

tightly. These glass drains have been found an excellent substitute for the plates. An ordinary large test tube would answer the same purpose. The remaining directions given by Hofmeister were followed to the letter. Numerous inoculations with fragments of catgut prepared by this method in sterile gelatin invariably gave negative results. The catgut is as strong as the raw material, hard and the knot is less liable to slip than when the ordinary material is used. We have also ascertained that the formalin catgut can be reboiled almost any number of times without impairing its strength.

Catgut to be safe should not only be absolutely sterile but should contain a sufficient quantity of efficient antiseptic to render it unfit as a culture medium for pathogenic microbes. Hofmeister renders it antiseptic by immersing it in an alcoholic solution of corrosive sublimate. Others have substituted carbolic acid for sublimate. Both of these antiseptics unduly irritate the tissues and increase the primary wound secretion, effects which can not fail in interfering to a certain extent with an ideal healing of a wound by primary intention. The valuable and interesting experiments made recently by Lauenstein leave no doubt that it is almost next to impossible to render the field of operation absolutely aseptic by any of our present methods of disinfection. We are forced to admit that nearly every wound inflicted by the surgeon's knife contains some pathogenic microbes notwithstanding that the strictest aseptic precautions may have been carried out. The experiments made by Ewald have also furnished positive proof that sterile catgut often contains a sufficient quantity of an unknown toxic substance which by its destructive action upon the cells engaged in the reparative process transforms them into pus corpuscles, resulting in the production of a limited aseptic suppuration and the formation of sterile pus. Undoubtedly many of the stitch abscesses which occur in the practice of painstaking aseptic surgeons have such an origin. These experimental researches force upon us the conclusion that catgut should not only be sterilized but that it must be made sufficiently antiseptic to at least inhibit the growth if not destroy the pyogenic microbes which enter the wound during the operation or which may reach it later through the circulation. In this part of the preparation of catgut I have modified Hofmeister's method by substituting for the corrosive sublimate iodoform. After boiling the deformalized catgut for twelve to fifteen minutes it is cut into pieces of desirable length, tied into small bundles containing from six to twelve threads, when it is immersed and kept ready for use in the following mixture: Absolute alcohol 950, glycerin 50, iodoform (finely pulverized) 100. The alcohol dissolves part of the iodoform. The bottle containing the catgut should be closed with a well-fitting glass cork and should be shaken well every few days to bring the dissolved iodoform in contact with the threads. The catgut can be kept in this mixture for any length of time without losing its strength. One of the valuable properties of iodoform applied to a recent wound is to diminish the amount of primary wound secretion. It does not destroy pus microbes but inhibits their growth. I have used catgut prepared by these modifications of Hofmeister's method with the most satisfactory results and shall continue to use it until some better method is devised.

In conclusion I would advise hospital authorities

and surgeons to prepare their own catgut by this or similar processes and not rely upon manufacturers for their supply.

THE OCCURRENCE OF LUPUS VULGARIS IN THE WIFE AND DAUGHTER OF A TUBERCULOUS SUBJECT.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY JAMES MACFARLANE WINFIELD, M.D.

BROOKLYN, N. Y.

Allow me to make a quotation from Kaposi¹ as an excuse for the following paper: "No experimental proof has been offered that characteristic lupus vulgaris can be produced by inoculation of tubercle bacilli. The inoculation of lupus tissue and of the bacilli derived from it has given rise to inflammatory products, but not to lupus, nor has any clinical proof been found, unless we accept extremely careless statements. This is less true concerning a few published cases such as that of Besnier (lupus in a vaccination scar), Sachs (lupus after piercing the ear), etc. These and other similar, although less carefully observed cases, might demonstrate the occurrence of clinical lupus from inoculation of tubercle bacilli."

The cases to be related are not experimental proof, but rather examples of clinical lupus from probable inoculation of the tubercular germ. There is very little, if any, reason to consider one of the cases (the child) to be of spontaneous origin, while in the other there is none whatever.

To make the evidence of inoculation more convincing, a brief history of the tubercular subject will be necessary:

J. C., a native of Ireland; of his family history very little could be ascertained. He believed his father died of consumption. The cause of his mother's death is not known. The same is true of two sisters who died when he was a boy. The patient was a healthy young man. Denied ever having had gonorrhea or syphilis. Married when he was 20 years of age. He drank a considerable amount of intoxicants since puberty, although not to excess until health began to fail, when he was about 25 years old. At that time he noticed shortness of breath and an annoying hacking cough. A year and a half before his death he had an attack of synovitis of the knee, lasting about six months, resulting in a stiff joint. After that his health began to fail very rapidly and he was unable to work at his trade, that of carpenter. At this time the diagnosis of "lung trouble" was made. He gradually became worse until he succumbed, at the age of 32, from an attack of acute pneumonia. According to the statement of his wife, the cause of death on the certificate was pulmonary phthisis and acute pneumonia. During his illness the patient was very careless regarding personal cleanliness. He generally preferred to expectorate on the floor rather than in the cuspidor. He was also in the habit of wiping his lips, after coughing, on the towel used by his wife. These, with other dirty habits, would make the inoculation of tubercular germs very possible; and as the subsequent history showed, there seemed to be no doubt but that this man, suffering from pulmonary tuberculosis, could easily have been the means of inoculating his wife through the medium of a con-

