

**Case of laryngismus stridulus, in which tracheotomy was performed with success / by Alexander Fleming.**

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*Dr. Handyside's respectful Compl.*

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CASE OF LARYNGISMUS STRIDULUS,  
IN WHICH TRACHEOTOMY WAS PERFORMED WITH SUCCESS.

BY ALEXANDER FLEMING, M.D., EDINBURGH,

[President of the Royal Medical Society, and House-surgeon in the Royal Infirmary of Edinburgh.]

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MARGARET CAMPBELL, æt. seventeen, a servant, was admitted into Ward No. 3 of the Surgical Hospital on 4th June, at half past eleven P. M.\*

It was stated by those who accompanied her to the house, that an hour and a half previously some sand had been thrown into her mouth by a boy, while she was in the act of inspiring. Water was procured for her with which to rinse the mouth; but she had only time to do this once or twice, when she was seized with a severe fit of coughing, and difficulty of breathing; and the latter, which was from the first characterized by paroxysmal exacerbations, was gradually becoming more and more urgent.

I may observe here that the patient afterwards stated that before admission she had coughed up several particles of sand.

On admission, she was suffering from severe dyspnœa, aggravated in paroxysms, which recurred frequently. In the intervals between the paroxysms inspiration was prolonged and marked by a crowing sound, and expiration was attended with a harsh stridulous noise. The voice was very weak, and the cough had a peculiar prolonged character. The face was becoming livid, and the pulse was very rapid, small, and weak. The epiglottis was carefully examined, and found to be perfectly natural and free from any particles of sand. The patient anxiously besought relief from what seemed to her impending suffocation.

As tracheotomy appeared to me to afford the only chance of preserving the patient's life, the operation was immediately performed; and a middle-sized tube was inserted into the aperture in the trachea. Immediate relief was experienced

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\* This case occurred in the hospital practice of Dr Handyside.



by the patient, and she soon afterwards fell into a quiet sleep. Before the introduction of the tracheotomy tube, two or three particles of sand were discharged from the opening in the windpipe.

*June 5, noon.*—The pulse was 104, of moderate size and strength. The breathing was easy, and took place partially by the mouth and nares. Was very little troubled with cough through the night, and she expectorated freely through the tube.

Vini Antimon. f. ℥i.

Sol. Mur. Morphiae, f. ℥i.

Mist. Camphoræ, f. ℥vii. M.

Sumat ℥i. tertia q. q. horâ.

*Four P. M.*—She complained of pain in the larynx and trachea, which was increased on pressure: twelve leeches were applied over these parts.

*June 6, ten A. M.*—There was much tenderness over the trachea and larynx, and frequent troublesome cough. The pulse was 120, full and firm; the skin was hot and dry; there was much thirst and considerable headache; tongue furred, moist; bowels open from medicine. The state of the epiglottis was natural. Twenty-four ounces of blood were withdrawn from the arm, with much relief to the pain of the windpipe. The tracheotomy tube was then removed, and she could breathe easily through the mouth and nostrils even when the aperture in the trachea was closed by the finger.

*Noon.*—The pulse was 130, soft and compressible. The mixture ordered on the 5th was intermitted.

R Pulv. Jacobi Veri.

Calomel. āā, gr. iii.

Ft. pulvis. Sumat i. sexta q. q. horâ.

*June 8.*—She respired freely by the mouth. The pulse was 120, small and weak. There was still some tenderness (but chiefly superficial) about the larynx, and extending under the jaw on both sides. The mouth had become affected by the mercury. The calomel and antimonial powders were omitted; and twelve leeches were applied over the larynx.

To give a minute detail of the different symptoms which presented themselves from day to day in this interesting case would occupy too much space, and is moreover unnecessary. I shall therefore limit myself to a general notice of the subsequent history of the case.

For about three weeks after the date of last report, the pulse ranged about 120, and was weak and jarring like the pulse of reaction after loss of blood to a large amount. The cough, which was at first very troublesome, had gradually abated.

*June 10.*—She began to complain of pain on swallowing, with increased tenderness in the region of the windpipe and under the jaw, where distinct swelling was perceptible. This



swelling began first under the angles of the jaw, but afterwards extended all round below the chin.

*June 22.*—Poultices had been constantly applied to the diffuse swelling of the throat. Fluctuation was detected in the part under the chin; and an incision having been made, a large quantity of laudable pus was discharged. She was ordered to have 3 oz. of wine daily.

*June 23.*—The opening in the trachea was entirely closed.

*June 24.*—She complained of acute pain of the left wrist, elbow, and shoulder joints, which were tender on pressure. The wrist was red and swollen. She was ordered to take 20 drops of the solution of morphia three times in the day.

*June 25.*—The joints of the left arm were considerably better, but the left knee was tender on pressure, and the seat of a throbbing pain. The prescription of the preceding day was continued.

*July 4.*—The joints which had been affected with rheumatism were quite free from pain and swelling. The pulse was 72, soft, and of moderate size. The swellings under the jaw were entirely removed; and there was only a very slight serous discharge from the incision which had been made for the evacuation of the matter. She had been taking for some time past, in addition to the wine and generous diet, simple doses of the saccharine carbonate of iron three times daily, and subsequently a quinine mixture, which had effected considerable improvement in her appetite and general health.

She was dismissed cured, but still rather weak, in the beginning of August.

At the present date (November 16) her health and strength are completely re-established.

*Remarks.*—The opinion which I entertain of the nature of this case is expressed in the title of the paper, but it is proper that I should now detail more fully what I believe to be its true pathology.

When the sand was thrown into the mouth of the patient, a few of the particles appear to have found their way into the larynx. These, although not sufficient to oppose any physical barrier to the free entrance of air, were the cause of irritation, which, exciting a reflex action of the laryngeal nerves, induced spasmodic closure of the glottis. The incident exciters concerned in this process are filaments of the superior laryngeal nerves, while the reflex motors are derived from the inferior laryngeal or recurrent nerves.\*

The patient coughed up some of the particles of sand; but apparently a few had still remained in the larynx, and these were not discharged until the opening had been made in the trachea.

\* See the Essay of Dr John Reid on the Functions of the Eighth Pair of Nerves, in *Edin. Med. and Surg. Journal*, No. 134.



*First*, That the impediment to the respiration was not produced by the presence of a foreign body blocking up the windpipe, is of course evident from the fact that no substance sufficient to oppose a physical obstruction to the entrance of air was found there.

*Secondly*, That the closure of the glottis was produced by a contraction of the laryngeal muscles, and not by acute inflammatory œdema, is proved—first, by the difficulty of breathing having supervened almost immediately upon the introduction of the irritating particles of sand; secondly, by the fact that the epiglottis was found to be perfectly healthy; thirdly, by the peculiar character of the breathing and cough, and the paroxysmal exacerbations of the dyspnœa.

*Lastly*, I have to say a few words upon the propriety of operative interference. Had the case been less urgent, the warm bath, antispasmodics, &c., might have been employed, being the operation reserved as a last resource, in the event of the previous means having failed of success. But in this case there was no time for delay; the danger in which the patient lay was too imminent to permit of the previous employment of doubtful remedial means, for the face was swollen and purple, and the pulse was very rapid, small, and weak; and hence the immediate necessity for an operation, by which the obstruction to the respiration would be removed.

The design of the operation was twofold—first, to procure the immediate and free admission of air into the lungs; and, secondly, to afford an exit for the particles of sand which still remained in the windpipe, and whose presence was the cause of the spasmodic contraction of the laryngeal muscles.