

LXVII.

THE USE OF VACCINES AFTER THE MASTOID OPERATION.

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I have employed vaccines in six cases, subsequent to the mastoid operation, out of a total of thirty-five mastoid operations performed during the past winter. In the ordinary, smoothly convalescing cases they have not been used. They were used in cases presenting the following complications:

1. Extensive infiltration of the glands of the neck following an operation for streptococcic mastoiditis and cervical abscess.
2. Indeterminate or obscure causes of elevated temperature (the lateral sinus excluded from involvement).
3. Delay in granulation and healing processes in mastoid wound.
4. Pain in limbs, joints and back, without special elevation of temperature, after an operation for streptococcic mastoiditis.
5. In a case of postoperative pneumonia.
6. In a case of infection of the labyrinth.

Case 1.—Streptococcic infection of right mastoid in a little girl of two and a half years. The mastoiditis was complicated in this case by a very extensive abscess on the corresponding side of the neck, which was operated upon at the time of the mastoid operation and a drainage tube introduced into the depth of the wound. The cervical abscess was deeply seated and surrounded by enlarged lymphatic glands, one of which protruded into the right lateral and posterior wall of the pharynx. A culture taken at this time and submitted to Dr. Archibald Murray showed the infection to be streptococcic. The child did well for three days after the operation, but on the following day the lymphatic glands of the neck on the opposite side became tense, markedly swollen and tender, espe-

cially at the angle of the jaw, and a distinct rise of temperature occurred. No involvement of the mastoid was discoverable on this (the left) side. The culture made at the time of the operation not being available for making an autogenous vaccine, we began the use of a stock (antistreptococcic) vaccine, a minim being given daily for four days, then on alternate days for four days more. The glandular swelling had begun to decline within twenty-four hours of beginning treatment. The discharge of pus from the wound lessened rapidly likewise. The temperature became gradually normal, and there appeared to be a sensible increase in the rapidity of the healing of the mastoid wound. The neck wound healed within three weeks from the time of operation; the mastoid wound, at the end of the sixth week.

Case 2.—Pneumococcus infection of both mastoids, ten days after eruption of measles, in a girl three years old. Both drums were promptly incised. Cultures taken from both ears were reported by Dr. Murray to be pneumococcic. The discharges continued to be profuse from both ears, and the temperature continued high. The right mastoid, which was tender to pressure, was operated upon, the sinus being exposed but healthy. The antrum and cells contained much free pus. An autogenous vaccine from a culture removed from the antrum was started in course of preparation, at our request, by Dr. Murray. Much to my disappointment, the temperature did not subside to normal, but continued nearly as high as before the operation, between 102° and 104°, so that after excluding the lungs from any influence in the production of the temperature, operation was performed on the left mastoid on the third day following the operation on the right. Flaky pus was found in the antrum. We now believed that the temperature would fall to normal, but in this we were again disappointed. Some few pus cells were found in the urine at this time, but not enough to indicate a pyelonephritis. The lungs remained clear, though mucus and some blood appeared at times in the stools, indicating a condition of the colon which affected the temperature in some degree. Three days after the second operation the autogenous vaccine was ready for use, the first culture having failed to grow with sufficient activity to provide a vaccine.

Some reaction followed the inoculation of the vaccine, the

temperature even rising to 105° the second day after its use. From this point on, a rapid subsidence of the temperature took place. On April 24th, a small skin abscess of the scalp which had newly developed, with a slight rise of temperature, was incised. Both wounds are doing well.

Case 3.—A tall girl of fourteen years, large for her age, always rather delicate; has grown very rapidly for the past two years. Her mastoiditis of four days' duration followed a severe attack of tonsillitis, accompanied by profuse discharge from the ear, extreme tenderness of mastoid and high temperature.

