REHABILITATION PROGRAM FOR LARYNGECTOMEES, ILLUSTRATED BY FOUR CASE REPORTS

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LARYNGECTOMIZED patients, known as "laryngectomees," are confronted with two interrelated problems: the acquisition of a substitute for speech, and economic and social rehabilitation. The basic problem is, of course, the acquisition of a substitute for speech.

Since the first laryngectomies were performed about 100 years ago, many artificial devices have been designed and recommended to enable the patient to communicate again. However, in 1909 Gutzmann[1] first described the development of natural esophageal speech in patients who had had their larynges removed. Further studies considered the various factors involved in the acquisition of that form of speech by laryngectomized patients.[2-13] It was fully realized that the psychologic aspects of the operation greatly influenced the patient's chances of learning to talk again. Stern[3] urged that a patient who had had his larynx removed, be encouraged and reassured during the immediately postoperative period by a visit from a former patient who had mastered esophageal speech. Kallen[4] advised that speech therapy be instituted immediately after healing in order to prevent social maladjustment and psychologic depression. Schall[6] and Morrison[9] emphasized the importance of combatting the depression that overwhelms the patient when he realizes that his speech will not be the same as it was preoperatively, and that social and economic readjustment may be difficult. McCall[11] advocated preoperative training for esophageal speech. Yet, despite these recommendations, Pitkin[13] has found that in a group of 65 laryngectomized patients: 87 per cent had not been given adequate speech instruction before operation; 46 per cent had not received hospital visits from other laryngectomees; and 40 per cent had not been adequately prepared for the operation or informed concerning the loss of voice that would follow.

The rehabilitation program for the patient who is to undergo laryngectomy here, begins preoperatively as soon as the physician advises that surgery is necessary. The contributions of the physician and his associates in giving encouragement to the patient and his family and in sharing information on details concerning the forthcoming operation are supplemented by the routine use of four aids that we have found to be of great value in hastening and assuring the patient's rehabilitation: (1) a motion picture, (2) records, (3) a booklet, and (4) visits from those who have undergone the operation and who have learned to talk again.

Motion picture. As soon as possible after the patient has been informed of the necessity of laryngectomy, he and his family are shown the motion picture entitled, *New Voices*.[14] *New Voices* is the story of a man who casually mentions to his physician that he has had a hoarse voice for some time. Examination reveals that the patient has cancer. A laryngectomy is performed, postoperative voice training is instituted, the patient learns to speak, and finally, he returns to his former job.

Records. After the movie, the speech pathologist plays records of the voices of esophageal-speaking patients, and then discusses the following points: (1) laryngectomy removes only the larynx, one part only of the normal speech-making equipment that includes the teeth, tongue, lips, cheeks, soft palate, pharynx, and larynx. When the larynx is removed, all that is needed is a new source for making sound. (2) The new source for making sound can be developed by forcing air into the top of the esophagus and immediately belching it. (This is demonstrated.) (3) Learning esophageal speech postoperatively is facilitated if the patient can practice the technic—swallowing air and belching it—before operation. (4) After the larynx has been removed, the patient is eligible for membership in the International Association of Laryngectomees, the local branch of which is the Cleveland Lost Chord Club.

Booklet. When the patient is admitted to the hospital, he is given a booklet entitled, *Some Helpful Information to Speed Recovery after Your Laryngectomy*,* in which is explained the routine of the operation, the convalescence, the hospital stay, and rehabilitation, as follows:

This booklet is intended to help you and your family understand what we do before the operation that will remove your larynx, and how it will be possible for you to talk after the operation. Former patients have told us that this explanation gave them greater confidence in the success of the operation, and reassured them that removal of the larynx is not so severe a handicap after all.

First, there are three important questions that patients ask us, and we shall answer them here. The questions are:

1. Is this a serious operation?
2. Will I be able to talk again?
3. Will I be able to work again?

1. "Is this a serious operation?" The answer is: "Yes, but not more serious than other major operations." The operation has been performed on so many people that we know what preparation to make in advance; and the modern technics of surgery make laryngectomy generally a safe operation—and the patient usually makes a smooth recovery. There are more than 3000 "laryngectomees" (persons who have been laryngectomized) in this country. Many of the laryngectomees belong to Laryngectomee Clubs, here in the United States and in Canada; you will learn more about them a little later on in this booklet.

2. "Will I be able to talk again?" The answer is "Yes! either by means of 'esophageal speech' or by means of the artificial larynx." The talking will not be the same as before, but you will be able to speak. At a recent meeting of the International Association of Laryngectomees, most of the speakers used esophageal speech. Many of them talked so naturally that they sounded quite like normal speakers. Occasionally, a person does not, or cannot, acquire the esophageal speech, but he still can talk by using the artificial larynx. Instructions will be given to you in this booklet, in order to insure your success in talking after the operation.

