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Clinical curative effect of video-assisted breast surgery by single incision through the anterior axillary line for removing mammary fibroma.

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Abstract

Objective: This study aims to investigate the clinical curative effect of Video-Assisted Breast Surgery (VABS) by single incision through the anterior axillary line for removing mammary fibroma.
Methods: Sixty-eight mammary fibroma cases treated in the hospital from November 2013 to June 2015 were selected and randomly divided into control and observation groups (34 cases per group). The control group was subjected to conventional ring areola incision, and the observation group was subjected to VABS by single incision through the anterior axillary line. Intraoperative blood loss, incision length, postoperative complication, and cosmetic effects after the operation were determined and compared between the two groups.
Results: The observation group showed shorter incision length and hospital stay and less intraoperative blood losses than those in the control group ($p<0.05$). Operation duration was not significantly different between the two groups ($p>0.05$). The complication rates in the observation and control groups were 5.88% and 23.33%, respectively ($p<0.05$). The Vancouver scar scale score in the observation group was lower than that in the control group. Furthermore, breast appearance satisfaction score in the observation group was significantly higher than that in the control group ($p<0.05$).
Conclusion: Patients with mammary fibroma who underwent VABS received improved clinical curative effects in terms of few intraoperative injuries, fast recovery after the surgery, low complication rate, non-restricted lesion depth limit, and satisfactory cosmetic effect. Overall, this technique improved the prognosis of the patients.

Keywords: Axillary, Video-assisted breast surgery, Mammary fibroma.

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Introduction

Mammary fibroma is a common benign tumor affecting young women and can be treated through surgery. Video-Assisted Breast Surgery (VABS) is a minimally invasive technique used to excise benign breast tumor for treatment of breast cancer [1-3]. In the present study, 68 mammary fibroma cases treated in our hospital from November 2013 to June 2015 were selected. The effect and safety of single-incision VABS through the anterior axillary line were analysed.

Materials and Methods

Patients

A total of 68 patients with mammary fibroma treated in our hospital from November 2013 to June 2015 were selected and randomly divided into control and observation groups (34 cases per group). The patients underwent pathological examination and were diagnosed with mammary fibroma and benign single lesions. The observation group comprised patients aged 25-36 years (average age, 30.47 ± 5.66) and had fibroma of 1.8-3.7 cm focal diameter and 2.67 ± 0.76 cm average diameter. The control group included patients aged 24-36 years (average age, 30.13 ± 6.13) and had fibroma of 1.8-3.9 cm focal diameter and 2.73-0.81 cm average diameter. General data, such as lesion size, were not significantly different between the two groups ($p>0.05$).

Methods

Patients in the two groups underwent computed tomography preoperatively to check the location and intraoperative incision of the tumor. In this process, patients were placed in the supine position, supported with soft mat at high position.

Patients in the control group were injected with lidocaine and adrenal anaesthesia at the subcutaneous tissue. Before the operation, the areas for intraoperative incision, tumor location, and ring areola incision were marked. Mammary fibroma was then removed by an electric knife. When the operation was

completed, an indwelling drainage tube (1 mm) was placed in the incision to allow low pressure suction. The incision was closed with a compression bandage. After the operation, the incision was dealt with routine postoperative antibiotic treatment, with liquid drainage (<5 ml tube drawing) for 24 hours.

Patients in the observation group underwent tracheal intubation during general anaesthesia. Breasts at the lateral side of the patients were cut with 15-30 mm incisions, the front line of axillary in the cavity mirror, and straight down along the surface of breast while isolated operating clearance, until more than lesions 10-15 mm. Separate lesions surrounding tissues, maintain adopts special retractor, completely expose lesions, when using ultrasonic knife separation or electric knife edge and excise fibroma, haemostatic, quickly clean up gradually the wound and sealed incision. Postoperative treatment was similar between the observation and control groups.

Efficacy evaluation

Observation indicators: The main indices evaluated are as follows: incision length, incision length to diameter, remote distance of lesions to the incisions, intraoperative blood loss, operative time, length of hospital stay, and postoperative complications.

Cosmetic effect evaluation: The VSS quantitative score (ranging from 0 to 14 points) was adopted for scoring incision scars in the two groups; 0 indicates a completely normal skin form, and high score reflects worse scar appearance. At the same time, our hospital designed a questionnaire for evaluating the breast appearance satisfaction of patients in the two groups with postoperative incision healing; the score ranges from 0 to 100 points, and high score indicates high satisfaction.

Statistical methods

Data were analysed using SPSS20.0 statistical software. Measurement data were tested by t-test, and enumeration data were assessed by chi-square test. The results were considered statistically significant at $p<0.05$.

Results

Comparison of postoperative observations

Incision length and diameter, length of hospital stay, and intraoperative blood loss were significantly lower in the observation group than those in the control group. The distance of the incisions to the lesions was significantly higher in the observation group than that in the control group. The differences between the two groups were statistically significant at $p<0.05$ (Table 1).

