

**Research Article**

## Management of Post Operative Mastalgia after Excision of Fibroadenoma with Use of A Vitamin E

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**ABSTRACT-**

**Background:** Mastalgia is defined as a dull ache or heaviness in the breast. Post operative mastalgia is a common condition occurring in about 30% of women after operation. Mastalgia after Excision of fibroadenoma poses a significant problem to the surgeons. Post operative mastalgia can significantly affect the quality of life in some women. The major question that worries the patient is inadequate excision of swelling or the risk of malignancy. Reassurance plays a key role. This study was done to assess the efficiency of vitamin E in treating post operative mastalgia in young women.

**Method-** Our prospective observational study was conducted at Department of General Surgery, R.K.D.F. Medical College & Research Centre, Bhopal, during period of November 2013 to November 2015. Total 320 cases of Breast Lump came in Hospital for treatment. FNAC and Core Biopsy was done in all cases. Patient with fibroadenoma were operated and included in the study. Patients were called for follow up on 15<sup>th</sup> day of surgery and patient with post operative breast pain were given Vitamin E (200mg od for 3 month) and their pain grading was done with Numerical pain grading scale. After 3 months follow up cases were assessed for mastalgia on Numerical pain grading scale.

**Result-** In this study of 320 patients of Breast Lump, fibroadenoma was present in 221 (69.06%) patients and mastalgia after surgery was present in 94 (42.53%) patients. Out of 94 patients with Post operative mastalgia 74 (78.7%) recovered. In present study, significant ( $p$  value < 0.001) association was found between postoperative mastalgia and use of vitamin E

So it can be concluded that Vitamin E can be used to manage post surgery mastalgia in cases of fibroadenoma.

**Conclusion-:** Oxidative stress may be the cause for mastalgia after surgery. Vitamin E at a dosage of 200 mg once daily for 3 months has a significant role in the management of such cases.

**Keywords-** Mastalgia, fibroadenoma, Vitamin E, Breast Lump, Breast pain.

## Introduction

Breast development is first sign of puberty in girls. Any variation in its normal progression often deserves attention. Fibroadenoma arise from hyperplasia of single lobule and can grow upto 2-3 cm, encapsulated mass<sup>1</sup>.

Fibroadenoma are benign solid tumors composed of stromal and epithelial elements<sup>2</sup>. After Carcinoma it is second most common tumor. Fibroadenoma are most common tumor in younger women below 30 years<sup>3</sup>.

The glandular tissue and ducts grow over the lobule and form a solid lump. They typically appear as rubbery, discrete, non-tender mass, and may be lobular, bilateral (10%), or multiple (10% to 15%)<sup>1</sup>. Outer upper quadrant of the breast is the most common site of fibroadenoma<sup>4</sup>.

Dupont describes two histological groups of fibroadenomas, simple and complex. Complex fibroadenoma refers to fibroadenomas with foci of cysts, calcifications in epithelium and metaplasia of papillary apocrine and has a higher future risk of malignancy<sup>4</sup>.

Fibroadenomas are usually not associated with malignancies in adolescence and younger adult. About 5% to 10% of breast cancer cases are thought to be hereditary<sup>5</sup>. Mutation in the BRCA1 and BRCA2 genes are thought to be most common cause of hereditary fibroadenoma. In normal cells, these genes help prevent cancer by making proteins that keep the cells from growing abnormally<sup>6</sup>.

History of irregular menstruation is more prevalent in fibroadenoma. Fibroadenoma is more prevalent in single women, early marriage is considered as another possible risk factor of fibroadenoma in married women<sup>7</sup>.

The incidence and development of fibroadenoma could be associated with the reproductive history of women, activity of ovarian hormones as well as environmental factors. History of full term pregnancy and live child birth could reduce the risk of fibroadenoma<sup>8</sup>.

Incidence of fibroadenoma is increased in women who were obese and had gained massive weight

(20-30 Kg) after 18 years<sup>9</sup>. The prevalence of severe stress was significantly higher. Severe stress increases the endogenous levels of estrogen. Fibroadenoma has an inverse association with increased age<sup>10</sup>. Diagnosis can be established by image guided core biopsy or excision biopsy. Mammography is of little help in distinguishing between cyst and fibroadenoma<sup>2</sup>.

Nonsteroidal drug ormeloxifen which is an estrogen receptor modulator can shrink fibroadenomas<sup>11</sup>. Because fibroadenoma can be bothersome to some patients, causing physical deformity, discomfort or emotional distress, most surgeons prefer surgical treatment.

Traditional open excisional biopsy is effective treatment in these cases. Excision of fibroadenomas is safe, effective and well tolerated by patients. For women who prefer removal of the lesion this procedure offers minimal morbidity and cost. Many patients have mild to moderate discomfort and incision site pain after excision which usually resolve after 8-10 days of surgery with analgesic drugs.. But in few patients, pain persist even after 15 days.

Post operative breast pain and discomfort is most common complaint raised by women, pain get worsen during sexual activity and during menstrual cycle.

Objective of this study is to assess effect of vitamin E on postoperative mastalgia after excision of fibroadenoma.

## Aim

- To analyze the effect of vitamin E on post operative mastalgia after fibroadenoma excision.

## Material and Methods

A total of 320 patients of breast lump were selected by simple random method.

**Inclusion criteria:** Patient with post operative breast pain after excision of fibroadenoma (94 out of 221) were included the study.

