European Journal of Clinical Pharmacy
Website: https://farmclin.es/

Article

Surgical Excision Versus Conservative Management in Fibroadenoma in a tribal populationin a Tertiary Care Hospital

Article History:

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Received: 25/06/25
Accepted: 28/07/25
Published: 18/08/25

Abstract: **Background:** Fibroadenomas are benign breast tumors that commonly affect young women. The management of fibroadenomas remains controversial, with surgical excision traditionally being the gold standard. **Objective:** To compare the recurrence rates, cosmetic outcomes, patient satisfaction, complications, and overall effectiveness of surgical excision versus conservative management in patients with fibroadenomas. **Methods:** This is a prospective, comparative study conducted at tertiary care hospital in western Maharashtra from September 2023-march 2025 A total of 155 patients diagnosed with fibroadenomas were enrolled and randomly assigned to either the surgical excision group (n = 77) or the conservative management group (n = 78). Patients were followed for 12 months, during which recurrence rates, complications, cosmetic outcomes, and patient satisfaction were assessed. **Results:** The recurrence rate was significantly lower in the surgical excision group (3.9%) compared to the conservative management group (7.7%) (p = 0.01). Cosmetic outcomes were significantly better in the conservative management group, with 91.0% of patients satisfied with the appearance of their breast, compared to 75.3% in the surgical excision group (p = 0.02). Patient satisfaction was also higher in the conservative management group (81.2% vs. 68.8%, p = 0.04). Complications were more frequent in the surgical excision group (15.6% vs. 5.1%, p = 0.02), with common issues including infection, hematoma, and scarring. **Conclusion:** Both surgical excision and conservative management are effective for the treatment of fibroadenomas, but they offer different benefits. Surgical excision provides a lower recurrence rate but is associated with higher complication rates and less favorable cosmetic outcomes.

Keywords Fibroadenoma, Patients, Tumor, Incidence, Age, Risk factors, Outcomes.

Introduction

Fibroadenoma is a benign, non-cancerous tumor that arises from the mammary gland, typically presenting as a firm, mobile mass within the breast tissue [1]. The histological aspect of these tumors differs since they contain both glandular and stromal components. Women aged 15-35 years are most likely to be affected by fibroadenomas, and this is more prevalent below the age of 30 years [2]. Many of them will be asymptomatic, and many are found incidentally during routine breast examination or through radiographic imaging procedures, e.g., mammography or ultrasound. Nevertheless, a few patients can show their lumps, which can be palpated, or they can have tenderness of the breasts that will require further clinical research [3]. Although in most cases fibroadenomas are benign, their manifestations may stimulate the development of serious psychological disorders in patients, particularly because of the threat of cancer [4]. This issue usually makes patrons want to remove the operation surgically, even though it is not cancerous. Most women would become anxious and fearful at the occurrence of a lump on the breast, whether benign or malignant. It shows the necessity of providing clear indications of how to manage fibroadenomas in order to relieve both psychologically and physically the patients [5].

Treatment of fibroadenoma has changed remarkably

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over the past years, and the classical procedure has been surgical removal. The merit of surgery is the provision of a certain diagnosis and complete excision of the lesion so that no postoperative tissue is left behind [6]. This is especially preferred where the fibroadenoma is bigger or symptomatic, or imaging features may show some atypical characteristics that may be indicative of malignancy. In surgical excision, it is either lumpectomy or simple excision will be done to remove the whole of the tumor without causing a lot of harm to the tissues around it. Although a viable means, surgical excision has its risks, which include scarring, infection, the development of a hematoma, and complications of anesthesia [7]. Also, the cosmetology is not always ideal, especially in large fibroadenomas or those found in areas that are considered cosmetically sensitive [8]. Nevertheless, conservative treatment, meaning observation at specific periods without initial surgery, has become more acceptable to the medical society. This method is usually advised on small, benign fibroadenomas that are asymptomatic, especially in fibroadenomas that are less than 3 cm in imaging studies and do not depict any alarming characteristics [9]. In these situations, the lesion is followed by periodic follow-ups done by conducting clinical breast exams, ultrasound examination, among others, which may also need a biopsy in case any alteration in the tumor appearance arises [10]. Younger women prefer conservative management so that they do not experience complications and fail to correct their cosmetic deformities that could occur through surgery. Also, most fibroadenomas, particularly those identified in younger females, are found to have regressed or never progressed after years, and this allows them not to go under the scalpel in some cases [11]. Commonly employed interventions include pharmacological therapies such as non-steroidal anti-inflammatory drugs (NSAIDs), hormonal therapies (e.g., oral contraceptives and selective estrogen receptor modulators), and complementary and alternative medicines (CAMs) such as evening primrose oil (EPO) and vitamin E [12].

