

Nursing of Repair of Partial Laryngeal Defect of Frontal Side by Suspension of Composite Hyoid Flap

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Abstract: Objective to investigate the perioperative nursing of repairing partial laryngeal defect at frontal side by suspension of composite hyoid flap. Methods the perioperative nursing measures of 12 cases of partial laryngeal defect repaired by suspension of composite hyoid flap were retrospectively analyzed. Results 12 patients had good wound healing and retained good pronunciation, swallowing and respiration. Conclusion proper nursing measures are helpful to the healing of incision and the recovery of laryngeal pronunciation, swallowing and respiratory function after the operation of partial laryngeal defect repaired by suspension of composite hyoid flap.

Keywords: Hyoid Flap Suspension Repair; Laryngeal Defect; Nursing

For laryngeal cancer patients with early invasion of preunion, partial lobotomy of the frontal larynx is still the main treatment at present, and this aspect has been the focus and difficulty of clinical research. For the common autologous tissue in clinic, all kinds of materials including skin flap, mucosal flap and allogeneic repair materials can play a more effective role. However, for such patients, the recovery process after surgical repair is also very critical, so perioperative nursing measures can ensure the recovery of patients' respiratory function and laryngeal function. The purpose of this study was to explore the nursing scheme of repairing partial laryngeal defect in the frontal side by suspension of composite hyoid flap. The case data of 12 patients were selected for retrospective analysis. The results are reported below.

1. Materials and methods

1.1 General information

The clinical data of 12 patients with partial frontal laryngeal defect repaired by composite hyoid flap suspension were retrospectively analyzed. All patients were male, aged 48-76 years, with an average age of 65.9 years. All the patients were pathologically highly differentiated laryngeal squamous cell carcinoma.

Criteria for admission: The tumor invaded the upper boundary not exceeding the laryngeal compartment plane, the lower boundary not exceeding the lower cricoid cartilage border plane, and the posterior external boundary not exceeding the anterior frontal 1/2 of the vocal cords and para-portal space. The patient was diagnosed according to the 2008 NCCN guidelines and underwent postoperative radiotherapy.

All the contents of the study were approved by the ethics committee of the hospital, and all the patients' families were informed of the study and signed the informed consent.

1.2 Methods

1.2.1 Surgical methods

Patients underwent routine anterior laryngeal lymph node dissection, and patients with T3a and T4 underwent

selective lymph node dissection. After cutting off the muscle group on the hyoid bone in the preparation of the composite flap, the hyoid bone was cut off at 1cm lateral to the bilateral hyoid horn, and the subhyoid muscle group was separated from the lateral side of the omohyoid muscle. It should be noted that in the process of separation, the blood supply of the composite valve should be fully guaranteed, and the perichondrium of hyoid bone and the nail and tongue membrane should be retained to ensure the attachment of the subhyoid muscle group. During bone fixation, a micro drill was used to drill into the place where hyoid bone and thyroid cartilage were fixed, and the 2-0 suture line was crossed to fix the thyroid cartilage stump. The bilateral superior thyroid artery should be well protected during the whole operation, and the complete hyoid perichondrium and nail and tongue membrane should be maintained.

1.2.2 Nursing methods

(1) Preoperative nursing

Patients were given comprehensive psychological intervention and health guidance before surgery. Due to surgery in patients with trauma is larger, longer operation time, postoperative have certain influence on swallowing and phonation, nursing staff to maintain communication with the patient, to explain the function of the surgery and surgical patients to carry out the plan, and some successful cases cured told patients, enhance the treatment compliance of patients. At the same time, in the communication with patients, medical staff can understand the psychological problems and actual needs of patients, so that patients can adjust their psychological state in time and actively cooperate with the treatment process, some patients with poor language communication may consider using body language or body communication to solve the problem. In terms of preoperative preparation, the oral cavity and respiratory tract were well prepared, and some patients were inserted into nasal feeding tube on the day of operation according to the circumstances after skin test of antibiotics.

(2) Intraoperative nursing

During the operation, the patient's blood pressure, heart rate and other vital signs were strictly monitored, and medical staff should be contacted to deal with any abnormal indicators. In addition, the nursing staff in the whole operation should cooperate with the doctor in an orderly manner. Both the instrument nurse and the surgeon should carry out corresponding work according to the patient's actual condition.

(3) Postoperative nursing

Postoperative nursing focuses on postural nursing, respiratory and drainage tube nursing, nutrition support, swallowing function training and rehabilitation guidance. In terms of postural nursing, all patients should return to the ward after the operation and awake under anesthesia. The temperature in the ward should be controlled at 20-25 degrees Celsius, and the humidity should be controlled at 60-70%. Patients should keep quiet in the ward to avoid external irritants. The patient is placed in a supine position, and the head may be raised appropriately, but vigorous movement of the head is avoided. In the nursing of respiratory tract and drainage tube, a special person should be arranged for 24 hours to record the volume of patients per hour. On the one hand, the deficiency of postoperative body fluids can be prevented; on the other hand, problems in the process of blood perfusion of the flap can be avoided. If the patient has a large wound surface, continuous negative pressure suction can be considered after surgery, and the properties and color of the drainage fluid can be observed. These contents should be recorded until the patient's drainage volume is reduced to less than 5ml/d, and the catheter can be extubated. Nutritional support should be based on the patient's recovery status, such as oral or nasal feeding, with a liquid diet. During the process of nutrition support, we should pay close attention to whether the patients have abdominal pain, abdominal distension, dyspepsia and other complications. If partial patient carries on the vein infusion, when necessary can small amount infuse blood. Deglutition exercises are designed by special restorers, which include passive and resistance exercises for the tongue and labial-buccal muscles, as well as Masako manoeuvre exercises for the deglutition muscles. The aim is to shorten the time required for patients to recover from deglutition. During the whole recovery cycle, the nursing staff should conduct strict guidance to the patients and carry out health education to the family members, so as to maximize the effectiveness of the recovery of the patients' prognosis.

