Scientific Research Publishing

Yangtze Medicine, 2025, 9(1), 78-85
https://www.scirp.org/journal/ym
ISSN Online: 2475-7349
ISSN Print: 2475-7330

Construction and Application of a Perioperative Clinical Care Pathway for Labial Glands Biopsy in Sjögren's Syndrome

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How to cite this paper: Wang, L. and Liu, J.J. (2025) Construction and Application of a Perioperative Clinical Care Pathway for Labial Glands Biopsy in Sjögren's Syndrome. *Yangtze Medicine*, **9**, 78-85.
https://doi.org/10.4236/ym.2025.91007

Received: January 31, 2025
Accepted: March 11, 2025
Published: March 14, 2025

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Abstract

Objective: To explore the application effect of clinical nursing pathway (CNP) in the perioperative period of labial glands biopsy for patients with Sjögren's syndrome. **Methods:** A total of 150 inpatients with Sjögren's syndrome who underwent labial gland biopsy in the Department of Rheumatology and Immunology of a tertiary hospital in Jingzhou City from May 2022 to April 2024 were selected by convenience sampling. Among them, 75 patients from May 2022 to April 2023 were assigned to the control group, and 75 patients from May 2023 to April 2024 were assigned to the observation group. The control group received routine care, while the observation group was intervened with the clinical nursing pathway on the basis of the control group. The incidence of postoperative adverse reactions, pain degree, and wound healing time were compared between the two groups. **Results:** The implementation of perioperative management of labial glands biopsy according to the clinical pathway showed statistically significant differences after intervention ($P < 0.05$). **Conclusion:** The construction and implementation of the clinical nursing pathway table for the perioperative period of labial glands biopsy in patients with Sjögren's syndrome can reduce the incidence of postoperative wound adverse reactions, alleviate the pain degree of patients, shorten the wound healing time, and improve patient satisfaction.

Keywords

Sjögren's Syndrome, Labial Glands Biopsy, Clinical Care Pathways

1. Introduction

Sjögren's syndrome is a chronic inflammatory autoimmune disease characterized

by abnormal activation and proliferation of lymphocytes and progressive damage to exocrine glands. It is a common disease in the field of rheumatology and immunology [1]. Sjögren's syndrome often leads to dysfunction of salivary glands and lacrimal glands, causing dry mouth and eyes. It can also cause extra glandular lesions, such as progressive pulmonary fibrosis, central nervous system disorders, and autoimmune cytopenia, involving multiple systems and organs [2] [3].

Labial gland biopsy is one of the standard methods for diagnosing Sjögren's syndrome. It involves surgically removing a small piece of the lip gland under local anesthesia for pathological examination [4]. Due to its invasive nature, patients generally have insufficient understanding of it and may experience anxiety and tension before the operation, which can affect treatment compliance. Postoperatively, complications such as swelling and pain of the lower lip, bleeding, incision cracking, superficial ulcers, and infections around the incision may occur. Especially for patients with Sjögren's syndrome, who have abnormal immune function, they are particularly prone to infections [5]. Some literature suggests that standardized nursing can effectively reduce postoperative complications and alleviate patients' suffering [6] [7]. However, there are no specific guidelines for perioperative care at present. Although there are some reports on the nursing care of labial gland biopsy both at home and abroad, the measures are relatively scattered and cannot provide a systematic nursing operation standard for the entire perioperative period.

Clinical nursing pathways are a new and efficient nursing model that adapts to the new situation. Under the premise of patient-centered care, it optimizes nursing work and forms a standardized nursing process, making nursing work more targeted, predictive, and standardized [8]. There are several key features of clinical care pathways, the first being the standardization of care pathways to ensure that all patients receive consistent care. The second involves multidisciplinary cooperation, developed and implemented by doctors, nurses, rehabilitators, etc. In addition, the clinical care pathway is time-oriented, with clear timelines for each stage of care, to ensure that treatment and care are delivered on time [9]. Currently, clinical nursing pathways are widely used in clinical practice [8]-[10], but there are no reports on their application in the perioperative period of labial glands biopsy for Sjögren's syndrome.