The non-invasive nature is one of the major benefits of conservative management as it does not involve any risks related to the surgical procedures, such as infection and scarring. Patients will also enjoy the fact that there is no risk of psychological discomfort associated with the operation itself and its consequences [13]. Moreover, the process of observation could be more affordable, particularly in healthcare facilities where surgical interventions are costly. Nevertheless, this approach is associated with the risk of missing changes in the fibroadenoma, especially when it increases or has unusual features, thus, causing delayed malignancy recognition in the uncommon occurrences in which a fibroadenoma may turn out to be cancerous or pre-cancerous [14]. With these considerations in mind, one wonders what management strategy delivers the most desirable results not only in regard to patient satisfaction but also in clinical efficacy [15]. Comparison studies between surgical excision and conservative management have yielded inconsistent findings and indicated that conservative management might have no difference in the long-term outcomes of small asymptomatic lesions when compared to surgical excision in regard to recurrence [16].

Objective

To compare the recurrence rates, cosmetic outcomes, patient satisfaction, complications, and overall effectiveness of surgical excision versus conservative management in patients with fibroadenomas.

Methodology

This is a prospective, comparative study conducted a tertiary care hospital from September 2023- March 2025 . A total of 155 patients with a confirmed diagnosis of fibroadenoma were enrolled in the study. Patients were randomly assigned to one of two treatment groups: surgical excision (n = 77) and conservative management (n = 78). The sample size was determined based on an a priori power calculation to ensure statistical significance in comparing the outcomes between the two groups.

Inclusion Criteria:

- Female patients aged 18 to 45 years.
- Confirmed diagnosis of fibroadenoma based on clinical examination, ultrasound, and, if necessary, fine-needle aspiration (FNA) or core biopsy.
- Fibroadenoma size of less than 5 cm in diameter.
- No previous history of breast cancer or other significant breast diseases.

Exclusion Criteria:

- Patients with malignant breast lesions or those with suspicious findings on imaging.
- Patients who had undergone previous breast surgery or biopsy for fibroadenoma.
- Pregnant or lactating women.
- Patients with a history of systemic conditions that could interfere with healing or follow-up, such as uncontrolled diabetes or immunosuppressive therapy.

Data collection

After meeting the inclusion criteria, patients were assigned to one of two groups: the surgical excision group or the conservative management group. Patients in the surgical excision group underwent a local excision of the fibroadenoma. The procedure was performed under either general or local anesthesia, depending on the location and size of the tumor. The tumor was excised in total with clear margins to ensure complete removal.Subcuticular closure with nylon was done for all patients . After surgery, the patients were also followed up on to check any complications such as infection, hematoma or scarring. Follow-ups would occur with the first being at 1, 3, 6, and 12 months to evaluate recovery, relapse, and cosmesis. In the conservative management group, the patients were recommended to have regular examination using clinical breast exam and **capsule**

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Vitamin E and evening Primrose oil for 21-45 days depending upon the size and ultrasound imaging done after every 3 months during the first year and every 6 months subsequently. The conservative hospital treatment consisted of no direct action unless the size of the fibroadenoma enlarged, new symptoms appeared, or a change in the imaging characteristics can make the condition require additional investigation. This study was carried out based on the data obtained by clinical records, follow-up visits, and patient interview. Important data gathered involved the demographic (e.g., age, marital status, family history of breast cancer) and clinical (e.g., size, location, and number of fibroadenoma) data or information and outcome data generated by complications, recurrence, and/or patient satisfaction. The effectiveness of cosmetic was determined by Breast Cancer Treatment Outcome Scale (BCTOS) in 6 months after treatment. Recurrence was taken to mean a recurrence at the excision site or in the contralateral breast. Patient-reported outcome measure (PROM) that was validated to report both physical and mental well-being was used to gauge patient satisfaction.

