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OUTCOME OF PERIAREOLAR INCISION FOR THE EXCISION OF MULTIPLE AND RECURRENT FIBROADENOMAS AT LIAQUAT UNIVERSITY HOSPITAL

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ABSTRACT

Background: Fibroadenomas are benign tumors commonly found in the breast tissue of young women. While most fibroadenomas do not require immediate surgical intervention, some cases may necessitate excision due to rapid growth, multiple occurrences, or recurrence. In such instances, surgeons may opt for a peri areolar incision as an effective approach for removing multiple and recurrent fibroadenomas.

Objective: To assess the surgical consequences after employing the peri-areolar incision technique for removing multiple and recurrent fibro-adenomas.

Methodology: This cross-sectional study was conducted on a specific group of 80 female individuals, aged 15 to 35 years, diagnosed with multiple and/or recurrent fibroadenomas, and scheduled for surgical intervention who visited the surgical department at Liaquat University Hospital, Hyderabad, during a period of four years from 2017 to 2020. The periareolar incision was made along the outer border of the areola. An arc-shaped or semi-circular incision was carefully placed to ensure optimal access to the breast tissue containing the fibroadenomas. Dissection was carried out to remove the tumors while preserving the surrounding healthy breast tissue. Following successful tumor removal, meticulous wound closure was performed using absorbable sutures. Adequate pain management was provided and postoperatively, patients were closely monitored for complications, including wound healing issues, infection, and hematoma formation. The data obtainedwasanalyzed using SPSS version 20.0.

Results: The study included patients with a mean age of 26.45 ± 5.22 years. The average size of excised lesions was 5.7±2.1 cm, with most cases being unilateral (72.5%). In 16.3% of patients, the incision needed to be extended, On the first follow-up, 9.2% of patients presented with a hematoma and surgical site infection in 11.2% of patients. Numbness or loss of nipple sensation was reported by 6.3% patients and areolar necrosis was noted in 5.75% of patients.

Conclusion: The peri-areolar incision is a valuable surgical technique for the excision of multiple and recurrent fibroadenomas. With its lower rate of complications, this approach offers a minimally invasive solution for patients requiring breast surgery.

Keywords: Multiple, recurrent, Fibro-Adenoma, Peri-Areolar Incision, complications

NTRODUCTION

A breast fibroadenoma is a non-painful, one-sided, benign mass that appears as a solid lump. The human body undergoes various physiological and morphological transformations, with adolescence being the primary period for these alterations.[1] It is during adolescence that many adult distinctions in morphology, composition, and performance originate. Amidst these changes, females commonly experience a condition known as Fibroadenoma.[2] These are the prevalent masses found in the breasts of adolescent females, constituting approximately 2.2% of cases.[2] They make up 68% of all breast masses and are identified in 44–94% of biopsied breast lesions.[2,3] The majority of fibroadenomas typically appear as solitary masses; however, approximately 15–20% of patients may exhibit multiple fibroadenomas, averaging around 3–4 masses within a single breast.[4] The likelihood of fibroadenomas undergoing malignant transformation is minimal. However, instances of epithelial hyperplasia, atypical hyperplasia (occurring in 0.81% of cases), and rare occurrences of both invasive and in-situ ductal and lobular carcinoma have been observed in fibroadenomas.[4,5] Although the individuals with a significant positive family history of breast cancer and complex fibroadenomas require heightened attention due to the increased risk of malignant transformation within these specific patient subgroups.[4]

The mechanisms governing the development and growth of fibroadenomas (FAs) are not well comprehended. Besides the influence of estrogen and progesterone receptors expressed by epithelial cells, recent research suggests a potential role for growth factors and their receptors in the pathogenesis and growth of benign breast diseases (BBD), including fibroadenomas.[6] This implies that multiple signaling pathways involving various receptors could be implicated in the growth and differentiation of benign breast lesions. Nevertheless, a large retrospective study has found that women having a simple fibroadenoma who do not have a family history of breast carcinoma do not have an increased chance of developing breast carcinoma in the future.[6-8]

Persistent fibroadenoma is a rare clinical event that poses therapeutic problems for pathologists and surgeons both.[1] The recurrence of fibroadenomas raises concerns as it may necessitate further medical attention, diagnostic evaluation, and potential surgical intervention. The reasons behind recurrent fibroadenomas are not fully understood, and various factors, including hormonal influences and genetic predispositions, may contribute to their reappearance. The management of fibroadenomas requires careful decision-making, especially in determining the necessity for surgical intervention.[9] Although fibroadenomas don't inherently endanger a patient's life, the decision for surgery stems from the imperative to accurately diagnose the lesion, alleviate patient concerns, and eliminate the possibility of malignancy, which can sometimes mimic the clinical features of fibroadenomas. In this context, establishing clinicopathological correlations before and after surgery plays a crucial role in ensuring the best possible care for the patient.[9,10] Managing multiple benign breast nodules can be complex when devising a surgical strategy that addresses both therapeutic and cosmetic objectives.[10] Some studies have documented the successful utilization of oncoplastic techniques in specific instances involving benign breast lesions.[11] The elevated prevalence of fibroadenomas in Pakistani females mirrors the patterns noted in Black American, African, and Indian females, in contrast to the lower occurrence observed in Western White females.[12]

