

A CASE OF SYSTEMIC BLASTOMYCOSIS WITH NECROPSY

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CASE XXVI (8).—*History*.—On June 28, 1908, a Swede, J. F., aged 38, was admitted to the medical service of Dr. Mix, giving a history of illness beginning in the previous February with a cough, pain in the side and an expectoration occasionally blood-tinged. He had always been a strong robust man of good habits and when taken ill was working in a steam laundry from sixteen to eighteen hours a day. Shortly after the cold began he suffered from pain in the left hip and for this went to a hospital where the thigh was incised and a large amount of pus evacuated. A few days after this operation a papule appeared on the upper lip, suppurated and then became covered over with a crust. Similar lesions developed on the neck, chin, forehead, chest, abdomen and extremities in the order given, and also on the middle finger of the right hand, following, according to his statement, an abrasion. During this period in the hospital, which lasted five weeks, he lost greatly in both weight and strength and the cough and expectoration continued; his illness was considered as tuberculosis.

When admitted to the Cook County Hospital as stated June 28, he was unable to walk, greatly emaciated and dyspneic after much conversing or other slight efforts. The wounds in the thigh, two deep incisions, in which drainage-tubes were still present, were discharging freely and necessitated his lying quietly. The temperature was 101.2 F., respirations 36, pulse 144. Papillomatous ulcers from 2 to 4 cm. in diameter were present on the left side of the forehead, the upper lip on the right side, the back and left side of the neck and the right middle finger. There were many more subcutaneous abscesses which had not ruptured, located as follows: two beneath the scalp, one at the vertex and one over the right ear; two on the back; three on the abdomen; one in the right axilla; three in the left arm and forearm; three in the left thigh; two in the right thigh and one on the back of each leg. These abscesses varied from 2 to 5 cm. in diameter and were for the most part soft and fluctuating. (See illustration.)

Movement of the left thigh was resisted and deep pressure over the crest of the ilium caused considerable pain. The cervical and axillary lymph-nodes were moderately enlarged. Dulness and other signs of consolidation were present over the upper part of both lungs.

Treatment and Course.—The disease was quite promptly recognized as blastomycosis and the organisms found and isolated in pure culture from unbroken subcutaneous abscesses. Roentgen examination of the left hip revealed instead of a joint trouble, a circular defect in the left ilium slightly larger than a silver dollar, and a few weeks later by a similar examination a portion of the crest of the bone was seen lying loose in the abscess cavity. During the two months from the time of admission to patient's death, August 27, the most noteworthy development in the course of the disease was the demonstration of staphylococci and *Streptococcus pyogenes* in some of the unruptured abscesses during a period of slightly more fever and profuse night sweats. An antistreptococcus serum was administered without any marked benefit.

There was some slight improvement during these two months; occasionally the patient was able to spend a portion of his time in a wheel-chair. Some of the abscesses healed after opening and cleansing with iodine. The dyspnea increased toward the end and the physical examination of the chest revealed gradually increasing consolidation until all parts of both lungs were involved.