Follow-Up and Outcome Assessment:
All patients were followed up for a minimum of 6 months. In the surgical excision group, the follow-up visits included assessments of surgical site complications (e.g., infection, scarring, hematoma) and evaluation for recurrence. Cosmetic outcomes were also documented. In the conservative management group, follow-up visits focused on monitoring for any changes in the size of the fibroadenoma, the emergence of symptoms, or imaging changes that might indicate the need for surgical intervention.

Statistical Analysis:
Data were analyzed using SPSS v 26.0. Descriptive statistics were used to summarize the baseline demographic and clinical characteristics of both groups. For group comparisons, categorical variables were analyzed using the chi-square test, and continuous variables were compared using independent t-tests. A p-value of less than 0.05 was considered statistically significant.

Results

Data were collected from 155 patients, with mean ages of 32.5 ± 6.2 years for the surgical excision group and 33.1 ± 6.4 years for the conservative management group. The majority of patients in both groups were nulliparous (60.9% in the surgical excision group and 62.8% in the conservative management group), and the proportion of patients with a family history of breast cancer was similar between the two groups (14.3% in the surgical excision group and 16.7% in the conservative management group). Fibroadenomas in both groups were predominantly located in the upper outer quadrant, with 54.5% in the surgical excision group and 50.0% in the conservative management group. The mean size of the fibroadenomas was similar between the groups, with 2.5 ± 1.1 cm in the surgical excision group and 2.3 ± 0.9 cm in the conservative management group.

Table 1: Demographic and Baseline Characteristics of Study Participants (n = 155)

Characteristic	**Surgical Excision Group (n = 77)**	**Conservative Management Group (n = 78)**
Age (Mean ± SD)	32.5 ± 6.2	33.1 ± 6.4
Marital Status (n, %)		
- Nulliparous	47 (60.9%)	49 (62.8%)
- Parous	30 (39.1%)	29 (37.2%)
Family History of Breast Cancer (n, %)		
- Yes	11 (14.3%)	13 (16.7%)
- No	66 (85.7%)	65 (83.3%)
Fibroadenoma Size (Mean ± SD, cm)	2.5 ± 1.1	2.3 ± 0.9
Location of Fibroadenoma (n, %)		
- Upper Outer Quadrant	42 (54.5%)	39 (50.0%)
- Upper Inner Quadrant	18 (23.4%)	20 (25.6%)
- Lower Outer Quadrant	12 (15.6%)	14 (17.9%)
- Lower Inner Quadrant	5 (6.5%)	5 (6.4%)
Number of Fibroadenomas (n, %)		
- Single	55 (71.4%)	57 (73.1%)
- Multiple	22 (28.6%)	21 (26.9%)
Mean Size of Fibroadenoma (cm)	2.5 ± 1.1	2.3 ± 0.9

At 6 months, recurrence rates were significantly lower in the surgical excision group compared to the conservative management group. The surgical excision group had a recurrence rate of 3.9%, whereas the conservative management group had a recurrence rate of 7.7%, with a p-value of 0.01, indicating a statistically significant difference.

Table 2: Recurrence Rates at 06 Months (n = 155)

