been duly explained it was agreed that the operation should be done. I cut through the neck of the femur with Adams's saw, encountering some little delay on account of the hardness of the bone, and possibly from having got too close to the shaft, that is, not sufficiently across the neck. The operation was done under Lister's precautions. When the section of the bone was complete, I divided the tendon of the adductor longus, and those of the sartorius and tensor vaginae femoris. We were able at once to put the limb in much better position; and, subsequently, when the wound was healed, this was still further improved. No inflammation occurred about the wound, and he made an uninterrupted recovery. We did not succeed in preventing union of the bone at the site of section, and you now see the ultimate condition obtained. The man has since been able to walk erect; and he has now, for six years, been engaged in his former occupation with greatly increased comfort.

One drawback I must mention; and it is, indeed, on account of this

These woodcuts are copied from photographs to show the condition before and after operation.

that we now have him again under care. He had, two years ago, an acute abscess in his buttock. This was four years after the operation, and not apparently in any direct connection with it. The abscess did not lead to bare bone, and, after it was opened, sound healing occurred; but he now, two years later, comes to us again, complaining of pain in the same position, and fearing that another abscess is imminent. I may state that I have under observation, in private, a very similar case, in which one hip has been ankylosed for many years. The patient is in robust health, and yet occasionally—that is, once in three or four years—deep-seated abscesses occur, after the evacuation of which sound healing again takes place. I do not know of any cause for these abscesses, excepting that they occur in the proximity of bone which has formerly been diseased. In both cases, the abscesses develop with much pain and constitutional disturbance; but the rapidity and perfectness of the healing is remarkable. I do not think that, in the case before us, we ought to blame the operation for the liability to abscess.

It might have happened, as the other case shows, if nothing whatever had been done. On the whole, the man considers himself a great gainer by it.

CLINICAL LECTURE

ON A

CASE OF TUBERCLE OF THE IRIS AND CILIARY BODY.

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GENTLEMEN,—I wish to direct your attention to the case of tubercle of the iris and ciliary body, on which we operated some time ago. The case is interesting, not only to ophthalmologists, on account of its rare occurrence—this being the only one on record in this country—but also in this respect, that it may throw some light on a much debated question in pathology and clinical medicine. You are aware that, whenever the subject of tubercle and tuberculosis comes to be discussed in medical societies, difference of opinion at once becomes manifest. Indeed, it seems that we have not yet arrived at a common definition of tubercle. What is considered as tubercle by one school of pathologists, is not admitted to be such by others. This was shown even so lately as at the last meeting of the International Congress in London, in a discussion in which Virchow had taken part (see *BRITISH MEDICAL JOURNAL*, October 1st, 1881). So long as the doctrine of Laënnec was generally adopted, we used to regard tubercle as either small, grey, semitransparent, hard bodies, deposited as a mere infiltration into the tissue. These bodies might then become yellow, opaque, and soft, and a caseous substance formed in their interior. When isolated, they were called miliary tubercles; and, when of caseous consistence, they were designated yellow or crude tubercles.

Virchow, the founder of modern pathology, defines tubercle as a neoplasm, which takes its origin from the connective tissue in the form of nodules, consisting of closely packed cells. The life of the neoplasm is of short duration, for very soon its elements begin to degenerate, the degeneration always commencing in the middle of the nodules, and in most cases giving rise to caseous consistence. Besides the local malignity, this neoplasm possesses a pronounced tendency to diffuse itself over the whole organism, and this brings it into the category of malignant growths. (*Die Krankhaften Geschwülste*, 1865.)

Langhans then demonstrated that the nodules invariably possess giant-cells of a peculiar organic formation. And Virchow, in the discussion already referred to, told us that these giant-cells are of a finely granular structure, to which they owed their peculiar appearance. They developed by a regular gradation from simple cells, and are thus shown to be organic formations. He regards them as a special form of cell-formation.

This precise histological determination of tubercle enabled Köster to point out its existence in the granulations of the fungous joints; and Schüppel discovered it in scrofulous lymphatic glands, and Friedländer has shown that it is also found in scrofulous abscesses and in caries. Our knowledge has thus become more precise as to the nature of tubercle, and its domain also greatly enlarged.

Villemin made the discovery that tubercles can be inoculated upon animals, especially upon rabbits (*Etude sur la Tuberculose*, 1868). This discovery has been confirmed by the experiments of Cohnheim, who inoculated tuberculous matter into the anterior chamber of rabbits. The inoculated matter gradually absorbed; but, in about four weeks after inoculation, grey nodules made their appearance upon the iris, and multiplied until thirty or forty could be counted. The iris became tumified, and then purulent infiltration set in. Baumgarten has more recently carried this experiment still further. He injected blood taken from a freshly killed tubercular-inoculated animal into the aqueous chamber of rabbits; and he invariably found that, in three or four weeks, there was an eruption of tubercle, first in the lower segment of the iris, where the blood had lodged.

Rokitansky, from personal observation of 14,000 cases, has given us a list of the tissues which are subject to tubercular eruptions, viz., the lungs, intestinal canal, lymphatic glands, larynx, brain, spleen, liver, etc. The ocular tissues find no place in the list, for the eye was con-

sidered to enjoy immunity from tubercular affections. Although Jäger had called attention to its occurrence in the form of miliary tubercle which he found in the dead body; and Manz, von Gräfe, and Leber, had also discovered it during life in the interior of the eye, this excited little attention. For when the whole organism is impregnated with the disease, its existence in the eye is regarded as of secondary importance.

