Analysis of the use of minimally invasive rotary mastectomy in the treatment of multiple small nodules in the breast

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Abstract: Objective: To observe the effectiveness of different surgical excisional set-ups for the treatment of multiple small breast nodules disease. Methods: 60 patients who came to our department from 2020.10 to 2023.1 were divided into two groups A and B, 30 patients each, and were treated with conventional and minimally invasive mastectomy respectively, and the treatment status was compared between the groups. Results: Compared to group A, group B had better surgical indicators and 93.3% higher post-operative satisfaction than group A with 73.3%, forming a significant difference ($p < 0.05$). Conclusion: Minimally invasive rotary mastectomy is a minimally invasive technique for the treatment of breast nodule disease ear, which has the characteristics of short incision, less intraoperative bleeding and short operation time, which can increase the subjective satisfaction of patients and is worth promoting.

Keywords: Breast Nodules; Minimally Invasive Rotational Mastectomy; Effect Observation

Introduction

Breast nodules are a common disease among modern women, generally benign lesions, with breast swelling and pain being the typical symptoms of patients. Traditional local excision results in a large scar on the surface of the breast, making it difficult to meet the needs of patients in terms of aesthetic breast appearance [1]. In recent years, the minimally invasive concept has led to the rapid development and advancement of minimally invasive techniques, and minimally invasive rotary mastectomy is a classic type of minimally invasive technique.

1. Data and methods

1.1 General data

Sixty patients with multiple small breast nodules who were diagnosed, met the indications for surgery and voluntarily cooperated to complete the study were selected as study subjects, admitted in the time range of 2020.10 to 2023.1, and divided equally into 2 groups, with each group as follows.

Group A: minimum and maximum age 24 and 56 years, disease duration range 6 to 18 months.

Group B: minimum and maximum age 22 and 59 years, disease duration ranging from 7 to 20 months.

Patients in the above baseline data were compared between groups ($P > 0.05$) and were comparable.

1.2 Methods

Group A underwent conventional surgical treatment. Patients were placed in the supine position, under local anesthesia with 0.5% lidocaine, and an incision was made at an appropriate location according to the location of the breast nodule, and the nodule was excised individually according to its clarity, including those with a high degree of clarity, along the envelope

as a whole; for masses with an obscure envelope, they were excised together with the normal glandular tissue.

Group B was treated with a minimally invasive mastectomy. Minimally invasive mastectomy system with 11G rotary cutter and high frequency probe. The patient was placed in a supine position, under local anaesthesia, with gentian violet on the body surface to mark the extent of the mass to be removed and ultrasound instruments to assist in repositioning, and a long needle injection of local anaesthetic solution to tilt the rotary cutter to the appropriate angle for insertion deep into the lesion. After repeatedly confirming the alignment of the cutting notch with the lesion, the rotary incision is performed. After completion of the spinotomy, ultrasound is used to determine if any local tumour remains. The incision was routinely pressurized and sterile gauze was applied, and postoperative anti-infection treatment was routinely administered.

1.3 Observation indicators

(1) Surgical indicators: intraoperative blood loss, surgical time, scar and respective length of the incision.

(2) Post-operative satisfaction: questionnaire survey, very satisfied, more satisfied, unsatisfied.

1.4 Statistical processing

All data were entered into an Excel.2007 table and spss26.0 software was processed. It was calculated that if $P < 0.05$, it indicated a significant difference.

2. Results

2.1 Surgery-related indicators

The scar and incision length of patients in group B were all < group A, the intraoperative bleeding was less than group A, and the intraoperative operation took less time than group A ($P < 0.05$), Table 1.

Table 1 Comparison of surgery-related indicators between groups of patients $(\bar{x} \pm s)$

Group（n）	Incision length（mm）	Length of scar（mm）	Intraoperative blood loss（ml）	Surgery time（min）
Group B（30）	5.9±2.3	3.1±0.7	6.2±2.5	18.8±2.6
Group A（30）	17.1±3.6	11.1±2.9	17.6±4.5	34.9±3.7

2.2 Degree of satisfaction

Satisfaction in group B vs group A was 93.3% vs 73.3%, and group B was higher than group A ($P <0.05$), Table 2.

Table 2 Comparison of patient satisfaction between the groups

Group（n）	Very satisfied	More Satisfied	Not satisfied	Satisfaction（%）
Group B（30）	24	4	2	28（93.3）
Group A（30）	16	6	8	22（73.3）

3. Discussion

In recent years, the overall health care awareness of the Chinese population has increased, the level of high-frequency ultrasound technology has continued to improve and gradually achieved widespread use, and many women are found to have breast nodules during physical examination, and they are usually multiple and hidden lesions that are not palpable lumps [2]. For patients with multiple breast nodules and small, occult lesions, traditional surgery is often performed through multiple incisions or incisions, which inevitably causes great trauma to the patient, poor wound aesthetics, often delayed healing and

difficulty in locating and excising small, deep nodules with a high degree of accuracy, resulting in significant mental stress for both patient and surgeon. The resulting mental stress has a significant impact on both the patient and the surgeon.

In this study, the scar length, incision length, intraoperative blood loss and operative time were (3.1±0.7) mm, (5.9±2.3) mm, (6.2±2.5) ml and (18.8±2.6) min in group B compared to (11.1±2.9) mm, (17.1±3.6) mm, (17.6±4.5) ml and (34.9±3.7) min in group A. (34.9±3.7) min, a significant difference. As a classical minimally invasive technique, minimally invasive mastectomy has many advantages such as simplicity of operation, small scar area and minimal trauma. It uses a vacuum-assisted breast biopsy system to assist in the treatment, specifically for continuous cutting of the mass, with the possibility of adjusting the size of the blade slot and the angle of rotation to suit realistic needs, and automatically storing the pathological specimen in an airtight medical specimen box [3]. Pre-operative qualitative assessment of breast nodules is essential and minimally invasive rotary mastectomy is mainly used to treat patients whose examination is considered to be a benign lesion, while it is not recommended for those with suspected preoperative breast union or breast cancer.

In the full text, the treatment of patients with breast nodules with minimally invasive rotational mastectomy is worth promoting because of the short incision, low intraoperative bleeding, short operative time and higher subjective satisfaction.

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