At operation (January 10th), an extensive edema existed in the tissues over the mastoid. Blood stained serum was encountered throughout the diploetic mastoid. Free pus was found directly in contact with the lateral sinus, which was exposed externally and anteriorly for a length of three-fourths of an inch, but was apparently healthy. After the operation the temperature rose but once over 101° F., but the patient complained greatly of pain in her limbs and back. This continued to be the cause of much complaint, and on January 14th one-half cc. of an autogenous streptococcic vaccine, containing 50 million bacteria to the cc., prepared by Dr. Murray, was given. The afternoon following the first dose the temperature rose to 101.2° with an aggravation of the pain in the limbs and back. The next day she was much more comfortable than before the inoculation, the pulse rate became slower and stronger by the second day, and on the third day the pain had left the limbs and she seemed brighter and more comfortable. Throughout her convalescence, which was rather prolonged, more or less tenderness of the joints persisted, and a mild attack of chorea occurred about the time of the complete healing of the mastoid wound. I am inclined to believe that these symptoms would have been in less degree if we had persisted in the use of the vaccine.

Case 4.—Harry S., age nine months, a delicate looking, wasted infant of mulatto (West Indian) parentage, was received at the Brooklyn Eye and Ear Hospital for operation. There was a tense swelling above and behind the right ear. A purulent discharge from the ear had existed for an indefinite period. Operation was performed November 19, 1912. On incision, much pus was liberated, besides which the swelling

contained flaky fibrinous masses of a cheesy consistency, which were curetted away. A sinus in the bone led to the antrum. The malleus and incus, which were removed, appeared necrotic. A small area of healthy looking dura was exposed above and posteriorly. Two weeks later a swelling appeared on the opposite (left) mastoid region, and on December 5th this was also operated upon by Dr. Bouvier, senior house surgeon of the hospital, who reported that thick curd-like flakes of pus similar to the condition found in the right had been likewise found in this (the left) side. Neither wound made the least progress toward healthy granulating or healing. Mercurial inunctions were prescribed, but an irregular septic temperature developed, and the child became still more emaciated. A polyvalent vaccine (Van Cott's) was administered every fourth day for a period of four weeks. The child died February 6, 1913, having been in the hospital ten weeks. Dr. Murray performed an autopsy. Both mastoid wounds were clean, but almost as little healed as when operated upon. The brain was entirely normal and uninfected. The dura was exposed over three small areas, two on the right, one on the left side. Both lungs were extensively consolidated. A pleurisy of a serofibrinous type was present, the fibrin being deposited in thick layers. A very large abscess was found in the middle of the right lung. This was the only fatal case in the series.

Case 5.—Radical mastoid for chronic suppuration, infection of the labyrinth. A boy of eleven years was operated on November 15th, for chronic suppuration of the left ear, existent since infancy. A radical mastoid operation was performed. The incus was absent. Vomiting persisted for three days after operation. No nystagmus, tongue coated. Calomel was ordered, after which the bowels moved and the nausea ceased. Two days later (21st) the temperature rose to 102° F. (mouth), and persistent vomiting recurred, especially on rising in bed. Vertigo as if falling forward (not toward the affected side) and severe headache. Slept but little. Next day more comfortable. Mind perfectly clear. Some stiffness of neck, temperature remitted, but again rose to 102° in the afternoon. Polyvalent vaccine one-half cc. was administered every four days, the temperature continuing irregular for a period of three weeks, meanwhile assuming a flatter curve

and a gradual cessation of all untoward symptoms. Ear entirely healed and dry at the end of nine weeks, but hearing nil in this ear.

Case 6.—A man, thirty-six years of age, with marked mastoid tenderness and severe pain in left ear; for six days profuse discharge from left ear, with a history of previous ear trouble. Operated February 27, 1913, the culture from mastoid antrum was reported by Dr. Murray to be pneumococcus. The next day he complained of severe pain in the right side of the chest, especially on deep breathing. Dr. Ritter, senior house surgeon, applied wide bands of adhesive plaster. The temperature on the next day (March 1st) rose to 104.4°. No consolidation could be detected. On the next day, Dr. Frank L. Tucker examined the chest at my request, and found a pneumonia developing, an area of consolidation in the right lung being clearly made out. On March 3rd, and for three days thereafter, a stock pneumovaccine was administered daily, each dose representing 40,000,000 bacteria. On March 4th the temperature came down to 99.4°, with profuse perspiration, and did not after rise above 101°. Recovery rapid and without further complications.