A CASE OF RABIES.

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H. M., aged fifteen. Errand boy in a grocery store. Father and mother living and well. No history of insanity or extreme nervousness in either side of the family. Patient is the third of eight children, six of whom are now living, and none of whom have ever had any nervous symptoms. While pregnant with this child the mother had no illness or injury, and the delivery was normal.

The patient had scarlet fever at four years. He has always been a wilful child. Seven years ago he received a blow above and to the outside of the right eye, which has left a depression in the skull. Since this blow he has been subject to headaches and vomiting, especially if he became very tired, and more often during the hottest days of summer. The attacks last only one day.

Six months ago he was treated at the Massachusetts General Hospital for "lung trouble."

Patient entered my service at the Boston City Hospital March 31, 1907.

On Dec. 17, 1906, when near his home in East Boston, he was bitten on the left side of the upper lip by a dog which at the time was sick and which died about twenty minutes after biting him. The dog's body was disposed of by some boys and the subsequent attempts of the Board of Health to find the body were unsuccessful.

The bite produced a lacerated wound of the lip, which was immediately dressed at the Relief Station, and the following day he was admitted to the City Hospital, on the surgical side.

He remained in the hospital one week and the wounds were dressed with iodoform wicks. Some pus discharged from the wounds and the sutures were removed at once. The night after he was bitten he was nervous and slept poorly. He had no chills and no headache.

After being discharged from the hospital he appeared to be well and continued so till March 29 (one hundred and two days after being bitten by the dog).

On that day the boy was kicked by his father, and was deeply grieved at the assault, having always been on very friendly terms with his father. He had headache that afternoon; no vomiting. Felt very nervous. The next day the nervousness increased and the mother noticed that he could not swallow; also that he acted queerly. These symptoms grew rapidly worse until he entered the hospital.

At entrance he had a flushed face; temperature 98.4°; pulse 88; respiration 20. Pupils equal and react to light and distance; expression of the eyes somewhat staring. A small depression in outer table of skull was observed to the right and above the right orbit.

Heart of normal size; action regular and of good strength. Faint systolic murmur heard over precordia, best at apex. Chest and abdomen otherwise negative. Knee jerks present, equal.

The boy was very nervous, somewhat irritable. He tossed about with almost incessant motion of some part of the body. He was mentally clear and talked incessantly about himself and of how many things he had had the matter with him. Said he had been written up in the papers and appeared rather proud of it. He complained of dryness and tightness in his throat. Something seemed to be gripping him there. His arms and body thrashed about. About every thirty seconds he jumped up in bed and expectorated very forcibly, as if he had something unpleasant in his mouth which he wished to expel as quickly and thoroughly as possible. What he spat was a frothy, rather thick saliva. There

appeared no excess of saliva in the intervals of the spitting. The spitting in each case followed a gasp for breath.

His condition appeared rather hysterical, but he did not cry. On being ordered to keep still, he made an evident effort to comply, which was successful for a few seconds, after which he would again spring up and spit violently. At entrance he swallowed milk readily. He drank water also, but with more apparent effort, draining the glass, and with slight twitching movements afterward. The next morning he took a boiled egg, but only a little milk. He swallowed water when told to do so, but immediately afterwards had clonic convulsions lasting a few moments. There was, however, no hydrophobia. The sight of water did not disturb him and he even asked for it.

On April 1 the picture was as already described. He referred to the fact that his condition had been spoken of in the papers and that people had talked much about him; that he had had "many kinds of sicknesses." The movements of his body were sudden and violent. Once his hands were observed in the position of tetany, but pressure over the upper arm failed to reproduce the spasm. Generally the motions were those of a jactitation. Preceding the spitting and apparently the cause of the sudden up-spring was a sound in the throat as of a laryngeal or pharyngeal spasm which subsided after the expectoration. He spat with great violence.

No Babinski, Kernig or Oppenheim reflexes. Patellar reflexes normal. Sensation good.

Patient still exerts an obvious mental control of his jactitation for a few seconds when warned to do so.

The following history from the time of the last note till the patient's death, some seven hours later, is from the notes of the house officer:

On the same day, April 1, patient was given his clothes about 1 p.m. with the idea that he might be more comfortable in a chair, as he was so restless in bed. A few minutes later he fell out of chair and had clonic movements of hands and legs, with extreme salivation. He was then put back to bed.

During the afternoon the symptoms grew worse. Restlessness increased and salivation became marked. About 2 p.m. the patient became wildly delirious, with extreme clonic movements of arms and legs, laryngeal and pharyngeal spasm and marked cyanosis. Large amounts of reddish froth exuded from nose and mouth. Patient had extreme dyspnea, rolling of eyeballs and an intermittent sharp, high-pitched cry. He moved head from side to side, with jaws opening and shutting spasmodically, but made no noticeable attempt to injure any one. Transfer of patient to lower ward was accomplished at this time, with considerable struggling and resistance on his part. Morphine gr. $\frac{1}{4}$ was given at this time. As soon as patient reached the ward ether was administered and convulsions controlled. Color improved after etherization and spasm of larynx ceased to some degree. On recovering from ether (3 o'clock) he was somewhat quieter, though markedly excited. He seemed to know that he was in a hospital, and for a few moments at a time would be practically clear mentally. At other times he had delusions of persecution. He kept repeating that while everybody seemed to think that he had hydrophobia, he was sure he did not have it, and that if his hands were untied he would act quietly and behave himself. He also kept asking for water, and stated he was sure he could drink it without trouble. The pulse at this time was 160, of fair volume and tension. Heart sounds clear and sharp, soft systolic murmur at apex, no enlargement to right. Condition remained about the same for one hour (4 p.m.) when patient was offered water.

