Gilchrist & Stokes

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T. Caspar Gilchrist and W. Royal Stokes,
Baltimore.



Read before the twenty-seventh annual meeting of the American Dermatological Association, Washington, D. C., May 12, 13 and 14, 1903.

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# THE PRESENCE OF PECULIAR CALCIFIED BODIES IN LUPUS-LIKE TISSUE.

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THE patient, who is a negro girl, came to the Johns Hopkins Hospital Dispensary in 1894, when she was 16 years old, and gave the following history:

*Family History:* Her mother was still living and well and was 51 years old; her father died when he was 50, of malarial fever (so the doctor said). He was ill one week, but had no diarrhœa. The mother was seen by us and she appeared to be healthy, although then she had had eleven children, the eldest of whom was dead. There were no miscarriages. All the living children (ten) were healthy except one, who had always been a weakling. He is now 33 (1894). The patient was the youngest of the family.

*History of the Present Condition:* Patient had rather prominent eyeballs. She suffered from weak and watery eyes three years previously when she was at school, and was treated for this at a dispensary. Lachrymal probes were used. Soon after this skin lesions began at the inner canthus of each eye. There was no other eruption on the skin. The lesions gradually increased in size downwards and outwards. Two years later a similar eruption made its appearance at the junction of the right ala of the nose and cheek, and it also gradually increased in size.

Patient has suffered from marked hoarseness for the previous five years, and also had sore throat for two years. The latter trouble got well some time ago. She has had for the last four years, and has now, enlarged glands below the angle of the jaw.

*Present Condition* (1895): On examining the throat the uvula was found to have been practically destroyed, there being only a very slight stump present. There was also a decided scar on the right tonsil and a number of very evident scars on the pharynx. Another scar was seen on the left side of the larynx. The cutaneous lesions near the eyes begin at the inner canthus of each eye and extend downward along the curve between the nose and the cheek for about one inch. They both form dull red, raised, irregularly longitudinal-shaped patches, which are covered in places by dirty scabs. On removing the scabs numbers of small, superficial, large pin-head, to small split-pea sized, punched-out ulcers were exposed.

The whole end of the nose was implicated, *i.e.*, the tip and margins of the alæ; the lesion formed a continuous patch which extended upwards from the margin one-half inch. On removing the dirty black scab which covered the patch there was exposed an irregular, papillomatous, somewhat fungating mass which bled easily and profusely. The disease did not involve the mucous membrane. There were a few small, yellowish pustules dotted over the surface.

On the upper lip there were two smaller patches similar to those situated near the eyes. One was about the size of a large pin-head, and was situated just below the septum of the nose. The other was just below the left nostril and was about the size of a dime, being dull red, raised and slightly scaly. No lupus nodules could be detected near the margin of any of the patches. There was no other eruption on any part of the body. No symptoms of syphilis were present. The submaxillary glands were markedly enlarged.

Sections were taken from the lesion on the nose and also from the lesion near the left eye. Broadly speaking, the sections showed a marked tubercular appearance, but scattered here and there in the sections, and especially in the giant-cells, were found curious bodies, which were taken at first for blastomycetes. Many were round, oval and doubly contoured; but very many assumed curious shapes and were quite large, especially those enclosed in giant cells. Many appeared to have undergone a calcareous degeneration, and so were thought to be like a blastomycete described by Sanfelice as *Blastomyces lithogenes*, which he found in an animal. The calcareous degeneration was demonstrated by adding hydrochloric acid to a section and noting the formation of bubbles of gas (carbonic acid gas) under the microscope. Many sections were stained for tubercle bacilli, but none were found.

The patient had been given potassium iodid and mercury bichlorid, and the lesion had improved under the treatment. She then disappeared. When she returned some months later the cutaneous lesions under the eyes were practically well, having been curetted and burnt with "acid." The lesions on the nose had relapsed and the submaxillary glands were larger. The submaxillary glands were now removed and a section of one of the glands showed again a markedly tubercular appearance, but scattered through the gland were numerous large, calcareous-looking bodies and a few bodies like those seen in the cutaneous lesions. The larger bodies were all enclosed in giant cells.