To further standardize nursing behavior, reduce the incidence of adverse reactions during the perioperative period of labial glands biopsy for Sjögren's syndrome, ensure patient safety, and improve patient satisfaction, this study constructed and applied a clinical nursing pathway for the perioperative period of labial glands biopsy, with good results. The details are reported as follows.

2. Objects and Methods

2.1. Study Subjects

The convenience sampling method was used to select inpatients admitted to the Department of Rheumatology and Immunology of a tertiary hospital in Jingzhou

City from May 2022 to April 2024 who had undergone labial glands biopsy for Sjögren's syndrome as the study subjects. Inclusion criteria: ① Patients who were proposed to be diagnosed with SS for lip-gland biopsy needed to meet more than 1 of the following criteria: dry mouth, dry eyes (symptoms persisting for more than 3 months), anti-SSA antibody, positive fluorescent staining of the cornea, positive Schirmer test, and positive unstimulated salivary flow rate test. The Classification Criteria for SS was developed by ACR, USA, in 2016. Exclusion criteria: ① Excluding patients with combined tumors, infections, diabetes mellitus, and other connective tissue diseases; ② Those who had recently been treated with antibiotic drugs for the whole body or localized in the oral cavity or with obvious systemic infections; ③ Those who had recently developed obvious symptoms of oral infections such as gingival redness and swelling and oral ulcers; ④ Those who were aged > 70 years old or had psychiatric anomalies that prevented them from completing the survey. According to the above criteria, 75 patients from May 2022 to April 2023 were included in the control group, with 4 males and 71 females, aged 26 - 68 years old, average (43.5 ± 6.4) years old, and with a disease duration of 3-180 months; 75 patients from May 2023 to April 2024 were included in the observation group, with 3 males and 72 females, aged 28 - 71 years old, average (45.6 ± 7.6) years old, and with a disease duration of 4 - 156 months; 3 males and 72 females, aged 28 - 71 years old, average (45.6 ± 7.6) years old, and with a disease duration of 4 - 156 months, disease duration of 4-156 months; the difference between the general information of age, gender and disease duration of the two groups was not statistically significant ($P > 0.05$) and was comparable. This study was approved for implementation by the hospital Ethics Committee, and the patients had signed an informed consent form.

2.2. Methods

1) Control group: Routine nursing was given. Dietary education was given to patients after labial gland biopsy; patients were instructed to rinse their mouths, and wounds were coated with medicine.

2) Observation group: On the basis of the control group, a clinical pathway nursing model was adopted for intervention. Specific content: ① Set up by the department director, head nurse, attending physician, and specialist nurses composed of the medical and nursing team to develop a work schedule; ② Strictly follow the principle of evidence-based hospitals through literature searches on perioperative care of labial glands biopsy content to summarize, summarize, perioperative care measures to organize and refine, the use of clinical care pathway method, and finally formed a standardized clinical care pathway for perioperative labial glands biopsy from the four dimensions of "environment/goods preparation", "preoperative assessment and education", "intraoperative cooperation" and "postoperative care". The table is a standardized and structured clinical care pathway for perioperative lip biopsy. Key contents: In "environmental preparation", a special treatment room is adopted, the ward is sterilized with ultraviolet rays before and after patient treatment, and labial glands biopsy-related tools such as a shadowless