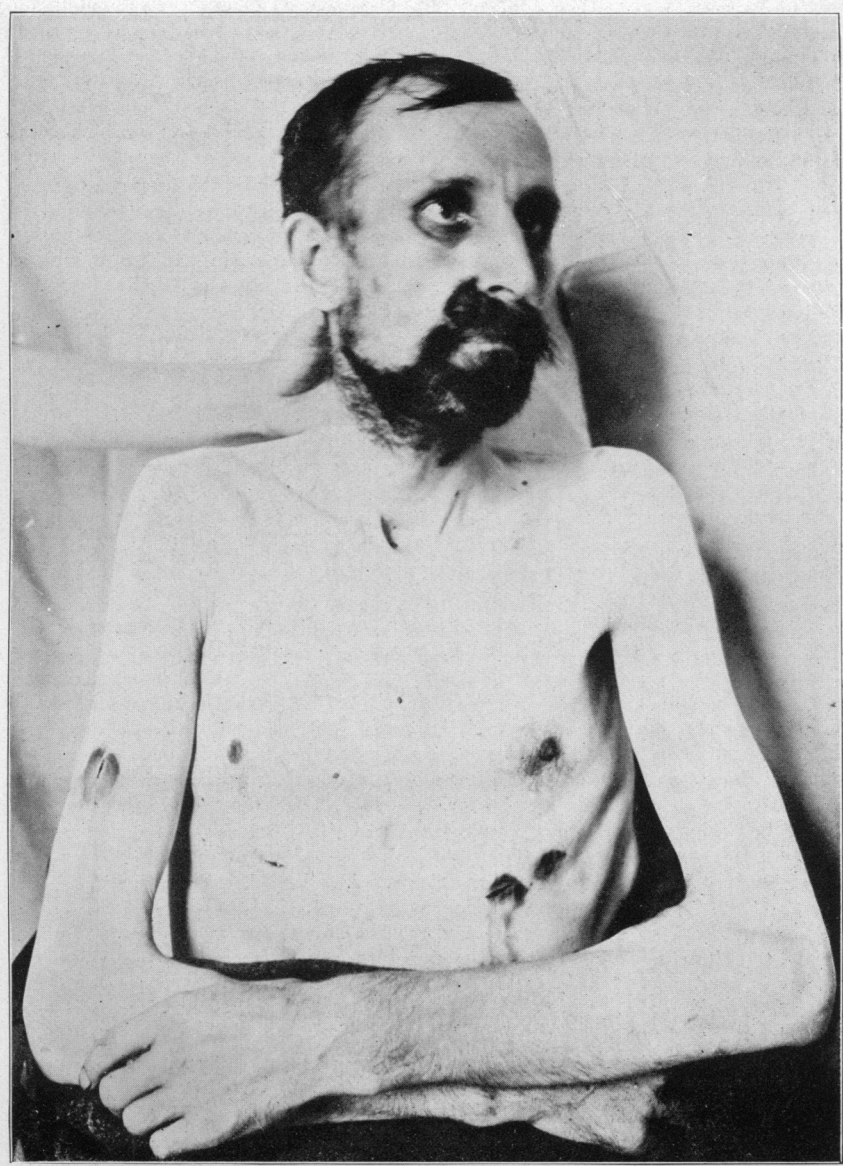
The leukocytes in the blood were never over 9,000 per cubic centimeter. Occasionally small sequestra were discharged from the wound in the left hip, which remained open; over the left ilium crepitus was obtained. In the sputum with the increased pulmonary consolidation the blastomycetes became very abundant; tubercle bacilli were never found. Shortly before death the appetite failed, albumin appeared in the urine and there was some edema of the lower extremities.

The patient was given $\frac{1}{2}$ grain of copper sulphate three times a day and from 30 to 150 grains of potassium iodid. Three injections of a blastomycetic vaccine given in July were followed in each instance by a local reaction and some improvement; two more in August were without benefit.

Necropsy.—The post-mortem examination was held the following day after the body had been embalmed by arterial injection. The anatomic diagnosis was as follows: "ulcerative blastomycosis of the upper lobe of the left lung; disseminated blastomycosis of the lungs, liver, spleen, kidneys, adrenal, brain, subcutaneous tissues and skin; blastomycotic caries of the left iliac and right parietal bones; fibrinous and fibrous pleuritis; hyperplasia of the tracheobronchial, cervical and mesenteric lymph-glands; red marrow in the femur; emaciation; atrophy of the liver; fibrous mural endocarditis; ossification of the thyroid and costal cartilages."

The following are descriptions of the more important lesions: On the face, mostly on the right cheek but extending to the right ala of the nose, is an ulcer with elevated margins with a rather dry floor; 2.5 cm. in its longest diameter, which is downward and to the right into the yellow and rather long moustache. This is the only ulceration on the external surface of the body which has the appearance of any chronicity. The remainder are numerous, and are but little more than recently opened subcutaneous abscesses or the superficial and apparently acute destruction of the skin following such processes. The largest of these is over the left crest of the ilium about 15 cm. from the median line behind. Here is an opening 8 cm. in length with red inverted margins and packed with gauze and containing in its depths loose necrotic bone. The next largest lesion is located midway between the lower angle of the left scapula and vertebrae and consists of a purplish-red oblong necrosis of the skin 6 cm. in its longest diameter, in the middle of which there is an opening into which the terminal phalanx of the middle finger is easily passed into the abscess pocket between two ribs. There are smaller abscesses, the result of a rupture or opening of subcutaneous abscesses on the entire body. There are two on the right side of the face, one on the left side of the forehead, one over the thyroid cartilage, one in front of the left elbow, four on the anterior surface of the trunk, two on the anterior surface of the left thigh, one behind the right knee and one over the middle of the left calf; these are mostly small, from 1 to 2 cm.; gray or yellowish-brown pus can be expressed from them; their openings are small; the skin and subcutaneous tissues are determined. In addition to these are three brownish discolorations on the abdomen on the left side, slightly elevated and fluctuating. Two similar elevated, fluctuating swellings occur, one over the base of Scarpa's triangle on the right side, and another over the internal malleolus (right side). The last two are not discolored externally. These swellings are about the size of hazelnuts. That in the right groin is twice the size of the other; they all contain pus more or less blood-stained.