¹ Disease of the Skin, Kaposi.

taminated towel; and also his child, who was creeping about the floor, from the contact with expectorated matter. Twelve years have elapsed since this man died, but there is no doubt about the correctness of the clinical history, as the utmost care has been taken to verify all the facts.

Case 1.—Mrs. J. C., widow of the above, aged 46, native of New Jersey, but of Irish parentage; family history good. No evidence of syphilis or tuberculosis, except that a maternal uncle died at an advanced age of "slow consumption." Personal history: Health always good; married at 22 years of age. She has had three normal labors and three miscarriages, all of the latter resulting from injuries of some sort, the nature of which is immaterial. The first child, a boy, lived to be about 4 months old, when he died from acute enteritis. Second, a girl, died from diphtheria at $1\frac{1}{2}$ years of age. The third, also a girl (*Case 2*), is still living (September, 1895). When Mrs. C. was about 30 years of age and about three months pregnant with her last child (this being about four years before the death of her husband), in wiping her face with the family towel she rubbed the scab off an insignificant sore on the tip of her nose. This slight excoriation failed to heal and soon assumed a nodular and warty appearance. It slowly spread until all the cutaneous covering of the nose became involved. The accompanying photograph, No. 1, taken January, 1895, shows the amount of destruction present. The center of the diseased area was the site of characteristic irregular scars, while around the margins there were nodules, ulcerated patches and crusts. Bacteriologic examination of tissue taken from some of these nodules, demonstrated the presence of anatomic tubercle and one or two tubercle bacilli. The operation consisted of curettage and cauterization with creosote. After healthy granulations appeared the denuded parts were covered with skin grafts, and a fair result was obtained.

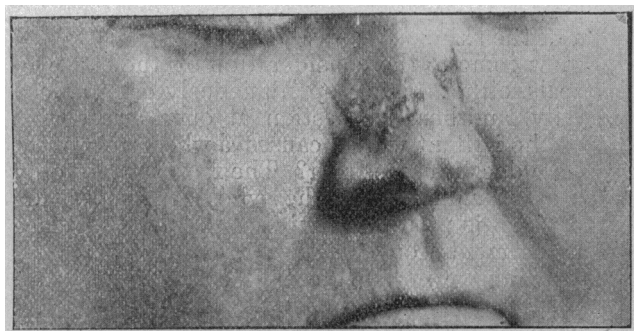


FIGURE 1.

Case 2.—Mattie C., aged 15, native of the United States, last child of Mr. and Mrs. J. C. She was perfectly healthy at birth, remaining so until she was about $2\frac{1}{2}$ years of age, which was two years before her father's death. She then crushed the soft parts of the second finger of the right hand; the bruise and torn skin healed after a few weeks under applications of home remedies; six months later the joints of this finger began to enlarge and finally suppurated. One year after the primary injury, the diseased phalanx and the metacarpal bones were removed. Her health was very much impaired, and in addition to the almost certainly tuberculous finger there appeared an eczematous-like eruption on the ears, eyelids, lips and nose. The remedies applied cured all of the patches except the one on the upper lip; that gradually changed its character, became indurated and nodular, spreading upward toward the nose, and finally destroyed the cutaneous covering and the nasal cartilages. Healing took place in some parts, leaving extensive cicatrices. New nodules were constantly forming, which in turn would break down. For nearly thirteen years the skin affection had never been entirely cured. The physician consulted had treated both mother and child with antisyphilitic remedies, from which no benefit was derived in either case. The tonics given to the child however, improved her general condition. She continued in fair health until puberty, about her fourteenth year. The changes incident to that period seemed to aggravate the lupoid process. At this time, she first came under the observation of the writer. The accompanying photograph, No. 2, was taken before any attempt at operation for the cure of the disease or relief of the deformity was made. As will be seen by the picture, the disease has involved nearly all the cutaneous covering included in a line drawn from below the eyes across to one just anterior to the ears, down to a point