Group	**Number of Recurrences (n, %)**	**p-value**

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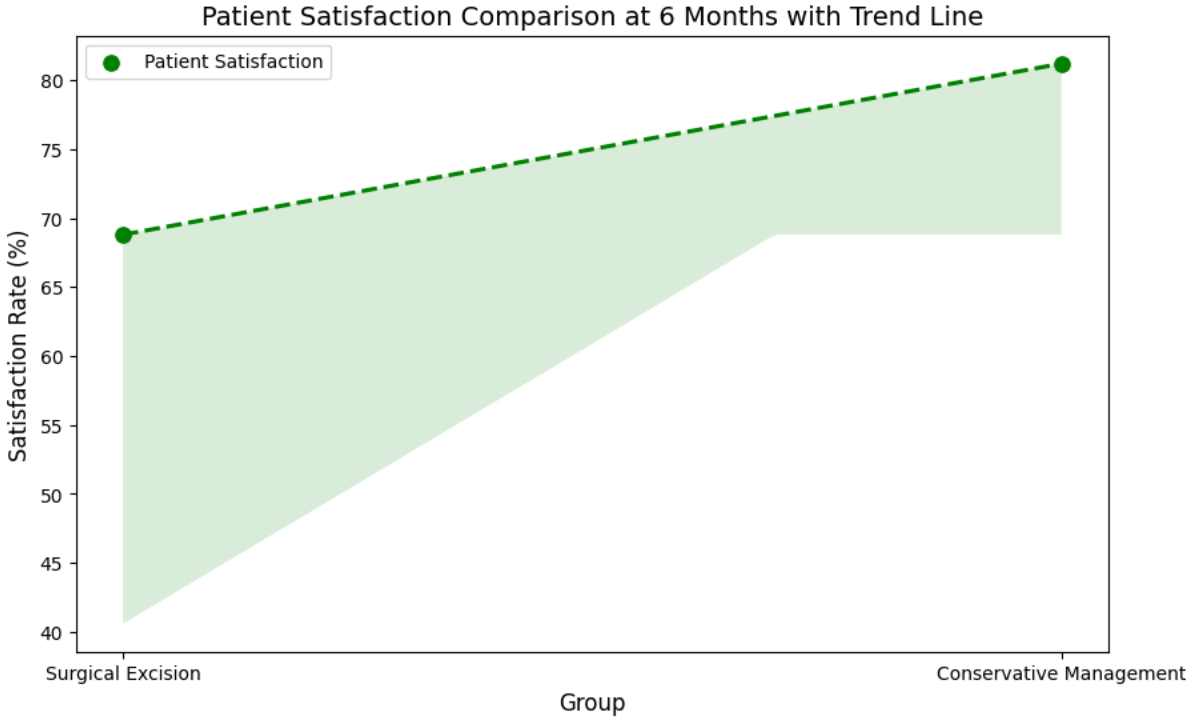
Surgical Excision Group (n = 77)	3 (3.9%)	0.01
Conservative Management Group (n = 78)	6 (7.7%)	

Cosmetic outcomes were significantly better in the conservative management group, with 91.0% of patients satisfied with the cosmetic appearance of their breast, compared to 75.3% in the surgical excision group (p = 0.02). The average BCTOS score was higher in the conservative management group (92 ± 5.4) compared to the surgical excision group (88 ± 7.2). Patient satisfaction was also higher in the conservative management group, with 81.2% of patients highly satisfied, compared to 68.8% in the surgical excision group (p = 0.04).

Table 3: Cosmetic Outcomes and Patient Satisfaction at 6 Months Post-Treatment (n = 155)

Group	**Surgical Excision Group (n = 77)**	**Conservative Management Group (n = 78)**
Satisfied with Cosmetic Outcome (n, %)	58 (75.3%)	71 (91.0%)
BCTOS Score (Mean ± SD)	88 ± 7.2	92 ± 5.4
Highly Satisfied with Treatment (n, %)	53 (68.8%)	63 (81.2%)



Complications were significantly more frequent in the surgical excision group, with 15.6% of patients experiencing complications, compared to just 5.1% in the conservative management group (p = 0.02). The complications in the surgical excision group primarily included infection, hematoma, and delayed wound healing.

