

# Exploration into the Clinical Value of Breast-Conserving Therapy Combined with Sentinel Lymph Node Biopsy in the Treatment of Early Breast Cancer

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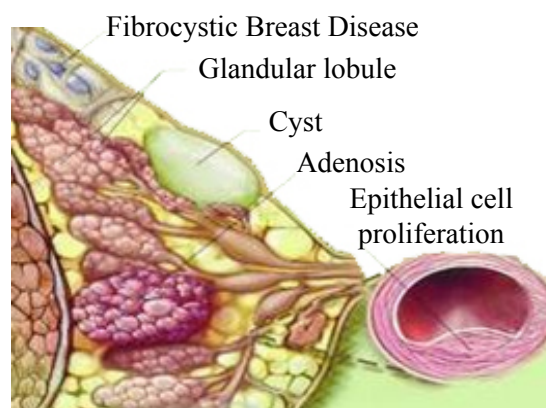
## Fang *et al.*: Breast-Conserving Therapy Combined with Sentinel Lymph Node Biopsy

To observe and analyze the application effect of breast-conserving therapy combined with sentinel lymph node biopsy in the treatment of early breast cancer. We selected 120 patients with early breast cancer who were treated in our hospital as subjects. Immediately thereafter, the patients were divided into study group and reference group, each with 60 cases. Different treatment plans were performed. The reference group was treated with conventional surgical mastectomy and axillary lymph node dissection. The study group was treated with breast-conserving therapy combined with sentinel lymph node biopsy. The treatment results of the two groups were observed and compared. By observing intraoperative operative time and intraoperative blood loss of the two groups, the results showed the two were significantly less in the study group than the reference group,  $p < 0.05$ . In comparison of the patients postoperative quality of life and breast cosmetic results, the study group was obviously superior to the reference group,  $p < 0.05$ . In addition, comparison of postoperative local recurrence rate and distant metastasis rate revealed no significant difference and there was no statistical significance,  $p > 0.05$ . Treatment of early breast cancer patients with breast-conserving therapy combined with sentinel lymph node biopsy can achieve relatively good results and can significantly improve patient's quality of life.

**Key words:** Breast-conserving therapy combined with sentinel lymph node biopsy, early breast cancer, clinical value

People's living standards are constantly improving, living habits and dietary structures are changing. Coupled with the destruction of the surrounding environment, the reduction of air quality, the acceleration of the pace of work, the impact of family factors, etc., the incidence of breast cancer shows an increasingly upward trend. Breast cancer is a malignant tumor that can have a serious impact on the normal life and work of female patients. Failure to receive timely and effective treatment can endanger the lives of patients<sup>[1-3]</sup>.

Breast cancer is a malignant tumor that occurs in the glandular epithelium of the breast (fig. 1). The 99 % of breast cancer occurs in the female population. Breast cancer cells lose the characteristics of normal cells. The cells have loose connections and are easy to fall off<sup>[4]</sup>.



**Fig. 1: Breast cancer**

Once cancer cells (fig. 2) fall off, free cancer cells can spread throughout the body along with blood or lymph fluid, forming metastases that endangers life. Breast

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cancer has become a common tumor that threatens the physical and mental health of women. It has become a major public health problem in current society. This study is to observe and analyze the clinical application value of breast-conserving therapy combined with sentinel lymph node biopsy in the treatment of early breast cancer.

## MATERIALS AND METHODS

### General Information:

We studied 120 patients with early breast cancer who were treated in our hospital. All patients were diagnosed with breast cancer by preoperative puncture or intraoperative rapid pathology. The time range was from June 2014 to December 2017. The patients inclusion criteria meet the following aspects: breast tumors are 3 cm or less in diameter, single tumors, margins are more than 2 cm from the areola margin and the type of cases are invasive breast cancer (fig. 3), At the same time, the results of clinical examination showed that there was no regional lymph node and distant organ metastasis and the patient had breast conserving appeal. Exclusion criteria were: ipsilateral axillary examination

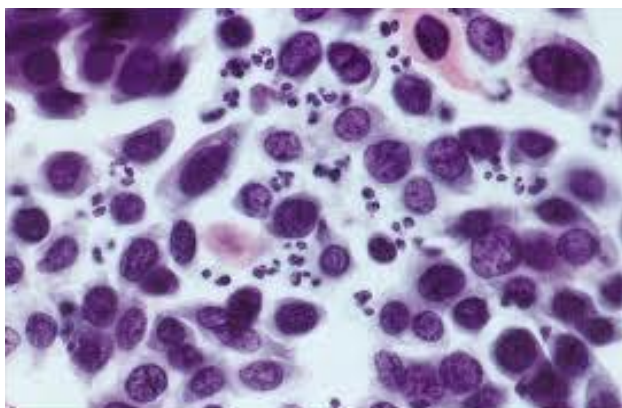


Fig. 2: Cancer cells



Fig. 3: Invasive breast cancer

and imaging findings revealed enlarged lymph nodes, mental disorders and unwillingness to join the study.