over the thyroid cartilage. Much of this area was filled with scar tissue, and in some parts there were numerous bright glistening nodules deeply imbedded in the tissue, some of which had broken down and were covered with crusts. The lips were thickened, the angles of the mouth were obliterated, the mouth itself was greatly contracted. The inside of the lips were filled with scar tissue; the roof of the mouth, the floor of the nares, the pharyngeal vault, were filled with crusts and ulcerated patches. The upper incisor teeth had dropped out, from the destruction of the alveolar process. The bones of the ring finger of the left hand were thickened, presenting all the appearances of bone tuberculosis. The operation (in the latter part of March, 1895) consisted in scraping out all the nodules and ulcerated patches, afterward cauterizing with caustic solution of peroxid of hydrogen. The mother refused to have the diseased finger amputated. The patient made a good recovery and left the city for the summer. In September of last year she submitted to a plastic operation for the relief of the mouth deformity. The finger became more diseased; a sinus had formed, from which necrosed bone and cheesy particles were discharged. The removal of the finger being still objected to, my assistant, Dr. Napier, curetted the sinus and removed all the dead tissue possible, finally packing the cavity with iodoform gauze. The wound rapidly closed and remained so for three months; the face and mouth presented a good appearance; there had been no recurrence of the disease in

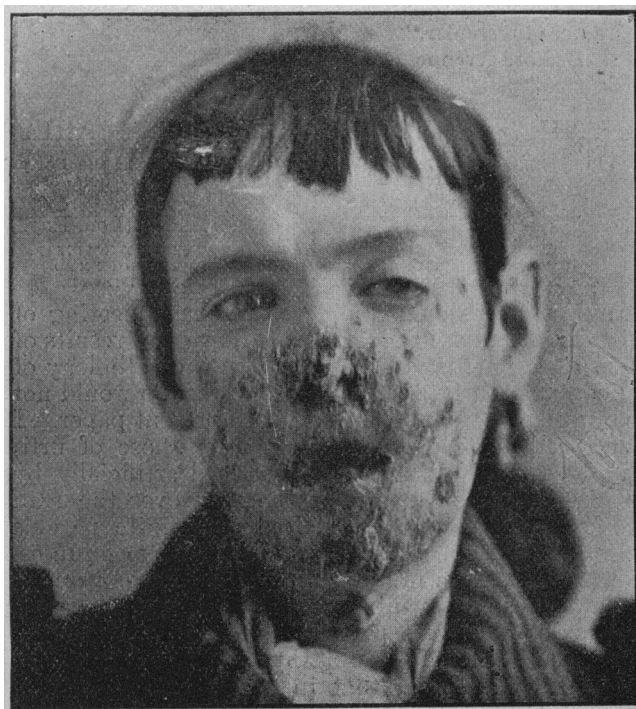


FIGURE 2.

the parts operated on in March, although there were three or four nodules over the left temporal region, and one larger in the side of the neck. These were curetted and a plastic operation was done on the angles of the mouth which, when healed, gave her a useful and fairly presentable organ. Physical examination gave dullness in the apices of both lungs with changed respiratory murmurs over the whole left side. About Christmas, 1895, she developed a cough, shortness of breath and night sweats, and lost flesh rapidly; in fact, all the symptoms of pulmonary phthisis were then present. Examination of the lungs showed the presence of a cavity in the left side, and consolidation of the right apex. The face and mouth had remained healed, except that a small portion of the engrafted skin at the angle of the mouth had broken down and was ulcerated. The diseased finger having become a source of great annoyance, on account of the pain and discharge, the patient insisted on its removal. Her general condition being so bad we hesitated about amputating, but finally consented and performed the operation. The amputation wound made a good recovery. Her condition grew rapidly worse, and on the morning of April 10, she succumbed to the pulmonary disease. Autopsy was refused; but from the physical signs there is no doubt regarding the cause of death.

Microscopic examinations of the nodules and portions of the skin removed at each operation, as well as the sputa, showed the presence of the anatomic tubercle and tubercle bacilli, the latter varying in quantities. From the clinical symptoms, the bacteriologic examinations and the ineffectual results of anti-syphilitic treatment, there appears to be no doubt of the disease being true lupus vulgaris. The source of infection seems as certain in these cases, as it does in those reported by Besnier, Wolters and others. And as such they may be of some little value in further study of this interesting disease.

NOTE.—Since the above was written Prof. Joshua VanCott has submitted a partial report of the findings in specimens from the cases. He says: "Great difficulty was experienced in getting the tissues (finger) decalcified; but finally sections were obtained which revealed the typical structures of tubercle, many epithelial cells, and small round cells in a connective tissue net-work, with areas of coagulation necrosis and giant cells whose nuclei were characteristically arranged around the peripheral portions of the cells from the findings. I hope to be able to stain the tubercle bacilli" [bacilli were found in earlier specimens.—J. M. W.]. "In the event of not finding them, the histology taken in conjunction with the definite clinical history render it certain in my opinion that these ulcers were tubercular."