Numerous sections from one gland were stained for tubercle bacilli, but none was found. A portion of the gland was teased and

introduced into the peritoneal cavity of a guinea-pig, which died a month later. There were found numerous large pin-head-sized, firm nodules in the liver; and these nodules were made up mostly of bodies similar to those found in the cutaneous and glandular lesions. Many necrotic foci were also seen in sections from the liver, and bodies were present in the majority of these foci.

The guinea-pig did not die of tuberculosis, nor were any tubercular lesions present in any of the organs.

The patient again disappeared after the operation and reappeared two years later with a relapse of the cutaneous lesions on the tip of the nose (although the lesions had been excised by the surgeon who removed the glands), and more enlarged glands in the neck. A second more radical operation we advised and carried out January, 1897. Dr. Welch, who took a deep interest in the case, attended the operation and made the cultures and did a number of inoculation experiments with animals. All kinds of media were used, but with negative results. A dog was inoculated intravenously with 1 cc. of bouillon in which were numbers of pieces of teased gland. Inoculations were also made into the ear-vein of a rabbit and into the femoral vein of a guinea-pig. The dog was killed after two months and there were found enlarged cervical and inguinal glands and a number of hemorrhagic points in both lungs.

A piece of cervical gland was placed in Dunham's solution; after one week the portion was teased and bodies like those found in the gland of the patient were found.

Another piece of teased gland was placed on slant agar, and in one week's time a mould grew. A piece of lung containing some of the small nodules was planted on potato, and from it a very fine mycelium grew with some oidial bodies. This fine mycelium was found to be a streptothrix which was fatal to mice and guinea-pigs.

A third portion of teased gland was introduced intraperitoneally into a guinea-pig, and a portion of teased lung was placed in the peritoneal cavity of another guinea-pig.

Another portion of a gland obtained from the patient was teased and introduced into the peritoneal cavity of a guinea-pig, and it died in four weeks. There were, in the liver, nodules which contained bodies like those seen in the glands. We could not grow the bodies on any media.

Further experiments were not carried out because these peculiar bodies which were reproduced in the first guinea-pig were not definitely reproduced later. Unstained sections from the gland of the

patient were examined personally by Dr. Welch, and he definitely demonstrated them to be chalk deposits.

The patient returned again about three years later with a relapse on her nose. It was curetted thoroughly and inoculated subcutaneously into a guinea-pig. The guinea-pig died, and only the inguinal glands were enlarged, and in them were found many tubercle bacilli. Section from an excised portion from the diseased nose did not show the presence of any bodies at all. They were only found in the first lesions and were present in fairly large numbers.

The first reference to these bodies being present in tuberculous-like structure was made by Prof. E. Lang in 1875, and he thought they were Hassal's bodies, "*corpora amylacea.*" Sudakewitsch thought these cell inclusions were degenerate elastic fibers or the product of its changes. Colomiatti saw these bodies also, but no explanation was given. Schneppel refers to chalk deposits in giant cells. M. Pelagatti, in 1901, gives the last contribution to the subject, and he observes that these bodies occur in lupus tissue only rarely; since out of so many investigators of tuberculous tissues so very few have observed these bodies. In two cases Pelagatti did not find any tubercle bacilli. Cultures gave no tubercle bacilli, but yielded sarcinæ, torulæ and a blastomyces. Guinea-pigs and rabbits were inoculated, but no changes occurred in these animals. He then inoculated teased tissue beneath the skin of rabbits and guinea-pigs; the neighboring lymph glands became enlarged and caseated and were found to contain many tubercle bacilli. The cases were therefore lupus and belonged to the class of lupus myxomatosus. Rôna thought they were remains of elastic fibers in giant cells and the chalk deposits had occurred around these fragments. Pelagatti believes these bodies are the elements of a fungus which has positively no influence on the process.

What are we to make of this case? The first lesion showed fairly large numbers of apparently organized bodies; *i.e.*, they had definite forms and in some cases showed budding varieties. Most of them were situated in giant cells, but some were not. Tubercle bacilli could not be found in the tissue. Enlarged glands in the neck of the patient were removed and large numbers of similar bodies were found in these, and the majority of them had undergone definite calcareous degeneration. A guinea-pig was first inoculated intraperitoneally, and it died in a month. Small nodules were found in the liver. These nodules contained large numbers of similar bodies to those found in the glands and skin lesions of the patient. The bodies were present in necrotic areas in the liver and there were many commencing

pathogenic areas present in which no bodies could be found. No tuberculosis was present in the guinea-pig. This experiment shows definitely that these bodies were not inanimate objects, otherwise we would not get necrotic areas and such multiplication of these bodies. The death of the animal was apparently due to the presence and growth of these bodies. Further extended experiments with glands which were excised later from the patient did not lead to definite results. Pathogenic lesions were produced in a dog and guinea-pigs. Bodies similar to those found in the patient were found in the enlarged cervical gland of the dog which was killed. A mould grew in another case, and on one potato a pathogenic streptothrix was obtained. Nothing could be grown on any media direct from the lesions. The relapsed lesions five years later were undoubtedly tubercular.