Table 4: Complications During Follow-Up (n = 155)

Group	**Number of Complications (n, %)**	**p-value**
Surgical Excision Group (n = 77)	12 (15.6%)	0.02
Conservative Management Group (n = 78)	4 (5.1%)	

The follow-up data revealed that all patients in the surgical excision group (100%) had stable or decreasing tumor size at 12 months, whereas 85.9% of patients in the conservative management group experienced stable

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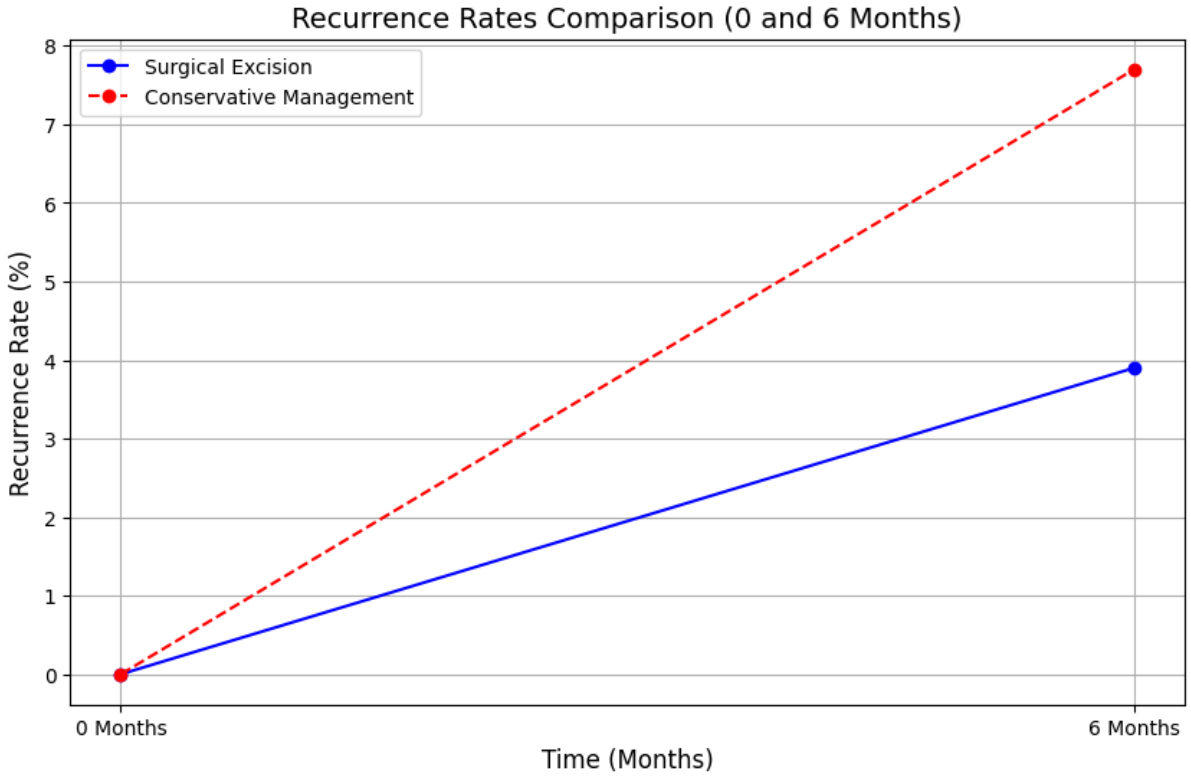
or decreasing tumor size. However, 14.1% of patients in the conservative management group had an increase in tumor size, indicating that some fibroadenomas may require surgical intervention during follow-up. Additionally, no patients in the surgical excision group experienced new symptoms or required further treatment, whereas 5.1% of patients in the conservative management group developed new symptoms, and 3.8% required further treatment. The recurrence rate was higher in the conservative management group (7.7%) compared to the surgical excision group (3.9%), further suggesting the superior efficacy of surgical excision in preventing fibroadenoma recurrence.