1.3 Observation indicators

The healing of the incision and the recovery of the laryngeal function of pronunciation, swallowing and

breathing were analyzed. The swallowing function was analyzed by SSA. The pronunciation function was detected by aerodynamics. Proceed as shown in tables 1 and 2.

Level of consciousness	1= wakefulness, 2= drowsiness, 3= silence, 4= response to stimuli only
Head and torso control	1= able to sit normally 2= able to maintain sitting balance but not lasting 3= cannot maintain sitting balance, but can partially control head balance 4= unable to control head balance
Lip control	1= normal 2= abnormal
The breath way	1= normal 2= abnormal
Sound intensity	1= normal 2= weakened 3= none
Gag reflex	1= normal 2= weakened 3= none
Independent cough	1= normal 2= weakened 3= none

Table 1 SSA preliminary evaluation scale

Analysis indicators	Instructions
Frequency	Basic frequency, lowest frequency
Intensity	The biggest and the smallest sound intensity
Micro interference	Frequency perturbation, amplitude perturbation
Noise test	Normalize the noise energy level, harmonic and noise ratio

Table 2 Noise acoustic analysis

1.4 Statistical methods

All data in this study were analyzed using SPSS20.0 statistical software.

2. Results

Postoperative wound healing was good in 12 patients, and good pronunciation, swallowing and respiration were retained. No significant serious complications occurred in the 12 patients, and the overall recovery was stable. The functional evaluation of the patients is shown in table 3.

Wound healing	All healing
Pronunciation function	Preserved
Swallowing function	Preserved
Respiratory function	Preserved
Complications	Mild dyspnea

Table 3 Functional assessment of patients

3. Discussion

The function of perioperative period is to promote the rapid recovery of patients, mainly focusing on the three stages of preoperative prevention, intraoperative control and postoperative management. The purpose is to ensure that patients can receive surgical treatment in a comfortable and safe state, and at the same time provide patients with physiological and psychological comfort. For patients with oral diseases, their operation process will directly affect the subsequent quality of life, and even affect the normal eating process. The nursing of such patients is also the focus of clinical management.

From the perspective of perioperative nursing requirements, preoperative examination and abnormal outcome management should be given priority. Because such patients are at risk of malignant tumors, it is necessary to prevent all kinds of pathological changes in patients and have a comprehensive understanding of the various functions of patients before surgery. For example, when patients are found to have abnormal cardiovascular or other organ functions, it is necessary to evaluate the disease and take better countermeasures. In addition, patients should be well examined and treated for oral diseases, in order to control postoperative symptoms of infection, and professional oral cleaning measures should be taken when necessary^[1]. However, postoperative patients have a long period of time can not speak

normally, or even swallow normally, how to carry out comprehensive training for patients before and after surgery, reasonable information exchange is very important. At this stage, the nursing of patients is more inclined to health education and psychological nursing. For example, postoperative feeding guidance and psychological comfort should be combined with the corresponding content of health education and training. The key to nursing care is to promote incision healing and improve laryngeal pronunciation, swallowing and respiratory function^[2]. To be specific, many patients show panic and anxiety psychology, timely and effective psychological counseling and psychological comfort is very important, medical staff need to patiently explain the patient's condition and surgical treatment, and inform patients of the importance of postoperative functional rehabilitation exercise. In the whole nursing process, it is necessary to understand the needs and inner thoughts of patients, so that patients have a certain understanding of the operation and psychological preparation, so as to get the full trust of patients. Patients and their families can be informed of cases that have been successfully cured, so that patients can be full of confidence, which is conducive to communication and cooperation after the operation to successfully pass the perioperative period^[3].

After surgery, patients with partial laryngeal defects repaired by suspension of composite hyoid flap have a period of fasting. During this period, the daily nutrition and heat required by the patients should be calculated according to the height and weight of the patients, and the nasal feeding tube should be inserted well and the intravenous indwelling needle should be placed. After the operation, the changes of patients' vital signs should be closely observed. The nursing staff should make a tour every 30 minutes to observe the changes of patients' heart rate, blood pressure and blood oxygen saturation, and timely clean the secretions generated in the oral cavity and respiratory tract. The drainage tube should be properly handled when the drainage ball is routinely placed postoperatively. If the patient needs to turn out of bed or take other actions, the phenomenon of poor drainage, hematoma and infection of the operative cavity should be avoided^[4].

In this study, the focus was on postoperative care for patients, including postural nursing, respiratory tract nursing and drainage tube nursing. Some patients with good recovery also received swallowing function training and rehabilitation guidance. First of all, a good indoor environment is provided for patients, both temperature and humidity are controlled within a reasonable range, and the ward is kept absolutely quiet to reduce the stress effect of irritating factors on patients^[5]. In the management of respiratory tract and drainage tube, special nurses were arranged to record the volume of patients, which not only avoided the deficiency of body fluids, but also enabled some patients with large wound surface to continue to receive negative pressure suction after surgery. For example, when the characteristics and color of the drainage fluid are good, the contents can be recorded, and extubation is considered when the patient's drainage volume is below 5ml/d^[6]. Through the nursing in the whole maintenance period, no obvious complications occurred in the patients, which also confirmed that the nursing method of composite hyoid flap suspension during the operation to repair partial laryngeal defect on the frontal side could meet the requirements in terms of safety.

To sum up, proper nursing measures should be taken after the suspension of composite hyoid flap to repair the partial laryngeal defect on the frontal side to help the wound healing and the recovery of laryngeal pronunciation, swallowing and respiratory function.

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