The selection of surgical incision(s) and technique for excision of single fibro-adenoma isfairly straightforward. However, where the lesions are multiple, the surgeon may be facedwith difficulty in decision of selecting the type of incision. Nevertheless, the traditional surgical method, involving the excision of fibroadenomas through an incision directly over the mass (FETOI), leads to significant

negative impacts on cosmetic outcomes.[12] Consequently, research is underway to explore alternative incisional approaches, particularly the periareolar incision, to achieve a more satisfactory resolution for this specific issue.[12] Although the excision by periareolar incision carries certain disadvantages like hematoma formation, prolonged operative time and periareolar ischemic necrosis. This study hand been done to evaluate the surgical consequences after employing the peri-areolar incision technique for removing multiple and recurrent fibro-adenomas.

Material and Methods

This cross-sectional study was conducted on a specific group of 80 female individuals, aged 15 to 35 years, who visited the surgical department at Liaquat University Hospital, Hyderabad. Study duration was 4 years from 2017 to 2020. This study has been done after ethical approval by the Institutional Review Board of Liaquat University Hospital. The study includes female patients aged between 15 and 35 years, diagnosed with multiple and/or recurrent fibroadenomas, and scheduled for surgical intervention at Liaquat University Hospital, Hyderabad. Patients with benign breast conditions other than fibroadenomas, such as cysts or lipomas, confirmed or suspected malignant breast tumor, pregnant or lactating patients, patients with known coagulation disorders and patients with a history of breast surgery, including excisional biopsy or lumpectomy were excluded to ensure the study's specificity to fibroadenoma excision cases. Non-probability purposive sampling is utilized to select the participants. Informed consent was obtained from each patient before the procedure. Patients' confidentiality was strictly maintained throughout the research process. All surgeries were performed by experienced breast surgeons specialized in the periareolar incision technique. Preoperative markings are made to identify the surgical margins and locations of multiple fibroadenomas. The periareolar incision was made along the outer border of the areola. An arc-shaped or semi-circular incision was carefully placed to ensure optimal access to the breast tissue containing the fibroadenomas. Dissection was carried out to remove the tumors while preserving the surrounding healthy breast tissue. During the surgical procedure, the surgeons examined the breast tissue to identify and remove all fibroadenomas accurately. In cases of multiple tumors located in different quadrants, the periareolar incision provides excellent visibility to access and excise each fibroadenoma efficiently. Following successful tumor removal, meticulous wound closure was performed using absorbable sutures. Special attention is given to achieving optimal cosmesis and minimizing visible scarring. Postoperatively, patients are closely monitored for complications, including wound healing issues, infection, and hematoma formation. Adequate pain management is provided, and patients are advised on postoperative care and activity restrictions.

RESULTS

The mean age of the study subjects was 26.45 ± 5.22 years, with a majority (58.62%) of the patients from an urban background and fewer (41.38%) from a rural background. The mean size of the excised lesions was 5.7±2.1 cm, with most (72.5%) of the cases being unilateral and a few (27.5%) of the casesbeing bi-lateral. The most common site of fibro-adenoma was the upper-outer quadrant of the breast. The mean operative time was 51.8 ±23 minutes. Furthermore, recurrent fibro-adenoma was found in 5.0% of the cases. Table.1

Incision was extended due to need in 16.3% of the patients, while in the remaining 83.8%of the patients a simple per-areolar incision sufficed. The need for extension of incision was dictated often by age, size of fibro-adenoma and site of fibro-adenoma. 9.2% patientspresented with a hematoma on 1st follow-up and were managed as per protocol. The rest held no such complaint. Surgical site infection was seen among 11.2% of the patients on1st follow-up and the decreased to only in one patient on second follow-up. It was noted that surgical siteinfections were more common among patients that had underwent an extension of the incision during removal of fibro-adenoma. Table.2

Table.1 Descriptive statistics of demographic variables n=80

Variables		Statistics	
Age		26.45 ± 5.22 years	
Size excised lesions		5.2±2.1 cm	
Mean operative time		51.8 ±23 minutes	
Residence	Rural	35	43.8%
	Urban	45	56.3%
Number of Fibro-Adenomas	II	19	23.8%
	III	29	36.3%
	IV or more	32	40.0%
Site of Fibro-Adenomas	Unilateral	58	72.5%
	Bilateral	22	27.5%
Recurrent	Yes	04	5.0%
	No	73	95.0%

Table.2. Complications following peri-areolar incision n= 80

Variables			Statistics	
Extension of Incision	Yes		13	16.3%
	No		67	83.8%
Surgical site infection	Yes	Superficial	07	08.8%
		Deep	02	02.5%
	No		71	88.8%
Hematoma development	Yes		04	05.0%
	No		76	95.0%
Areolar Necrosis	Yes		02	02.5%
	No		78	97.5%
Nipple Sensation lost	Yes		05	06.3%
	No		75	93.8%

