



Surgery

FIBROADENOMA BREAST COMPARISON BETWEEN ENUCLEATION AND EXCISION BEYOND CAPSULE – A PROSPECTIVE STUDY

Vipin Kumar

Associate Professor, Department of General Surgery, Teerthankar Mahaveer Medical College, Teerthankar Mahaveer University, Moradabad, Uttar-Pradesh, India.

Anupama Goyal*

Senior Resident, Department of Pediatrics, Teerthankar Mahaveer Medical College, Teerthankar Mahaveer University, Moradabad, Uttar-Pradesh, India.*Corresponding Author

ABSTRACT

Background- Fibroadenomas in female breasts which are not responding to medical treatment needs surgical interventions. Some surgeons prefer enucleation of fibroadenoma while others prefer excision with capsule of fibroadenoma. Both the options are established modality of treatment but excision with capsule needs more tissue removal around the capsule and large incisions.

Material and Method – In this study, we study the relative efficacy, complications and morbidity of both modalities of treatment. Enucleation of fibroadenoma and excision of fibroadenoma on 50 patients. Student t-test was used to access the quantitative and chi-square test for qualitative differences. The p value less than 0.05 was considered statistically significant.

Result – Enucleation of fibroadenoma breast is found to be a better option compared to excision of fibroadenoma breast as enucleation is possible with small incision. This leads to less chances of haematoma, early wound healing, less pain and early recovery with less hospital stay and no need to put any drain in the breast.

Conclusion – Enucleation of Breast fibroadenoma is a safe, valuable and better modality of surgical treatment as it gives less morbidity and better cosmetic results.

KEYWORDS : Fibroadenoma Breasts, Enucleation, Excision, Wound Dehiscence, Haematoma

Introduction

Fibroadenoma are benign breast tumours characterized by an admixture of stromal and epithelial tissue. Breasts are made of lobules and ducts, these are surrounded by glandular, fibrous, fatty tissues^{1,2}. Fibroadenoma develop from the lobules. The glandular tissue and duct grow over the lobules to form a solid lump. It commonly occurs in young women. It consists of 2 components – epithelial and fibroblastic. They are oestrogen dependent and slow growing⁴. Mostly it is a small size 3-4 cm of nodule, well circumscribed, firm, mobile (also called as breast mouse), microscopically it is nodular and encapsulated^{1,2,3}. The epithelial proliferation takes place and it is surrounded by fibro-elastic stroma. It may be intra-canalicular or peri-canalicular. Peri-canalicular type has more formed capsule. Basement membrane is intact in both types^{1,2}.

It is believed that fibroadenoma development is linked to reproductive hormone level in the body. This is because the highest incidence of fibroadenoma occurrence is typically during a woman's reproductive years^{13,14}.

Breast ultrasound⁷ and FNAC are the best modalities to confirm to pre-op diagnosis of fibroadenoma. Chances of recurrence is less after removal as it is a benign tumour.

Fibroadenoma can be removed by excision or enucleation. Excision of fibroadenoma involves wider tissue removal along with glandular tissue leading some type of asymmetry in the size of the breast and bigger incision. In comparison, enucleation can be done by smaller incision¹⁰ with less operating time, lesser morbidity and lesser chances of post-operative haematoma/collection. Hence, in this study we have tried to compare the results of both methods in terms of safety, recurrence, morbidity and cosmetic results in young females^{1,2,3}.

Materials and Methods

This prospective study was conducted in the Department of General Surgery, Teerthankar Mahaveer Medical College and Research Centre for 1 year. 50 patients after written informed consent were selected. The age groups selected was 12-45 years. All the patients presented with lump in breasts. They were all subjected to ultrasound of breast⁷ and FNAC of breast⁷. Diagnosis on both tests was confirmed to be fibroadenoma. They were enrolled in the study.

Patients with large fibroadenoma¹⁵ more than 10cm in diameter were excluded from the study and patients were randomly selected to

undergo any treatment i.e. excision of fibroadenoma or enucleation of fibroadenoma.