lamp, sterile bag, special treatment tray, local anesthesia drugs, specimen fixative, etc., are prepared to ensure the smooth progress of the surgery; in "preoperative assessment", understanding the patient's medical condition and educating the patient is required. In terms of "preoperative assessment", we understand the patient's medical history, allergy history, medication history, and surgical history and assess the patient's coagulation function, blood routine indexes, etc., to ensure the safety of the surgery. In the aspect of "preoperative education", it mainly includes three contents of psychological care, patient preparation, and dietary education. In the aspect of psychological care, informing the patients that the operation is invasive, with small wounds and little bleeding, and injecting local anesthesia drugs before the operation, the mild pain can be tolerated to alleviate the patients' nervousness and anxiety; in the aspect of patient preparation, instructing the patients to carry out biopsy 1 hour after meals, and clean water before the operation, so that the patients can have a better understanding of the operation. In terms of patient preparation, patients are instructed to perform a biopsy 1 hour after a meal, rinse their mouth with water, and brush their teeth before operation; in terms of dietary counseling, patients are told to enter a light, warm, and cool diet, and avoid spicy and stimulating foods. In terms of "intraoperative cooperation", due to oral surgery, patients were not able to speak, so we focused on informing patients to raise their hands in time to indicate any discomfort. In terms of "postoperative care", the focus was on postoperative prevention of complications, such as compression to stop bleeding within 30 min after surgery, brushing teeth after 24 hours, avoiding the biopsy site as much as possible; to reduce talking or avoiding coughing to avoid pulling the wound to cause pain, and to prohibit the tongue from licking or sucking the wound, and to guide the patient to standardize the rinsing of the mouth, applying the medication, and to eat and drink. The patient should be instructed to gargle and apply medication in a standardized manner. In terms of diet, the patient should eat warm, cool, and soft food and avoid spicy, hard, and hot food. In the postoperative care, focus on strengthening the observation of postoperative complications; in the 24 h postoperative focus on the observation of the patient's wound site with or without swelling, ulceration, bleeding, and pain scores; in the 72 h postoperative observation of the condition of the patient, in addition to the 24 hours of observation content, but also need to observe the patient's wounds are healing.

2.3. Evaluation Indexes

① Wound swelling: observe whether there is swelling of the lower lip 24 h after operation. ② Superficial ulcers: 24 h, 72 h, and 5 d postoperatively after rinsing the mouth to observe whether there are white spots on the incision, around the incision, gingiva, and palate. ③ Pain: 24 h, 72 h, and 5 d postoperatively, pain intensity was evaluated by visual analog scoring (VAS) using a vernier scale with 0 and 10 at each end, with 0 and 10 representing the lowest and the highest scores, respectively. 0 to 3 was considered as mild pain, 4 to 6 was considered as moderate pain, and 7 to 10 was considered as severe pain. Bleeding: Observe the lower lip

for bleeding 24 hours after surgery. ⑤ Wound healing time: 72 h and 5 d after surgery to observe whether the incision had healed or not.

2.4. Statistical Methods

SPSS 22.0 statistical software was used to process and analyze the data. Measurement data were expressed as mean ± standard deviation ($\bar{X} \pm s$), and independent samples t-test was used for comparison between groups; count data were expressed as frequency and percentage (%), and the chi-square test was used for comparison between groups; the difference was considered to be statistically significant at P < 0.05.

3. Results

3.1. Comparison of the Incidence of Wound Swelling, Superficial Ulcers, Bleeding, and Pain Scores of Patients in the Two Groups 24 h after Surgery

24 h after surgery, the incidence of wound swelling in the patients was not statistically different between the observation group (8%) and the control group (17%) (P > 0.05); the incidence of superficial ulcers in the patients was not statistically different between the observation group (75%) and the control group (68%); the incidence of bleeding in the patients was not statistically different from that in the control group (16%). In terms of the incidence of patients' bleeding, there was a statistically significant decrease in the observation group (4%) compared with the control group (16%) (P < 0.05); in terms of the pain scores of wounds in the two groups, there was a statistically significant decrease in the observation group (4.3 ± 1.7) compared with the control group (4.8 ± 1.6) (P < 0.05). The difference was statistically significant (P < 0.05) (see Table 1).

Table 1. Comparison of postoperative swelling, superficial ulcers, healing rate, bleeding incidence, and pain scores at different times in 2 groups.

Group	Cases	Swelling		Superficial ulcers						Wound healing				24 h postoperative Bleeding		Pain score ($\bar{X} \pm s$)		
		24 h postoperative		24 h postoperative		72 h postoperative		5 d postoperative		72 h postoperative		5 d postoperative						
		Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	24 h postoperative	72 h postoperative	5 d postoperative
Observation group	75	6	8	56	75	22	30	3	4	53	71	72	96	3	4	4.3 ± 1.7	0.7 ± 1.3	0.3 ± 0.7
Control group	75	12	17	51	68	45	60	18	24	34	45	54	72	12	16	4.8 ± 1.6	1.8 ± 1.5	0.6 ± 1.2
χ^2/t		1.23		0.23		5.34		6.74		5.45		6.34		6.44		2.36	2.63	2.31
P		0.460		0.820		<0.05		<0.05		<0.05		<0.05		<0.05		<0.05	<0.05	<0.05