DISCUSSION

Addressing multiple and recurrent fibroadenomas through surgical intervention requires careful consideration of the procedure's outcomes. The periareolar incision technique, employed for the removal of these fibroadenomas, is a surgical approach that merits attention. This technique involves making an incision around the areola, the pigmented area surrounding the nipple. This study assessed surgical outcomes by employing the periareolar incision technique for the removal of multiple and recurrent fibroadenomas, involving 80 patients with an average age of 26.45 ± 5.22 years and a majority (58.62%) of the patients from an urban background and fewer (41.38%) from a rural background. These findings were along with the study by Gillette DP et al[13] as the patients mean age was 29.4±1.5 years with fibroadenomas. According to a systemic study by Vijaykumar A et al[14] reported that the cases spanned ages from 11 to 72 years, with the highest proportion of cases (66.1%) observed in the 16-30 years age group, followed by the 32-45 years age group, where the mean age of presentation was 27 years and they found majority of cases, accounting for 64.2%, were from an urban background. In this study, recurrent fibroadenoma was identified in 5.0% of the cases, a lower prevalence compared to the findings of Memon A et al[15,] where 12.5% of cases exhibited recurrent fibroadenoma. Conversely, Cowan ML et al[16] reported only three instances of recurrence, representing 3% of the total cases.

In this study, the upper-outer quadrant of the breast emerged as the most common site for fibroadenomas, with a mean operative time of 51.8 ± 23 minutes. This aligns with findings from Sperber F et al.[17], where the mean procedure duration was reported as 40 minutes, ranging from 20 to 60 minutes. Vijaykumar A et al.[14] observed a predominant presence of fibroadenomas in the right breast (49%), with 9 cases (5.4%) exhibiting bilateral involvement. The primary tumor site was identified as the upper lateral quadrant (43.8%), followed by the lower medial quadrant (17.6%). Additionally, 10 cases (4.9%) presented with multiple lumps in the breast. In the line of this study Khalil AM et al[18] reported that the upper outer quadrant was impacted in 53.3% of cases, the lower outer quadrant in 13.3%, and the central (subareolar) region in 23.3%. Multiple fibroadenomas were observed in 16% of cases. On the other hand, Carty et al. reported that the upper outer quadrant was

affected in 31.3% of cases.[19] The breast is divided into four quadrants: upper-outer, upper-inner, lower-outer, and lower-inner. The upper-outer quadrant contains a significant portion of glandular tissue, making it more susceptible to the development of fibroadenomas. Additionally, the upper-outer quadrant is closer to the axilla (armpit), where lymphatic drainage is more extensive. This proximity to a rich lymphatic network may influence the occurrence of fibroadenomas in this quadrant.

In this study the incision was extended due to need in 16.3% of the patients, while in the remaining 83.8%of the patients a simple per-areolar incision sufficed. The need for extension of incision was dictated often by age, size of fibro-adenoma and site of fibro-adenoma. Furthe9.2% patientspresented with a hematoma on 1st follow-up and were managed as per protocol. The rest held no such complaint. Surgical site infection was seen among 11.2% of the patients on1st follow-up and the decreased to only in one patient on second follow-up. It was noted that surgical siteinfections were more common among patients that had underwent an extension of the incision during removal of fibro-adenoma. In the comparison of this study Liu XF et al[20] reported that that in their study the 76 patients underwent FA excision through a periareolar incision and 15 had nipple sensation losses. In another study by Kong X et al[21] reported that the out of 153 patients, one individual (0.7%) experienced hematoma development, and two patients (1.3%) encountered mild nipple ischemia. No infections or other complications were noted. In the favour of this study Chandan A et al[20] conducted a comparative study and in Fibroadenoma excision through a periareolar incision group, 5 patients (14.3%) had hematoma on day 1, 5 cases (14.3%) had it on day 2 and 3 patients (8.6%) had it on day 3. This study is among the only few attempts made at assessing the surgical outcomes of excision of multiple and recurrent fibro-adenoma using a peri-aeriolar incision and there is a deficiency of published evidence-based literature against which this study could be thoroughly compared and contrasted,[22] to determine how this study's results fair against data of the global populace. Several limitations were identified in this study. Firstly, the research focused exclusively on the periareolar incision technique, omitting the exploration of other incisional approaches. Consequently, the study lacked the ability to make direct comparisons and draw conclusions on how the outcomes of the periareolar incision method compared to alternative incision methods in terms of achieving the most favorable surgical outcome. The absence of a broader comparative analysis restricts the generalizability of the findings to a specific surgical approach. Enhance the robustness of future research in this area, it is recommended that further large-scale comparative studies be conducted.

CONCLUSION

The peri-areolar incision observed to be a valuable surgical technique for the excision of multiple and recurrent fibroadenomas. Because of its lower likelihood of complications, this technique presents a less invasive alternative for patients who require breast surgery. Nevertheless, it is imperative to seek advice from a skilled breast surgeon to ascertain the most suitable surgical strategy, taking into account the individual patient's characteristics and the extent of fibroadenoma presence. Moreover, postoperative care and regular monitoring are vital to observe the healing process and achieve the best possible outcomes in fibroadenoma management.

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