The patients were divided into study group and reference group, each with 60 cases. Patients in the study group ranged in age from 32 to 58 y and average (45.7±3.2) y; patients in the reference group ranged in age from 34 to 56 y and average (46.8±3.5) y. Comparison of the patients relevant data showed comparability,  $p>0.05$ .

### Methods:

**Treatment methods for the reference group:** The reference group was implemented with a modified radical surgery plan with musculus pectoralis major and minor retained, i.e., conventional total mastectomy plus ipsilateral axillary lymph node dissection. Strict dissection was performed for all lymph nodes from the latissimus dorsi front edge to the medial border of musculus pectoralis minor.

**Treatment methods for the study group:** After anesthesia was performed, 2 ml of methylene blue injection (1 %) was injected into the subcutaneous tissue of the affected areola area. After 20 min, a radial incision or a curved incision was performed to remove the tumor in accordance with the patient's specific tumor site, the surrounding 2 cm normal glandular tissue was resected and the incisional margin was subjected to frozen section pathological examination. If the result of the examination is negative, breast-conserving surgery is implemented. If the result is positive on both occasions, a full mastectomy is performed. Sentinel lymph node biopsy is performed by incisions in the upper part of the plica of the breast and axilla, routine incision of the skin and subcutaneous tissue and flap separation. The first blue-stained lymph node, the sentinel lymph node, into which the lymphatic vessel entered, was found. The enlarged hard-lymph nodes found in the palpation of axilla area were sent for rapid pathological examination. If the result is negative, close the incision. If the result is positive, continue to perform axillary lymph node dissection.

### Observation indicators:

We observed and counted the patient's operative time, intraoperative blood loss, postoperative quality of life, postoperative local recurrence rate and distant metastasis rate and breast cosmetic results.

### Statistical methods:

The statistical analysis software used was SPSS 21.0, where the measurement data were expressed as

mean±average ( $\bar{x}\pm s$ ) and t was used for comparison between groups. The count data was expressed using natural numbers (n) and percentages (%) and  $\chi^2$  was used for comparison between groups. When  $p < 0.05$ , it is of statistical value.

## RESULTS AND DISCUSSION

As shown in Table 1 below, by observing and comparing the operative time and intraoperative blood loss between the study group and the reference group, the results show that the study group has shorter operative time and less blood loss than the reference group,  $p < 0.05$ , with statistical significance.

As shown in Table 2 below, by observing and comparing the quality of life of patients after treatment, the results show that the scoring is significantly higher in the study group than the reference group in all aspects,  $p < 0.05$ , statistically significant.

As shown in Table 3 below, 1 y follow-up is performed after surgery. After observation of local recurrence and metastasis, the results show no significant differences

**TABLE 1: COMPARISON OF OPERATIVE TIME AND INTRAOPERATIVE BLOOD LOSS BETWEEN THE TWO GROUPS ( $\bar{x}\pm s$ )**

Group	Case number	Operative time (min)	Intraoperative blood loss (ml)
Study group	60	60.23±13.50	52.09±11.28
Reference group	60	92.08±16.74	143.68±10.29
t		10.28	11.40
p		<0.05	<0.05

between the groups,  $p > 0.05$  and there was no statistical significance.

As shown in Table 4 below, 1 y after surgery, evaluation is made according to joint center for radiation therapy (JCRT) criteria. Compared with the reference group, the study group has better breast cosmetic results,  $p < 0.05$ , statistically significant.