The changes in the lungs are quite alike. The two pleural sheets are adherent over a region at the apex of each lung equal to the entire palm of the hand in size. Both are fairly firm, probably from the embalming fluid in part, but also from the presence of innumerable closely set gray firm regions the size of miliary tubercles or slightly larger, which are scattered throughout both lungs; more discrete below, more confluent above. In the upper part of the left lung there are a few cavities the size of a hickory-nut. There are enlarged lymph-nodes about both sides of the trachea and in the cervical regions as high as the hyoid bone; there are more on the left side and larger. They vary from a buckshot



Case 26.—Photograph taken July 10, at which time the vaccine treatment was instituted. Note the cutaneous lesion above the lip on the right side and the five abscesses in the chest and right forearm. Four had been recently incised, after painting with iodine.

to a hazelnut in size and are firm and red on the cut surface. Such lymph-nodes are also found about the roots of both lungs. The spleen has rounded margins; is 14 cm. long, has an unchanged surface, is firm, and on cutting there is an increased amount of pulp substance seen; it is not very bloody. The Malpighian bodies are distinct and there are a few grayish-yellow spots slightly larger than Malpighian bodies; they are not numerous.

The kidneys are slightly larger than normal and are unaltered except for scattered yellowish lesions mostly in the pyramids, from 1 to 4 mm. in diameter, and the larger ones with softened centers. Four or five such lesions are encountered in single vertical transverse sections. The ureters and bladder are unchanged. The prostate is enlarged. In each lateral lobe abscesses occur containing thick gray pus. On the surfaces exposed by vertical section into each lateral lobe there are a number of irregular cavities, the largest of which would contain a small pea. They are more numerous in the right lobe, in which a spongy or worm eaten appearance to the surfaces is given by the number of abscesses present.

Over the middle of the right parietal bone there is a necrosis of the pericranium 1.5 cm. in diameter. On the inside of the skull opposite this there is a slight yellowish exudate on the dura. The calvarium contains but little diploë. The skull here is thin; there is an extensive necrosis with sequestrum formation of the crest of the left ilium.

In the brain, which was examined very carefully,¹ fourteen small lesions were found in the cerebrum and a few in the basal ganglia and deeper parts of the hemispheres; but most of them were located at the bottom of sulci or at the junction of the gray and white substance. These nodules varied from 2 to 4 mm. in diameter. In the cerebellum there were two larger lesions, one 15 by 11 mm. in the white substance between the dentate nuclei, and above the nuclei, and a second slightly smaller 4 mm. posteriorly.

Histological Examination.—The changes found in sections afforded no essential additional information with the exception of the liver. In this organ minute focal lesions were very numerous. They were about the size of renal glomeruli, located as a rule well within the lobule, and possessed the features common to all the primary minute blastomycotic lesions. So far as could be ascertained the large oblong lesions in the distal portions of the renal pyramids originated from the location there of the fungi in the collecting tubules, and this explanation received some support from the occurrence of small local lesions in the cortex in which both glomeruli and tubules were involved. Characteristic changes occurred in the mediastinal, inguinal and periaortic lymph-nodes, but careful search failed to reveal any in the enlarged mesenteric lymph-nodes. In all the blastomycotic lymph-nodes the alterations varied from minute and widely scattered focal lesions to similar lesion so numerous and coalescent as to occupy practically all of the sections. The chronic changes in the upper lobes of the lungs resembled in the extensive necrotic regions a slowly progressing chronic caseous tuberculosis. In numerous sections there were encountered rounded regions of necrosis which represented occluded bronchi. In the lower lobes the changes were such as have been repeatedly described, the small regions of pneumonia, the replacing of one or more alveoli in some places with single minute blastomycotic focal lesions, in other places a number of such coalescent lesions. In some sections small regions of pneumonia due simply to the filling of the alveoli with leukocytes and fibrin were present; in many sections desquamated cells were abundant in the alveoli; in sections from the lower lobes some emphysema also was found. The regions involved in the adrenals were highly necrotic. In the prostate the sections contained simply abscess walls, and although the surrounding tissues varied, the abscess walls possessed a structure quite like

1. LeCount, E. R.: Jour. Ment. Dis., 1908, xxxvi, 144.

that often met in the subcutaneous abscesses. Nor did sections of the brain lesions reveal anything new; on the whole there was but little tissue reaction, as has been the case with the brain lesions in other bodies previously examined. In some sections of the sternum made from the marrow taken at random and without reference to the presence or absence of contiguous abscesses, numerous lesions in all respects like those seen in other lymphoid tissue were present. They were not coalescent, nor was necrosis marked; similar small focal lesions were present in the spleen; in all places fungi were found in the lesions peculiar to the disease.