All the patients were operated under general anaesthesia. Routine fitness investigations were done for general anaesthesia including the viral markers.

Either peri-areolar / sub-mammary or radial breast incision directly over the lump was given.

In enucleation after dividing the skin and subcutaneous tissue breast tissue was fixed and capsule was incised so that fibroadenoma was removed.

From inside the capsule haemostasis was achieved and skin closed by subcuticular proline.

In excision of fibroadenoma after dividing the skin and subcutaneous tissue the lump was held by Allis forceps and it was removed with its capsule from peri-areolar tissue and incision closed by subcuticular proline.

If large cavity is produced after doing the procedure and haemostasis¹⁵, if needed, Romovac suction drain fr. 10 was put in.

All the samples were sent to histopathological examination.

Drain, if put was removed on 4th day. Dressings applied and changed as needed. After discharge from the hospital patients underwent follow-up evaluation in the outpatient department for at-least 6 months. Patient's outcome including length of stay, post of haematoma, wound healing, pain and morbidity, length of scar, recurrence were recorded. Student t-test was used to access the quantitative and chi-square test for qualitative difference in all the parameters/ variables which were evaluated. The p-value less than 0.05 was considered statistically significant.

Result

The prospective study was conducted in our department for a period of 1 year. 50 patients of fibroadenoma in young females were evaluated in the study, after taking the written consent. All were subjected to breast ultrasound examination⁷ and FNAC. They were randomly divided into 2 groups either enucleation or excision.

Table 1—Comparison of mean duration of hospital stay

Excision	Enucleation	P-value
4 +/- 1 days	2 +/- 1 days	< 0.05

Table 1 shows mean duration of hospital stay in 2 groups. It was significantly less in those patients where enucleation was done. Mean duration of hospital stay was 2+/-1day in enucleation group and mean duration of hospital stay was 4+/-1 day in excision group. P-value was found to be less than 0.05, so it was statistically significant.

Table 2 – Comparison of Haematoma/ Discharge from the wound

	Excision	Enucleation	P-value
Total no. of patients	25	25	
Haematoma	6	1	significant
Discharge	12	4	significant

Table 2 shows results in terms of Haematoma/ Discharge from the wound. Even after putting Romovac drain fr. 10 in required patients, where cavity was large, in 6 out of 25 patients treated by excision developed haematoma and 12 developed discharge from incision site. 1 patient developed haematoma and 4 developed discharge in the group treated by enucleation. Probably no veins of peri-areolar tissue were encountered while doing the enucleation. So, complications were significantly less in enucleation group and the results were statistically significant.

Table 3 – Need to put Romovac Suction Drain and Removal in Days

Total no. of patients	25	25	p-value
Type of surgery	Excision	Enucleation	
Removal	8	2	significant
Days to remove	4 +/-1 days	2 +/-1 days	significant

Table 3 shows more number of patients needed Romovac drain in excision group and it had to remain for longer period of time in comparison to enucleation group. So, the stay was also prolonged in these patients of excision group in same proportions.

Table 4 – Length of incision and cosmetic analysis of scar

Total no. of patients	25	25	
Type of surgery	Excision	Enucleation	significant
Length of incision	4 +/-1 cm	2 +/-1 cm	
Healing by secondary intention due to wound gaping	8	3	significant

Table 4 – Length of incision was also more in the patients treated by excision group. More patients develop haematoma and discharge in this group so, wound was gaped in 8 out of 25 patients and so, healing was by secondary intention leading to poor quality of scar in comparison to enucleation group.

Table 5 – Recurrence

Type of Surgery	Excision	Enucleation	P-value
Total no. of patients	25	25	
Recurrence	Nil	1	Insignificant

Table 5 – Recurrence after 6 months was noted in enucleation group. It was also unclear that the patient had left out fibroadenoma during first surgery or missed on investigation. So, it was statistically significant and more number of patients are needed to be included in the study with prolonged follow-up to prove the significance of recurrence.