## DISCUSSION.

Dr. HARTZELL said that he failed to see how the authors had proved that it was one of tuberculosis. Originally, they succeeded in cultivating calcareous organisms, and five years later, after inoculating a guinea-pig, they found a single tubercle bacillus. A fresh infection might have occurred in the meantime, or the guinea-pig might have become infected from another source.

Dr. STELWAGON agreed with Dr. Hartzell. Of Dr. Gilchrist's numerous experiments originally, all the results proved negative, but four or five years later the tubercle bacilli were found in a single instance. It seemed to him that if we made a series of experiments and found absolutely negative evidence, we were hardly justified in forming positive conclusions from one successful experiment five years later; the latter might have been purely accidental, or in reality a new infection. He thought that we were apt to be too hurried in our conclusions in accepting a pathogenic cause of that kind simply because we eventually found an organism.

Dr. ENGMAN said that in Dr. Gilchrist's experiments, it seemed to him there were many loop-holes for error, and yet it made the case extremely interesting. He had seen the bodies described by the authors in one case which clinically resembled tuberculosis of the skin. He did not know what they were at the time. The point in Dr. Gilchrist's report was the probable polymorphism of the tubercle bacillus.

Dr. JAMES C. WHITE hoped Dr. Gilchrist would tell us how often he failed to find positive evidence of tuberculosis by the microscope or inoculation in cases which were evidently clinical tuberculosis.

Dr. CHARLES J. WHITE asked if Dr. Gilchrist could explain his inability to find any evidences of tuberculosis in the case originally? The hypothesis might be offered that the bacilli had died and become infil-

trated and surrounded by calcareous tissue, while in his later series of experiments the disease had again lighted up, the bacilli were more active and were not in a state of inspissation.

THE CHAIRMAN, Dr. BOWEN, said that he had seen these bodies two or three times. In one quite interesting case which he had thought of publishing they were quite constant. Briefly, the case was that of a girl of twelve, who had an ulcer on one forefinger, and another on the lip. The appearance of the lesions suggested verrucous tuberculosis. His attention at that time was being directed to blastomycetes, and he at once thought of that. Sections were taken from both lesions, and inoculations were made. He found a tuberculous structure, and in the giant cells were these peculiar bodies which he had little doubt were the same as Dr. Gilchrist had described. A careful search was made for tubercle bacilli in the tissue, but none were found. Rabbits and guinea-pigs were inoculated, but with negative results. In one or two instances the animals died rather rapidly from septic symptoms. What these bodies were he was unable to determine. Dr. Gilchrist spoke of observers who regarded them as degenerated elastic fibers, but he did not mention the recent work of Hektoen, of Chicago, in which a striking description of these bodies was given, which he regarded as degenerated elastic fibers. In his case, the calcareous covering could not be determined. They still had some of the material from that case, and he thought it would be interesting to look it up again. It was a question whether possibly these cases might not belong in some class by themselves. Tissue that could not be differentiated histologically from that of tuberculosis had been shown to exist in so many different conditions that it was possible that we had to deal here with bodies which were perhaps degenerated elastic fibers or calcareous deposits.

Dr. GILCHRIST (closing the discussion): These bodies seemed to be undoubtedly organisms. They were in the giant-cells and about them, and the enlarged glands in the neck, which looked tuberculous, contained similar bodies in large numbers. The gland tissue, introduced into the healthy guinea-pig, produced lesions in the liver which contained large numbers of similar bodies. He was not acquainted with any calcareous degeneration of the tubercle bacilli. The best answer he could give to the criticisms which had been offered by some of the speakers was to exhibit the microscopic specimens of the skin lesion and of a diseased gland which he was ready to show.