1273 Bedford Avenue.

FURTHER OBSERVATIONS ON URTICARIA.

Read in the Section on Dermatology and Syphilography at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY T. C. GILCHRIST, M.R.C.S. (Eng.), L.S.A. (Lon. Eng.)

ASSOCIATE IN DERMATOLOGY, JOHNS HOPKINS UNIVERSITY HOSPITAL.
CLINICAL PROFESSOR OF DERMATOLOGY AT THE BALTIMORE MEDICAL COLLEGE AND WOMAN'S MEDICAL COLLEGE OF BALTIMORE.

In a paper which I read before the last meeting of this ASSOCIATION in Baltimore I gave the results of some experimental observations on the pathology of urticaria. A brief account of these results would not be out place before discussing the present paper. I mentioned that the cases chosen were those of urticaria factitia. Wheals were produced artificially by drawing down the finger nail sharply over the skin and small portions were excised at definite periods after stimulation, viz., at two minutes, five minutes, eight minutes, ten minutes, fifteen minutes, twenty-five minutes, forty minutes and sixty minutes; the results obtained were particularly interesting in that the whole pathology could thus be followed out in detail. It was found that in fifteen minutes after stimulation a complete picture of acute inflammation of the whole derma was presented by these sections. There was an extensive emigration of polynuclear leucocytes, exudation of serum, small quantities of fibrin, particularly in the neighborhood of the vessels, pronounced dilatation of the lymphatic vessels and a large number of lymphoid (morphologically speaking) cells around the blood vessels, whereas the epidermis remained practically normal.

My present paper concerns observations of three additional cases of urticaria factitia and the examination of spontaneous wheals together with the application of improved technique. In the three cases of urticaria factitia with which I experimented I excised portions of the wheals fifteen minutes after stimulating the skin, because it was found in previous cases that the results obtained were particularly pronounced at that stage. In all three cases the sections showed again the typical picture of acute inflammation of the skin, but some were more pronounced than others. There was not only extensive emigration of polynu-

clear leucocytes but always an increase in number of the lymphoid cells, and what is rather extraordinary, an apparent increase in the number of the *mastzellen*, which were stained after Unna's method. Other factors present in the sections were pronounced dilatation of the lymphatics, the presence of fibrin and a large amount of serous exudation. Nuclear fragmentation not only of the polynuclear leucocytes was observed, but even of the fixed connective tissue cells, a point which was brought to my attention by Dr. Welch. This phenomenon of fragmentation seems to indicate the presence of an irritant of some kind in the tissues in the area of the wheal.

In connection with the *mastzellen* I used a slight modification of Unna's stain. He recommends that after staining the sections in his polychrome methylin blue solution that they be discolored with his glycerin-ether mixture. The latter I was not able to obtain, so I used a very weak acid solution of alcohol and decolorized carefully for a few seconds, alternating with water. The results obtained showed a most satisfactory and double staining of the *mastzellen*, the granules of which were red and the nucleus blue.

The observations on the spontaneous wheal of about two hours' duration showed practically the same results in an acute inflammation of the whole derma.

My experimental work on these three additional cases of urticaria factitia and one case of spontaneous wheal have confirmed my earlier observations on the pathology of the wheal, viz., that it is a true inflammation of the skin.

We now come to the consideration of the cause of the wheals, either arising spontaneously or produced artificially, and here a question at once arises, viz.: What is the irritant which causes a wheal to appear and where does it come from? The fact that not only an acute inflammation of the whole derma occurs when a wheal is produced, but that there takes place nuclear fragmentation of the emigrated polynuclear leucocytes and even of the connective tissue cells, clearly suggests that an irritant of some kind must have been brought to this region.

The explanation that it is due to stimulation of the vasomotor nerves is not at all tenable, because the factor of simple dilatation of the blood vessels resulting from stimulation of these nerves would not cause inflammation and certainly not fragmentation of nuclei; neither was the injury produced by the finger nail sufficient to cause these results, as was proved by control experiments in previous cases.

Dr. Welch made a valuable suggestion to me while examining my specimens. He thought that there must be a toxemic condition of the blood at the time wheals could be produced and that some of the toxin was set free into the tissues of the derma, thus constituting a sufficiently acute irritant to set up inflammation with the accompanying marked nuclear disintegration. After due consideration it appears to me that this theory will explain all the phenomena of urticaria and its accompanying wheals, not only in the factitious form, but also in many other varieties of urticaria.

I mentioned also in my previous paper that indican or some of its salts were present in large quantities in the urine of some of the cases of urticaria factitia which I examined, and since this would point to the presence of proteid decomposition in the intestine, it might be possible that the toxin in some of the cases was of a chemic constitution. This theory would also