Discussion

Young females in their reproductive life or adolescent group females develop fibroadenoma in breasts due to hormone imbalance (predominantly it is oestrogen dependent^{13,14}). It may cause pain, feeling of discomfort, psychological disturbances and fear that it may be a malignant lesion.^{4,5} After the decision to the surgery is made in young females, surgeon wants to give less morbid procedure, better cosmetic scar and less recurrence prone surgery^{3,6}. In our study we noted that while doing enucleation, due to direct incision over capsule of fibroadenoma (after fixing the breast tissue with both hands) most of the time we could do it by peri-areolar or retro smammary incision and that too by very small incisions. While doing excision beyond capsule with some breast tissue more tissue needed to excise and more lengthy

incisions were needed. Since the disease was a benign one so, morbidity and complications in terms of wound discharge, need of Romovac drain, haematoma and hospital stay are very important parameters for psychology of patients in long term. The reason for haematoma to develop more in excision group is small veins needed to be cut while doing excision around capsule, while in enucleation, fibroadenoma is removed completely in avascular plane. So, chances of haematoma, discharge and wound dehiscence is less. In enucleation procedure we remain completely inside the capsule, sometimes additional small fibroadenoma near one fibroadenoma may need opening of the capsule of that fibroadenoma and its removal. Excision all around its capsule may give better satisfaction to the surgeons while removing, but not better morbidity in comparison to enucleation.

Conclusion –

We conclude that enucleation of fibroadenoma breast provide better result compared to excision of fibroadenoma with its capsule. It produces better cosmetic result with less chances of haematoma, discharge, lesser hospital stay, less pain and morbidity and better scars with similar chances of recurrence.

References

- Santen RJ, Mansel R. Benign breast disorders. *N Engl J Med.* 2005; 353(3):275–285.
- Cerrato F, Labow BI. Diagnosis and management of fibroadenomas in the adolescent breast. *Semin Plast Surg.* 2013;27(1):23–25.
- Williamson ME, Lyons K, Hughes LE. Multiple fibroadenomas of the breast: a problem of uncertain incidence and management. *Ann R Coll Surg Engl.* 1993;75(3):161–163.
- Chang DS, McGrath MH. Management of benign tumors of the adolescent breast. *Plast Reconstr Surg.* 2007;120(1):13e–19e.
- Wu YT, Chen ST, Chen CJ, et al. Breast cancer arising within fibroadenoma: collective analysis of case reports in the literature and hints on treatment policy. *World J Surg Oncol.* 2014;12(1):335.
- Greenberg R, Skornick Y, Kaplan O. Management of breast fibroadenomas. *J Gen Intern Med.* 1998;13(9):640–645.
- Garcia CJ, Espinoza A, Dinamarca V, et al. Breast US in children and adolescents. *Radiographics.* 2000;20(6):1605–1612.
- Ozzello L, Gump FE. The management of patients with carcinomas in fibroadenomatous tumors of the breast. *Surg Gynecol Obstet.* 1985; 160(2):99–104
- Kitamura K, Inoue H, Ishida M, Kinoshita J, Hashizume M, Sugimachi K. Endoscopic extirpation of benign breast tumors using an extramammary approach. *Am J Surg.* 2001;181(3):211–214.
- Lakoma A, Kim ES. Minimally invasive surgical management of benign breast lesions. *Gland Surg.* 2014;3(2):142–148
- O'Brien S, Kowdley GC. Benign breast diseases and body mass index: is there a correlation? *Am Surg.* 2014;80(5):461–465.
- Song BS, Kim EK, Seol H, et al. Giant juvenile fibroadenoma of the breast: a case report and brief literature review. *Ann Pediatr Endocrinol Metab.* 2014; 19(1):45–48
- Jaysinghe Y, Simmons PS. Fibroadenomas in adolescence. *Curr Opin Obstet Gynecol.* 2009;21(5):402–406.
- Sitruk-Ware R, Thalabard JC, Benotmane A, Mauvais-Jarvis P. Risk factors for breast fibroadenoma in young women. *Contraception.* 1989;40(3):251–268
- Gobbi D, Dall'Igna P, Alaggio R, Nitti D, Cecchetto G. Giant fibroadenoma of the breast in adolescence