The first case of miliary tubercle of the iris on record is that published by Gradenigo in 1869 (*Annales d'Oculistique*, 1870, and *Arch. für Ophth.*). The second is that of Perls. In these two cases there was general tuberculosis—lung-affection. The third case was reported by Salteni in 1875, in a girl 16 years of age; the affection was confined to the iris, and there was no symptom of constitutional taint. In 1877, Weiss published an observation of the case of a working man aged 51, in which the tubercles first broke out in the iris; and, five months later, a tumour was found to have developed in the lower jaw on the same side, and, on its removal, was seen to consist of caseous tubercle.

A most interesting case was brought up for discussion by M. Auger at a meeting of the Société de Chirurgie de Paris, July 9th, 1879. It had been observed by M. Parinaud. A child of 12 years of age, of phthisical parents, had already suffered from discharge from the ear. Then the cornea was affected, and a small tubercle became visible upon the iris, which involved the whole eye. This case is particularly interesting, as the discussion which has taken place with regard to its pathology and treatment shows how little the subject of local tubercle is still understood. The sixth case is that by Samelsohn, December 1878; and the last on record is that reported by Rütter, June 1880, from Hirschberg's *clinique* (Knapp and Hirschberg's *Arch.*, 1881).

The case which I am about to bring before your notice is that of Joseph L., eight years of age, with fair hair and blue irides, and of healthy complexion, had always enjoyed good health, and had no cough or glandular affection. He is the tenth of a family of eleven, of whom five are living. Five of them died at the age of 5, 4, 3, 1 year, 10 weeks, and another was still-born. The causes of death were teething, bronchitis and hydrocephalus.

The patient received a stroke on the left eye in March 1881, when the eye became swollen. The swelling gradually subsided, and, by the end of April, a white swelling became visible in the anterior chamber, at the upper margin of the iris. He was brought to the Ophthalmic Institution in the beginning of May, when the eye appeared quite healthy; but a small tumour, the size of half a pea, could be seen situated upon the upper segment of the iris. It took its apparent origin from the junction of the cornea with the sclerotic, and was attached to the anterior surface of the iris. The tumour was of a yellowish-white tinge, and divided into two lobules, with very fine vessels permeating its surface. The pupil was dilatible, with the exception of the upper border. There was no change of colour of the iris, vision was normal, and tension normal. In short, with the exception of the ciliary injection, which was limited to the upper segment, there was no sign of disease in the ocular tissues.

The patient was kept under observation for a whole month, and we found the tumour gradually, though very slowly, enlarging. Our diagnosis was tubercle in the iris, which probably extended to the ciliary body. We recommended an operation, to attempt the removal of the iris along with the tubercle; but, at the same time, we warned the mother that the disease was probably more deeply seated, and that the operation would not effect a cure. I made an incision under the conjunctiva, at the extreme corneal periphery, and succeeded only in removing a part of the tumour; the rest of it was found to lie deeper, whilst a very small bit, the size of a pin-head, became detached, and dropped down, and lodged in the lower part of the aqueous chamber. The wound healed tolerably well, but the part became tumified; and, after the lapse of a fortnight, there were seen small lines or greyish threads proceeding from the detached part, and shooting upwards towards the other portion of the iris, which also became studded over with little nodules, until by-and-by the whole iris was swollen, and the pupil completely closed. I then removed the eyeball, and sent it to Professor Hirschberg, who examined it, along with Dr. F. Krause, and reports as follows:

1. Cornea and sclerotic, normal.
2. Conjunctiva, especially the upper part, infiltrated with round cells.
3. Iris: anterior surface covered with an exudation of round cells, and thickened by the infiltration of round cells. Its pigment-epithelium is glued to the lens-capsule by means of a thin exudation.
4. Ciliary body is very much thickened, as well as its adjacent iris-segment on the same side. The thickening is composed essentially of round cells. When this mass is treated with hæmatoxylin, it is intensely

coloured, while other round bodies lodged in the interior remain pale. These latter are true tubercles, and show, in their centre, giant-cells, with many nuclei. No caseous matter is anywhere to be seen. The thickening passes into the choroid only to a limited extent, and the deep structures of the eye are normal.

Fig. 1.—conj. Conjunctiva. c. Cornea. Scl. Sclerotic. a. ch. Anterior chamber. l. Lens. Cps. cil. Corpus ciliare. c. tub. Conglomerated tubercles.

Fig. 2.—g. c. Giant-cells. e. c. Epithelial cells. r. c. Round cells.

Fig. 1 represents the condition of the different parts; Fig. 2 the ciliary body under a magnifying power of 200.

We therefore took this to be a case of true tubercle of the iris and ciliary body, limited to these structures, without manifestation of disease in any part of the organism, although it is true that it was brought on by an injury in a constitution predisposed to that affection, as shown in the family history. But the most remarkable feature of the case is that, on November 29th, the patient returned with ulceration of both legs. Large sores, with running ichorous and caseous discharge, were situated at the front part of the legs. There is an induration at the margin of both tibiae. This had broken out about the beginning of September.

We have thus established that tubercle, in its highest development, consists of simple nodules containing giant-cells, without any caseous matter; and that the eruption may be confined to one spot, and that may be in any of the ocular tissues; and, further, that it is inoculable, although in this case the inoculation took place only in a different segment of the iris, and not in a different animal.

CRIMINAL LUNATICS.—In a remarkable address delivered at the Salpêtrière Hospital in Paris, M. August Voisin, the well known alienist physician, suggested that the following changes should be made in the law of 1838. 1. Every individual who, having committed an offence or crime, shall be found to be insane, can only leave the public or private asylum (*maison de santé*) after a medico-legal inquiry ordered by the judicial authority. In all cases, he will be detained in the public or private asylum for a time at least equal to the penal detention to which he was condemned. 2. Every individual already confined one or more times in a lunatic establishment may, in case of relapse, be received into the same establishment on the simple certificate of a physician, endorsed by the mayor or the commissary of the district.