3.2. Comparison of the Incidence Rate of Superficial Ulcers, Healing Rate and Pain Score of the Two Groups 72 h after Surgery

72 h after surgery, the wounds of patients in the two groups were free of swelling and bleeding, and in terms of the incidence rate of superficial ulcers, there was a

significant decrease in the observation group (30%) as compared with the control group (60%), with a statistically significant difference ($P < 0.05$); in terms of the healing rate of wounds, there was a significant increase in the observation group (71%) as compared with the control group (45%), with a statistically significant difference ($P < 0.05$). In terms of wound healing rate, the observation group (71%) was significantly higher than the control group (45%), and the difference was statistically significant ($P < 0.05$); in terms of pain score of the wounds of the two groups, the observation group (0.7 ± 1.3) was significantly lower than the control group (1.8 ± 1.5), and the difference was statistically significant ($P < 0.05$). The differences were statistically significant ($P < 0.05$) (see **Table 1**).

3.3. Comparison of the Incidence Rate of Superficial Ulcers, Healing Rate and Pain Score of the Two Groups 5 d after Surgery

5 d after surgery, the incidence rate of superficial ulcers in the two groups decreased significantly in the observation group (4%) compared with that of the control group (24%); the healing rate of the patients of the two groups increased significantly in the observation group (96%) compared with that of the control group (72%); and the pain score of the two groups decreased significantly in the observation group (0.3 ± 0.7) compared with that of the control group (0.6 ± 1.2); all the above differences were statistically significant ($P < 0.05$) (see **Table 1**).

4. Discussion

Sjögren's syndrome is a chronic autoimmune disease characterized by invasion of exocrine glands, abnormal proliferation of B cells, and infiltration of tissue lymphocytes. Focal lymphocytic salivary gland inflammation is one of the diagnostic criteria for Sjögren's syndrome, and the pathology of labial glands biopsy is not only one of the diagnostic criteria, but also one of the factors influencing the prognosis of patients. Labial gland biopsy is one of the routine medical operation techniques of the rheumatology and immunology department [11]-[13]. The surgical operation is relatively simple, but the oral cavity is connected to the external environment, and the patients need to eat and drink water after the operation, so the wound is prone to ulceration, bleeding, infection, and even poor healing [14]. Therefore, postoperative wound care is particularly important. The results of this paper show that the construction of the clinical care path of labial glands biopsy can significantly reduce the bleeding of the patient's wound, reduce the patient's pain within 24 hours after the operation, and significantly reduce the incidence of superficial ulcers in the patient in 72 hours and 5 days after the operation, and promote faster healing of the wound [15]. This is due to the fact that the construction of a perioperative clinical nursing pathway for labial glands biopsy enables nursing staff to implement the nursing norms item by item according to the pathway table and, at the same time, record the patient's condition and the nursing effect, which standardizes the perioperative care of labial glands biopsy, improves the work efficiency, and makes the nursing work more planned and predictable. At the same time, the

program attaches importance to the patient's targeted education, checks whether the effect of education is implemented, and further supervises the patients to truly know, believe, and act. In addition, the construction of the clinical nursing pathway for labial gland biopsy also enables patients to understand the perioperative nursing program nursing goals and can actively participate in the nursing process, ensuring that patients receive comprehensive and systematic care before and after labial gland biopsy surgery, thus effectively reducing postoperative complications and alleviating patient suffering.

In addition, there are some limitations to this study. Firstly, this study is only a small-sample single-center study, and further clinical validation is needed. Secondly, because this study was not blinded, the investigators, participants, and data analysts may have introduced multiple biases due to knowledge of the subgroups, affecting the internal validity of the results, and a double-blind or triple-blind design should be used in future studies to minimize study bias and improve the reliability of the results.

Funding

Jingzhou City Science and Technology Program Guiding Project (Project No. 2024HD96).

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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