Table 5: Follow-Up Data and Tumor Characteristics (n = 155)

Group	Surgical Excision Group (n = 77)	Conservative Management Group (n = 78)
Number of Complications (n, %)	12 (15.6%)	4 (5.1%)
Stable or Decreasing Tumor Size (n, %)	77 (100%)	67 (85.9%)
Increase in Tumor Size (n, %)	0 (0%)	11 (14.1%)
New Symptoms (n, %)	0 (0%)	4 (5.1%)
Need for Further Treatment (n, %)	0 (0%)	3 (3.8%)
Recurrence (n, %)	3 (3.9%)	6 (7.7%)



Discussion

This study aimed to compare the outcomes of surgical excision with those of conservative management in patients diagnosed with fibroadenoma. According to the results, both treatment options may be viable, especially since each one has unique strengths and weaknesses depending on the preferences of patients, the nature of tumors, and risks. Recurrence rate was significantly lower in the experimental group through surgery excision (3.9) as compared to the conservative group treatment (7.7) ($p = 0.01$). A definitive treatment modality was surgical excision, which eradicated the whole fibroadenoma and lowered the chances of recurrence [16]. The findings agree with the past research, which indicated that major surgery is generally more effective in reducing the instances of recurrence, especially when employed on patients with symptomatic or larger fibroadenomas. On the other hand, conservative treatment poses greater danger through recurrence since it is not delivered by removal of the fibroadenoma, and frequent follow-ups should be conducted to be able to detect any changes [17]. Although the recurrence rate was more pronounced in the conservative management group, most of the patients did not have any marked tumor enlargements, with a lot of fibroadenomas neither increasing nor decreasing, which implies that the conservative approach can be used with smaller, asymptomatic lesions [18]. The cosmetic results were also seen to be substantially improved in the conservative management group as a greater number of patients were

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satisfied with the way their breast looked (91.0% vs. 75.3%, p = 0.02). It has also been found in previous studies that the results of surgical excision may leave visible scarring, especially in the case of a large fibroadenoma or one in a cosmetically sensitive area. Greater cosmetic satisfaction in the conservative management group indicates the desire of most women to use less invasive treatment, which does not imply a possible change in the appearance of the breast [19]. This observation points to the necessity to explore the preferences and cosmetic issues of a patient when it comes to treatment modalities of fibroadenomas. The conservative management group rated high in terms of patient satisfaction (68.8 vs. 81.2 %, p = 0.04). Large numbers of patients in the surgical excision group gave fears of postoperative healing, pain, scarring, and follow-up visits [20]. Conversely, patients that were placed in the conservative management group had fewer complications following treatment and could use a normal daily routine. This finding is similar to earlier studies that indicate that patients who receive less invasive procedures are expected to have higher levels of satisfaction especially where there is no interference to the quality of life [21]. The conservative management due to the non-invasive aspect and the absence of risks associated with anesthesia-related risk factors were among the main reasons that resulted in the increased patient satisfaction in this group [22]. Such findings are replicated by those attained in other studies that have emphasized that although surgical excision is effective, it is associated with certain risks including infection, bleeding and even poor cosmetic results [23]. These lead to further discomfort of the patient, delayed recovery period and even other surgeries causing further complications thereby affecting the overall satisfaction of the patient. The complication rate was much lower under conservative management and even the most frequent complications were mild pains or discomforts connected with fibroadenoma in itself [24]. The subsequent data proved that the conservative management group showed high percentage of stable or decreasing tumor size (85.9%), and there was no patient in this group who got new symptoms like pain or discharge [25].

Limitations

This study has several limitations. First, the sample size, although sufficient for statistical analysis, may not be large enough to capture all potential variations in patient outcomes, especially in terms of rare complications or recurrences. Future studies with larger and more diverse populations are needed to confirm these findings. Additionally, the duration of follow-up was limited to 12 months, and longer-term data would provide more insight into the long-term effectiveness and recurrence rates of both treatment options. Finally, the study relied on patient self-reported outcomes for satisfaction and cosmetic assessments, which may introduce bias due to subjective reporting.

Conclusion:

It is concluded that both surgical excision and conservative management are effective treatment options for fibroadenomas, each offering distinct advantages based on patient-specific factors. Surgical excision provides a definitive solution with a lower recurrence rate, making it the preferred approach for symptomatic, enlarging, or atypically located fibroadenomas. However, it carries the risk of complications, including scarring and infection, and may result in less favorable cosmetic outcomes. In contrast, conservative management, which involves regular monitoring, is associated with fewer complications and better cosmetic outcomes, making it a suitable option for small, asymptomatic fibroadenomas.

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