As soon as he saw the glass his convulsions came on again with increased force, extreme cyanosis of face with spasm of larynx and pharynx; large amount of froth coming from nose and mouth. He was again etherized, and following etherization remained quiet for about fifteen minutes, when he had another convulsion. Ether was again administered, with $\frac{1}{4}$ gr. of morphia. Pulse slightly more rapid, but volume and tension remained about the same. From this time convulsions became more severe, and he remained in this state until 6.05 P.M. Pulse remained fair in quality up to this time, when it suddenly disappeared at wrist. Heart sounds became rapid and feeble; area of dullness increased to right mid-clavicular line. Convulsions ceased, cyanosis became extreme and patient died quietly at 6.10 P.M.

The autopsy, as will be seen, demonstrated besides the Negri bodies which are believed characteristic of rabies, a persistent thymus, general lymphoid hyperplasia and a small aorta, which mark the so-called status lymphaticus, often the cause of sudden death in children.

The essential features of the autopsy have been kindly summarized by Dr. F. B. Mallory as follows:

"The post-mortem findings in this case may be briefly summarized as follows: Three irregular scars on the face; moderate general edema of the subcutaneous tissues; marked dilatation of the right side of the heart; congestion and edema of the lungs; persistence of the thymus gland, which weighs 23 gm.; hyperplasia of the lymphoid tissue throughout the body; slight internal hemorrhagic pachymeningitis; small cyst of the pituitary body; myoplastic aorta.

"Microscopic examination shows fatty degeneration of moderate degree in the heart and kidney, and marked in the liver and intima of the aorta.

"The histological examination of this case is not yet finished, but so far as completed shows nothing remarkable except the presence of the Negri bodies, which are characteristic of rabies, in the Purkinje cells of the cerebellum. They occur in the cytoplasm of most of these cells and frequently also in the cell processes. In numbers they vary from one to seven or eight. The size is quite variable, but many large, oval forms of characteristic appearance occur. The bodies show the well-known acidophilic staining reaction and stand out very distinctly in sections stained by the anilin blue connective tissue method.

"The cerebrum and cord have not yet been examined."

SOME PERSONAL EXPERIENCES IN ABDOMINAL SURGERY.*

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THOSE surgeons whose professional life embraces from thirty to thirty-five years have enjoyed the privilege of seeing the most wonderful advance in the field of surgery the world has ever known. Although advancement has been general, and brilliant achievements have been wrought in every branch, it is in the abdomen that the greatest strides have been made, and the boldest work done. During my entire course as an undergraduate, I never saw the abdomen opened intentionally by a surgeon unless it was post-mortem. Even suprapubic cystotomy was shunned, and stone removed almost invariably by perineal section. In the early seventies of the last century

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I assisted in the first ovariectomy I had ever seen, and the crudity of the technique and disastrous results of the operation are indelibly impressed upon my memory. The patient was a woman, about fifty years old, who had a large multilocular cyst of the right ovary. The operator and his two assistants simply washed their hands in the usual everyday manner, and wiped them on towels taken from the washstand. The operator wore a white apron, and the assistants were simply in shirt sleeves. The woman's abdomen was washed with ordinary soap and water, and a steam atomizer on an adjacent table threw carbolic spray over the abdomen and upon the operator and his assistants. A number of surgical needles of various sizes and no particular form were threaded with silk and stuck into the waistcoats of the assistants, and silk cut for ligatures was hooked over the needles so as to be handy to pull off and tie. Of course neither needles nor silk had been sterilized. A large, waxed silk ligature, consisting of half a dozen strands of silk twisted together, intended for tying off the pedicle, lay on a table with the instruments. The instruments were simply washed, dipped into a carbolic solution, and then placed on a table covered by a nonsterile towel. An incision from umbilicus to pubis was made, and a rough hand was forced around the tumor in all directions to break down the numerous and dense parietal adhesions. Pieces of peritoneum several inches in length were stripped off, and afterward found hanging to the cyst walls. An attempt was then made to deliver the cyst with the hands, but, of course, failed, and the operator plunged a trocar into the various cystic sacs, and squeezed out the contents over and into the abdomen. When the cyst was finally delivered, the pedicle was tied off in two sections with the waxed ligature before mentioned, the cyst cut away, and the ends of the ligatures left about one inch long. Small bleeding vessels were tied with the silk ligatures taken from our waistcoats, and the abdominal wound closed by through-and-through silk sutures from the same waistcoats. There was a bit of rubber tissue, which had been previously immersed in the carbolic solution, placed over the wound, the abdomen was wound several times with a bandage swathe, and the case was finished in more senses than one. Septic peritonitis ensued, with death on the fifth day.

This was the beginning of Listerism in America, and the spray and carbolic solution were relied upon to prevent infection. What a hopeless delusion! What a contrast to the scrupulous, scientific technique of to-day, and what a difference in results. Shortly after this I saw an ovariectomy done by an English surgeon in South America, who claimed to have been a pupil of Lister. The technique was fully as crude as in the one previously mentioned, but fortunately the woman lived, owing, I believe, to the fact that the pedicle was sutured in the abdominal wound, and buried; unsterilized ligatures were left in the abdomen to infect it. On my return to the United States a few years later, Listerism *per se*, had