and short thick bacteria in 3.

TREATMENT.

The cases were treated on ordinary principles, and in addition in 12 (including the recovery) the antitoxin treatment was carried out. Six, however, of these cases were admitted either moribund, or so far affected by the toxic products of the disease as to preclude all hope of recovery. In 3 cases local and temporary constitutional improvement followed the injection of the serum; in these 3 the membrane had entirely cleared from the fauces before death.

REMARKS.—Hæmorrhagic diphtheria presents analogies to hæmorrhagic varieties of the other specific fevers tending to rapidly fatal issue, profound changes in the blood being set up by the circulation of toxic products. In diphtheria, however, the disease being primarily local and general manifestations secondary, it is not surprising that the course is more prolonged. Degenerative changes in the blood vessels have been described by Oertel as occurring, and may determine the seat of hæmorrhage, traumata, too slight to cause extravasations under ordinary circumstances, being in some cases the exciting cause.

A CASE OF PITYRIASIS RUBRA TREATED BY THYROID TABLOIDS.

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W., aged 72 years, a woman of active disposition, possessing a good previous history, with the exception of being totally deaf and more or less dumb owing to an attack of scarlet fever when a child, and whose family history was free from rheumatism or gout, began in December, 1893, to suffer from redness and scaliness of the skin of legs and arms, accompanied by itching.

Her symptoms increased in severity, until on August 19th, 1894, she was persuaded to take medical advice. Her general health appeared normal in every way. She complained of no pain, but of intense itching, which had produced some irritability in her naturally amiable disposition. The skin on the legs and forearms presented large patches of redness, and thickening, over which were numerous large flat translucent scales, which became easily detached. There was no discharge. This condition increased in severity, and on October 5th, 1894, the skin over the whole of the body was more or less affected, with the exception of the cheeks; and wherever she went she left signs of her presence by a considerable sprinkling of scales. About this time her general health began to give way, and her appetite to fail, causing her to lose flesh and to become very much depressed. The treatment up to this time (October 5th) had consisted of local applications of eucalyptus ointment, lotio plumbi subacet. dil., oatmeal water, and ichthyol "Unnaeloth," with the internal administration of the following drugs: iodide of potassium, salicylate of sodium, perchloride of mercury, and arsenic. The arsenic was pushed until she took πx of liquor arsenicalis *B.P.*, three times a day. None of the above drugs had the slightest effect in curing the patient.

On October 5th, 1894, I put her upon thyroid treatment, beginning with half of one of a 5 gr. thyroid tabloid (B., W., and Co.'s), to be taken daily after her dinner, and ordering her to lie down as much as possible (she refused to go to bed). Her pulse at this time was 114, small, and compressible. I increased the dose of thyroid by one tabloid every