Monitoring of postoperative complications

The complication rate in the observation group (5.88%) was significantly lower than that in the control group (23.33%). The difference between the two groups ($p<0.05$) was statistically significant (Table 2).

Comparison of cosmetic effect

The VSS scar score in the observation group was significantly lower than that in the control group. Furthermore, the breast appearance satisfaction score in the observation group was significantly higher than that in the control group. The differences between the two groups were statistically significant at $p<0.05$ (Table 3).

Table 1. *Comparison of clinical efficacy between the two groups (n, %).*

Groups	Incision Length (cm)	Remote distance to lesions of the incision (cm)	Blood Loss (ml)	Operating time (min)	Length of stay (d)
OG	2.56 ± 0.34	8.36 ± 1.74	4.65 ± 1.03	35.14 ± 3.14	3.24 ± 0.33
CG	3.42 ± 0.43	1.67 ± 0.97	8.13 ± 0.46	36.45 ± 2.63	4.67 ± 0.49
t	12.145	13.215	12.148	2.126	10.341
P	0.034	0.019	0.023	0.623	0.032

Table 2. *Incidence rate of postoperative complications in the two groups.*

Groups	n	Subcutaneous Hematoma	Subcutaneous Hydrops	Ecchymosis	Infection of incisional wound	Infection inflammation	Complication (%)
OG	34	1	0	0	0	1	5.88 (2/34)
CG	34	2	1	1	1	2	23.53 (8/34)

Table 3. *Comparison of cosmetic effect between the two groups (n, %).*

Groups	VSS	Appearance satisfaction score
OG	2.36 ± 1.26	93.15 ± 4.23
CG	6.26 ± 1.19	81.14 ± 5.69
t	16.034	12.145

P	0.013	0.014

Discussion

VABS by single incision through the anterior axillary line has been gradually used and supported by patients and physicians. However, the difference in the curative effects of VABS and traditional treatment remains unclear. Thus, this study summarized and compared both techniques in terms of incision length and diameter, length of hospital stay, and intraoperative blood loss [4,5]. The results revealed that patients in the observation group showed improved conditions than those in the control group; the former also manifested less surgical trauma, less bleeding, and faster recovery.

The remote distance incision to lesions in the observation group reached (8.36 ± 1.74) cm, which was significantly higher than that in the control group. The distance satisfies the demand for lateral quadrant breast lesion resection, thereby allowing resection operation of tumors in different parts of the body [6]. Reducing surgical scar on the breast surface and maintaining the breast shape are important for female patients. Breast surgery on alar lesions secluded small incisions, which heal easily and do not form scar hyperplasia; in addition, tissue injuries in patients are small, and breast appearance is not affected [7].

In this study, the VSS scar score in the observation group was significantly lower than that in the control group. The breast appearance satisfaction score in the observation group was significantly higher than that in the control group. These results are consistent with related literature [8]. Thus, VABS is superior to conventional surgery and suitable for patients in terms of less post-operation effects and safety. Moreover, the complication rate of the surgery (5.88%) was significantly lower than that in the control group (23.33%), confirming the safety of the operation [9].

Compared with traditional large incision surgery, single-incision VABS requires physician with advanced skills and is relatively more complicated but presents several advantages. First, the limitation of the location of the tumor is less. Breast surface or breast after clearance can be separable, by using cavity mirrors to detect the tumor. Traditional surgical treatment is relatively ideal for tumors on the surface or in shallow positions, while operation on deep tumors can be quite difficult. Second, the operating space of VABS is large and its operation field is clear. Smaller cavity mirror can separate the organization posterior approach and use organization ductility to expand operative field and operating space. The cavity mirror can enlarge parts to show clear lesions and organization; in traditional surgeries, operating space and field are affected by the size of incision, thus limitation is more obvious. Third, the traditional surgery may cause intraoperative bleeding which can lead an unclear operation field and poor haemostatic effect; VABS however, has clear operation field and helps in reducing bleeding, postoperative bleeding, and total blood loss. Fourth, in VABS, the tumor can be directly pulled out after detecting it, with no damage to the operating clearance; in conventional surgery, the tumor needs to be free while pulling to the incision position before resection, thus the damage to the operating clearance is larger [10]. Fifth, in terms of cosmetic effects, single-incision VABS has obvious advantages: small and concealable incisions causes almost no effect on breast appearance and ensures patient satisfaction. Conventional surgery, however, leaves a wide scar, altering breast appearance. In addition, this study found that VABS can be performed in a short duration. From previous literature reports, operation time was longer. However, in this study, the duration of the traditional operation and VABS were almost the same, which shows that the operation technology has significantly increased.

Conclusion

Patients with mammary fibroma who underwent VABS operation received improved clinical curative effects, with intraoperative mild trauma, rapid recovery, and low risk of complications, non-restricted lesion depth, and good cosmetic effects. Overall, VABS improved the prognosis of the patients.

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