**Copies of the booklet may be obtained by sending requests to the author.*

3. "Will I be able to work again?" The answer is: "Our records show that most patients who have been employed go back to the same jobs." Laryngectomees engage in all occupations and professions; there are plumbers, lawyers, employees in retail and wholesale stores, company executives, salesmen, school teachers, physicians, bookkeepers, garage mechanics, farmers. A recent study reported that 80 per cent of the men and women kept their old jobs. Some of those who changed jobs had not learned to talk. The chances of keeping the same job are much better if one learns to talk. It commonly is said that the only activity a laryngectomee cannot do—or rather should not do—is to swim. Yet, although the larynx helps a person to hold his breath, many a laryngectomee has made adequate adjustment to his job of heavy lifting in the steel mill.

Before the operation. Have you seen the motion picture called "New Voices"? In this film, there appear persons who have lost the larynx and who learned to talk again by means of esophageal speech. Your normal speech-making equipment includes your mouth—lips, teeth, tongue—your cheeks, your hard and soft palates, your nasal passages and your larynx. A laryngectomy removes only the larynx—or the normal sound-making equipment, but it still is possible to form sounds by using the esophagus—for esophageal speech.

Esophageal speech requires you to swallow air and immediately return it to your throat and mouth as a formed sound. In other words, if you can swallow air and return it to your throat and mouth, you can learn to talk after laryngectomy. You might practice this new way of swallowing and returning air as much as you can before the operation.

As to the hospital procedures, before the operation, there are a few things you and your family will want to know about. Shortly before surgery, a feeding tube will be inserted into your throat and will remain there throughout surgery and after the operation until the tissues are well healed.

After the operation. Immediately after the operation and during the next few days until the tissues are well healed, you will be fed nourishing liquids through the feeding tube. (Usually about the fifth to the seventh day after the operation, the surgeon will decide that the feeding tube may be removed and that you are ready to swallow liquids and foods normally.)

You now have an opening in your neck, and a silver tube is placed in it. You breathe through this tube. Your trachea (windpipe) receives the air you breathe directly—instead of from the nose that ordinarily warms and strains the air. For the first few days, mucus accumulates in your windpipe, and this mucus has to be removed by the nurse. At first the nurse uses the aspirator to remove the mucus for you—but shortly you are able to do this for yourself whenever you wish to.

You will learn a new way to cough. At first it will seem to be less effective, until you learn how to use your breathing muscles for coughing. The medical personnel will help you to learn this different method of coughing.

The nurses, the doctors, and the entire staff are interested in helping you to recover as rapidly as possible. They will do everything they can to make you comfortable.

On the day after the operation, you may sit up or stand up. On the third day, you may be walking about your room and helping to care for yourself. About the fifth day, the surgeon asks you to swallow so that he may check on your progress in healing. He may ask you to practice swallowing many times during the day. On the sixth or seventh day, the sutures, or surgical stitches, may be removed and you then are asked to swallow sips of water. If everything is satisfactory, the feeding tube is removed and you are given a soft diet.

Now you have reached an extremely important step in your recovery. If you can swallow, you can begin your preliminary exercises to start speech. About an hour after every meal you should practice swallowing air and belching it. The speech teacher will show you how it is done. You swallow air and immediately contract your abdomen to push the air into your throat. You use the sound made by the belch to say the vowels, such as **oh, ah.** In addition to the vowels, certain other sounds are voiced, such as **b, d, v, g, l,** and **r.** The other consonants* take care of themselves. From this time on, your progress toward adequate speech depends upon the amount of practicing you do. Occasionally, a patient is delayed from talking because

**For example: To say two, you place the tongue for t, shape the lips for oo, and then belch.*

of problems that have confronted the surgeon. The speech teacher sees you frequently to correct any faults you have acquired. Each day brings improvement and you have the wonderful satisfaction of knowing that you are going to talk again.

We already have mentioned the International Association of Laryngectomees. The Association is organized into local clubs in order that you and others may be encouraged and inspired personally by those who have made this readjustment to removal of the larynx. Members of the local club, the Cleveland Lost Chord Club, will be coming to visit you and your relatives, and they gladly will demonstrate their speech. Their experiences will help you to understand and overcome the problems you are facing. The members will invite you to visit the local club. If you live outside of the Cleveland area, you will be given the name of the club that is closest to you. Perhaps you will want to form a club in your hometown. Perhaps your experience will inspire you to join the International Association of Laryngectomees so that you yourself may help to encourage others.

The staff of the Cleveland Clinic will make all of the facilities of the hospital available to you, to insure your comfort and rapid recovery.

Best wishes to you!

Visits from esophageal-speaking patients. At some time during the patient's hospitalization, he is visited by several laryngectomees who are members of the local Lost Chord Club. These people, who have surmounted the obstacles that the patient now faces, inspire him by demonstrating how the loss of the natural voice can be redeemed by esophageal speech.

CASE REPORTS

The following case reports illustrate the value of these aids in the rehabilitation of laryngectomized patients.