Under breast cancer, breast gland epithelial cells have undergone gene mutation under the action of a variety of carcinogenic factors, resulting in uncontrolled cell proliferation. The metastasis in vital organs such as lung metastases, brain metastases, bone metastases, etc. will directly threaten human life. Therefore, breast cancer is a malignant tumor that seriously jeopardizes human life<sup>[4,5]</sup>. With the continuous improvement of medical technology, breast-conserving surgery has achieved rapid development. It has the advantages of fewer traumas, promoted postoperative rehabilitation and retention of breast. It has important applications in the treatment of breast cancer patients and effectively reduces the patient's psychological stress and improves their quality of life<sup>[6,7]</sup>. During the application of such surgical treatment, one problem that needs attention is that it has a significant indication and the best surgical technique should be selected by strictly following the patient's actual condition. Sentinel lymph node (fig. 4) is the first station in the drainage pathway of breast cancer to axillary lymph node. Sentinel lymph node biopsy is a measure that can highly detect axillary lymph node metastasis and has been widely used.

**TABLE 2: COMPARISON OF QUALITY OF LIFE SCORES BETWEEN THE TWO GROUPS ( $\bar{x}\pm s$ )**

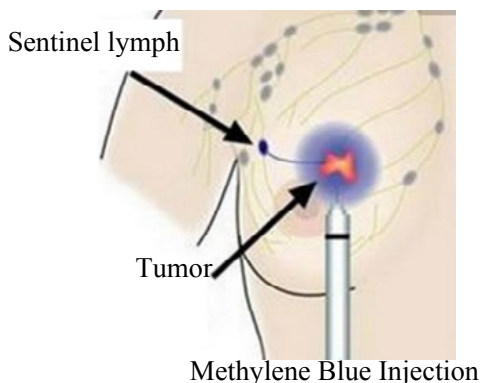
Group	Time	Social function	Body function	Mental function	Vital function
Study group (n=60)	Before operation	13.0±0.53	13.2±0.63	14.6±0.69	14.0±0.52
	After operation	23.9±0.68	23.4±0.75	20.6±0.73	21.6±0.78
Reference group (n=60)	Before operation	13.2±0.40	13.7±0.64	14.2±0.75	14.1±0.82
	After operation	16.7±0.52	16.9±0.53	17.6±0.48	18.5±0.91

**TABLE 3: LOCAL RECURRENCE AND METASTASIS IN THE TWO GROUPS [n (%)]**

Group	Case number	Recurrence rate	Metastasis rate
Study group	60	2 (3.33)	2 (3.33)
Reference group	60	3 (5.00)	2 (3.33)
$\chi^2$		1.20	0.00
p		>0.05	>0.05

**TABLE 4: BREAST COSMETIC EFFECT OF THE TWO GROUPS [n (%)]**

Group	Case number	Fine	Ordinary	Poor	Overall satisfaction
Study group	60	30	26	4	56 (93.33)
Reference group	60	15	15	30	30 (50.00)
$\chi^2$					14.02
p					0.05



**Fig. 4: Sentinel lymph node**

Sentinel lymph node biopsy is different from the traditional form of axillary lymph node dissection, which can prevent the damage of the vascular nerves and lymphatics of the axillary fossa and avoid postoperative upper limb edema, dysfunction and sensory abnormalities of the skin inside the forearm, thereby improving safety and reliability of the patient's treatment. The application of breast-conserving therapy combined with sentinel lymph node biopsy in early breast cancer patients can improve the efficacy of breast cancer and help patients achieve a higher quality of life. It is currently the preferred surgical treatment for early breast cancer in Western countries<sup>[8-11]</sup>. The results of this study show that, by observing and comparing operative time and intraoperative blood loss between the study group and the reference group, the study group had shorter operative time and less intraoperative blood loss,  $p < 0.05$ , with statistical significance. In comparison of quality of life of the patients after treatment, the results showed that scoring of study group was significantly superior to the reference group in all aspects,  $p < 0.05$ , statistically significant. In evaluation according to JCRT criteria, the breast cosmetic results were better in the study group than the reference group,  $p < 0.05$ , statistically significant. In postoperative 1 y follow up, after observation of the patients local recurrence and metastasis, the results showed no significant difference between the two groups ( $p > 0.05$ ), not statistically significant. It has demonstrated that the application of breast-conserving therapy combined with sentinel lymph node biopsy can achieve relatively satisfactory results in the treatment of early breast cancer.

To sum up, application of breast-conserving therapy combined with sentinel lymph node biopsy can achieve relatively good results in the treatment of early breast cancer patients. Featuring short operation time, small trauma, it can significantly improve patient's quality

of life and achieve good cosmetic results. Therefore, it enjoys huge application value.

### Conflicts of Interest:

The authors declared no conflict of interest.

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**This article was originally published in a special issue, "Evolutionary Strategies in Biomedical Research and Pharmaceutical Sciences" Indian J Pharm Sci 2021;83(3) Spl issue;227-230**