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A CASE OF LARYNGEAL DIPHTHERIA, NECESSITATING INTUBATION, COMPLICATING CEREBROSPINAL MENINGITIS IN AN ADULT.*

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THE object of reporting the following case is to demonstrate that cerebrospinal meningitis and true diphtheria may consist in the same patient and that the respective bacilli are not necessarily antagonistic one to the other. The importance of recognizing the fact of this coexistence comes with great force at the present time, since during the recent epidemic of cerebrospinal meningitis in and about New York the assertion gained some credence that the two diseases could not occur together, and—based upon this assumption—the treatment of cerebrospinal meningitis by injections of antidiphtheritic serum was extensively indulged in, with the hope that a true specific might be at hand. Unfortunately, the results of the treatment were such that at present it has been practically abandoned, with a consensus of opinion that it had no appreciable effect on the course of the disease.

Seemingly this should prove that the two diseases

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are separate entities, but a stronger proof is afforded, I think, when we can find the two diseases actually existing at the same time, as was stated in the outset of this paper, and which the history will sustain.

The patient was a married woman, aged twenty-seven years. first seen by me in consultation January 10, of this present year. She had been ill for twenty-two days, beginning with symptoms which finally terminated in a well-marked case of cerebrospinal meningitis, having all the classical phenomena, namely, eruption (which occurred December 30), hemorrhagic in certain areas, stiffness of neck, prostration, restlessness, photophobia, delirium, Kernig's sign, exaggerated reflexes, small feeble pulse, irregular and elevated temperature, and facies typical of meningeal involvement.

On January 9, the day previous to my first seeing her, and while she was still in the midst of her cerebrospinal symptoms, she complained of hoarseness, some croupy cough, and beginning laryngeal dyspnea. These symptoms steadily continued to increase, so that at the time of my first examination, January 10, they were pretty well advanced. On examining the larynx at this time I found the entire lumen filled with a distinct thick membrane, markedly impeding respiration, and peculiarly limited above by the arytenoid cartilages, there being no membrane at this time, or subsequently, in the pharynx.

The membrane had all the characteristics of being diphtheritic in nature, and I attempted to take a laryngeal culture, but owing to the increased dyspnea which the effort produced I was only partially successful and the culture proved to be negative. The laryngeal dyspnea continued in severity to that extent that within a few hours after my examination intubation became necessary. This was

successfully performed and gave marked relief to the difficult breathing.

The following day and again subsequently large pieces of membrane were expelled through the tube, from which pure cultures of the Klebs-Loeffler bacilli were procured—thus confirming beyond question the diagnosis of laryngeal diphtheria. The tube was removed at the end of the fifth day, and during the time it was *in situ* there was complete relief from the dyspnea. Examination of the larynx after extubation showed some redness and swelling about the superior portions of the larynx. Hoarseness, cough, and some spasmodic breathing occurred during some days following extubation, but at no time was it considered at all necessary to reintubate, nor was there any subsequent appearance of membrane.

Immediately after the first laryngeal examination —January 10—antitoxin was administered by injection and was continued until January 19, 30,000 units being given within that period.

Inasmuch as this case occurred at the time when the treatment of cerebrospinal meningitis by the injection of antidiphtheria serum was being advanced, the effect of the administration of the serum on the cerebrospinal symptoms was most carefully watched and recorded, and without going into detail, which is not within the scope of this article, I may say that the opinion of those immediately in attendance was that there was no appreciable effect produced on the course of the cerebrospinal meningitis. On the contrary, it was during the administration of the serum, and also after it was stopped, that lumbar puncture was performed, in all, three times—January 13, 22, and 26, there being drawn off respectively two ounces, one ounce, and ten drachms. In each instance was found the characteristic meningococcus intracellularis. It is possible to suppose that if diph-

theritic antitoxin was in any way antagonistic to cerebrospinal meningitis its administraton would show ts effects in the destruction of these characteristic cocci.

There were times after the onset of the diphtheria and during the administration of the antitoxin when some of the cerebrospinal symptoms seemed to modify, especially in the occasional mental clearness and stiffness of the neck, but these changes, together with marked irregularity of heart action, were no more than occur in uncomplicated cases of cerebrospinal meningitis. The subsequent progress of the case was marked by the continuance of irregularity of heart action, irregular and high temperature, and the development of pneumonia, death occurring on January 26, apparently of heart failure, being thirty-eight days from the beginning of her illness and seventeen days after the onset of the diphtheria.

No autopsy was held.

The importance of making a laryngeal examination in this case, and in all acute cerebral diseases, at the onset of laryngeal symptoms cannot be too strongly emphasized, for had not an examination been made in this instance at the very outset, the patient would surely have succumbed to acute laryngeal obstruction, and the death might have been attributed to pressure symptoms due to extension of the cerebral lesion. That the degree of the diphtheritic involvement was extensive is shown in the production of such marked stenosis, for we know that it is comparatively rare for diphtheria in the adult to produce sufficient laryngeal obstruction to require operative interference.

It was not my intention in the recital of this case to enter at all into its minute detailed history, but only to record the coexistence of the two diseases with such other data as would naturally be consid-

ered. A most complete bedside history is on file, which may be consulted.

I wish to acknowledge the kindness of Dr. John S. Thacher of New York, to whom I am indebted for being called in consultation, and through whose courtesy I am permitted to make this report; also to Dr. A. J. Brown of the Presbyterian Hospital, for his assistance in preparing the notes.