Case 1. Three days before total laryngectomy, a 54-year-old white man was shown how to swallow air and belch for esophageal speech. On the third day after the operation he was walking about his room, and on the eleventh day he was given his first speech lesson. Since he had practiced the technic before the operation, it was easy for him to begin shaping his lips for vowels. Within the first half-hour, he learned to count to ten and to say, "Hello" and "How are you?" with low volume but good intelligibility. One week later, he reported that he had answered "Yes" and "No" over the telephone and had counted up to 30 without resting. One week later, he was doing words of two syllables on a single belch, and he demonstrated his speech to a prospective laryngectomee at the hospital. A week later, about a month postoperatively, he was speaking in complete sentences. Instruction was then given on inflection and phrasing. Two weeks later, about 6½ weeks after operation, he had returned to his job as foreman of a line construction crew.

Case 2. A 75-year-old white man was seen for a regular check-up in May 1954. He had a history of diabetes and impaired hearing. Seven years preceding examination, he had undergone removal of the right vocal cord, ventricle and ventricular band; biopsy had revealed epidermoid carcinoma. At examination, recurrence of the cancer was detected on the left vocal cord; biopsy showed squamous cell neoplasm. Despite his advanced age, the patient was considered by the hospital staff as a good surgical risk. However, because of his age and other physical problems, he was offered a choice between total laryngectomy and radiation. He was shown the film *New Voices*, and was given a demonstration of esophageal speech. He chose total laryngectomy. He readily learned to swallow air and belch. After the operation, three esophageal-speakers visited him. Thirteen days after surgery, he received his first speech lesson. He acquired a fair

swallow-belch and was sent home to practice. One week later, he was able to say the vowels and was shown the technic of placing his articulators for the consonants before the vowel was produced. One week later, the patient was able to swallow and belch at will. He was instructed not to whisper but to take time to complete his sentences by voice. One week later, the patient was answering questions spontaneously and could say the alphabet without resting. Two months after operation, the patient was talking spontaneously. Unnecessary facial grimaces during speech were called to his attention, and practice before a mirror helped to eliminate them.

Case 3. A 67-year-old white man who had retired from active work but who lived on his farm, was seen because of hoarseness of two months' duration with a more recent onset of dysphagia and loss of phonation. He was found to have squamous cell carcinoma that involved 85 per cent of the epiglottis, extended to the false vocal folds and to the median commissure. He was shown the motion picture *New Voices*, and esophageal speech was demonstrated. The patient quickly learned the swallow-belch. On the seventh day after surgery, he was given his first speech lesson. Within a half-hour he said five vowels, could count to ten, and say: "How are you?" "Fine," and "Thank you." Two days later, he responded spontaneously with two-word answers. His volume was low but adequate for a start; however, he tried to talk so fast that his vowels and consonants were slurred or were omitted. He was advised to be more deliberate in his speech and to be patient about forming and sounding the words. Four days later he still was talking in the same rapid, slurred manner. He talked faster than he could swallow air and form the belched sound into vowels. When he slowed his speech, it was intelligible. Two weeks later, he returned and was using the whisper, and displayed anxiety about the lack of improvement. He was told to speak only when there was air in the esophagus. Five weeks later, he returned with the complaint that he could not talk and would have to have an electric larynx; he could no longer tolerate the bloating of his stomach from the intake of excessive amounts of air. He mentioned that his wife, who was an invalid, could not understand him. He also said that his dog could not understand his orders to get the cows. He was given the address of a distributor of an electric larynx.

This case demonstrates several points about the training program: The training program should fortify the patient against intolerance of his own slow progress, and should inspire him with the resolution to cooperate fully with instructions. The patient (Case 3) was so eager to go home that he left the hospital without receiving adequate training; and he attempted to talk as rapidly as he had prior to surgery—in complete disregard of instructions. He could obtain no help in his neighborhood because no known esophageal speakers were in his area. He had all the requisites for good speech but his anxiety and impatience overcame good judgment. More frequent training periods and more detailed information about his home problems probably would have been of great help in teaching him esophageal speech.

Case 4. A 43-year-old Negro man who appeared to be in excellent physical condition, was seen because of hoarseness that had become progressively more severe over a period of months. Biopsy revealed squamous cell carcinoma on the right vocal cord, that extended beyond the commissure to the left vocal cord. The patient and his wife were shown the motion picture *New Voices*, and esophageal speech was demonstrated. He practiced and developed excellent coordination of the swallow-belch technic. After the operation he received visits from several esophageal speakers. On the third day, he was using the aspirator, was feeding himself through the tube, and was grumbling about not getting enough to eat. Eleven days after operation, he received his first speech lesson. He could belch several times in succession and said four vowels. The patient was optimistic and free from worry. Two days later, he spoke spontaneously "Yes" and "No," and

several three-word phrases. At the end of an hour of practice, he said a 16-word sentence without hesitating, and then threw his scratch pad away. Five days later, he was using three- and four-syllable words in one belch. He was having digestive problems because of intake of too much air and was advised to take smaller swallows. Six weeks after the operation the surgeon gave him clearance for returning to work.

SUMMARY

The rehabilitation program for laryngectomized patients is discussed, and four case reports are presented to illustrate the particular values of certain phases of that program.

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