Patient with diagnosis other than fibroadenoma (117 out of 221) and no complaint of breast pain

were excluded from the study as shown in Table 1. All patients below 15yrs and above 35yrs were excluded. All patients with other breast diseases like gynaecomastia, nipple discharge, galactocoele, antibioma, breast cyst, carcinoma, papillomas, breast abscess, fat necrosis, angiosarcoma and phyllodes tumors were excluded. Patient with post operative surgical site infection, seroma formation and wound dehiscence were excluded.

Informed written consent was taken from all patients. Data on clinical history, clinical examination and histopathology record was considered into our study.

After excision of fibroadenoma and stitch removal, all patients were followed after 15 days of surgery for post operative breast pain. Severity of pain measured on Numerical pain grading scale. Patients complaining with mastalgia were given vitamin E (capsule evion 200 mg once daily) for 3 months. Followup of each patient after 1 month till 3 month was carried out by clinical examination comparing the change in the severity of breast pain and pain was marked on the numerical pain grading scale.

Statistical analysis was calculated by paired T-tests, P value <0.05 was considered to significant.

**Table No. 1**

Various causes of Breast Lump	Number	Percentage
Fibroadenoma	221	69.06%
Fibroadenosis	29	9.06%
Abscess	28	8.75%
Malignancy	15	4.68%
Cyst	13	4.06%
Galactocoele	10	3.12%
Antibioma	4	1.25%
Total	320	

## Results

Total 94 patients reported with complaints of breast pain with mean pain score of 6.14 after excision of fibroadenoma. Patients were given with vitamin E 200mg once a day for 3 months. Regular follow up was done monthly and pain

was marked on the Numerical pain grading scale every month. After 3 months ,74(78.7%) patients recovered fully and 20 patients still complained of breast pain and there mean pain score (3.35). Results were analysed.

## Discussion

Fibroadenomas are usually product of hyperplastic processes and are assumed to be aberration of normal breast development. Literature studies show that fibroadenomas usually form during menarche (15-25 years) and are stimulated by hormones estrogen and progesterone and by lactation during pregnancy<sup>12</sup>.

Majority of patients observed that the pain got reduced during menstrual cycle. This is because both levels of estrogen and progesterone are lowered during bleeding phase. There are various drugs available for management of mastalgia like NSAIDS, Goserelin (LHRH analog), Bromocriptine, Gamolenic acid, Danazol, Tamoxifen and Centchroman but they have their own side effects. Nonsteroidal anti-inflammatory medications can be effective in up to 80 % of women and their usefulness is often underestimated. Diclofenac gel applied as local massage to painful areas of breast has been found to be more effective than placebo gel and ibuprofen gel in randomized trials<sup>13</sup>.

**Bromocriptine:** It is a dopamine agonist and stimulates the dopaminergic receptors in the anterior pituitary and blocks the release of prolactin. It is administered at a dose of 2.5 mg twice daily, about 47 to 88 % of patients are reported to have a significant long-lasting relief in breast pain. In a meta-analysis, bromocriptine was found to offer a reduction in mean pain score of 16.31 as compared to placebo<sup>14</sup>. Most mastalgia experts have stopped using bromocriptine because of severe side effects, the commonest being nausea, vomiting, and dizziness.

**Goserelin (LHRH analog), Lisuride maleate:** It is an ergot derivative. It is a dopamine agonist which binds to prolactin receptors.

**Gamolenic acid (GLA):** An essential polyunsaturated fatty acid is present in large

quantities in evening primrose oil. Women with cyclical mastalgia have been found to have low levels of the metabolites of GLA in the plasma, but its benefits were seen mostly in elderly women (>40). It did not provide much relief in young patients.

**Danazol:** It is an antigonadotrophin agent. Danazol is a testosterone derivative and has mild androgenic effect<sup>15</sup>. Current practice in India is to start treatment at 50 mg once daily and then increase to 50 mg twice daily if the response is not complete. The maintenance dose should be given for at least 3 months<sup>16</sup>. In the West, the recommendation is to use a maintenance dose of 100 mg daily or alternate days.

The common side effects with danazol are hair growth, weight gain, and menstrual irregularities; hence its use should be reserved for cases of severe mastalgia who have failed on 3–6 months of tamoxifen and centchroman treatment. It is contraindicated during pregnancy due to possible teratogenic effect<sup>17</sup>.

**Centchroman:** Centchroman or ormeloxifene (marketed as *SAHELI* by Hindustan latex company India) is a nonsteroidal antiestrogen agent. It is used as “once a week contraceptive pill” which selectively binds with estrogen

receptor in the breast and endometrium. Its efficiency is yet to be proved.

**Vitamin E:** Vitamin E as a lipophilic antioxidant molecule is able to react with lipid peroxyl radicals, eventually terminating the peroxidation chain reaction, and thereby reducing oxidative damage<sup>18</sup>. Previous studies shown vitamin E has less significant role in mastalgia. But in present study we have found significant role of vitamin E on post operative mastalgia after fibroadenoma excision in young women. Vitamin E in low dose had less side effect, so we had used it and analyzed results with paired t test p value <0.001 we found it extremely significant.

### Conclusion

Our study is on post operative mastalgia after fibroadenoma excision. Among the cases presenting with breast lump 221 (69.06%) were diagnosed as fibroadenoma while post operative mastalgia was found in 94 (42.53%). 74 (78.7%) cases were recovered after 3month follow up. Oxidative stress can be cause for post operative mastalgia. Effect of Vitamin E on post operative mastalgia compared before and after vitamin E therapy was observed Extremely significant ( p value <0.0001).

**Table-2**

Fibroadenoma	No. of patients with Post operative breast pain after 15 days	No. of patients with No Breast Pain after 15 days
221	94 (42.53%)	117(67.47%)

**Table 3-**No. of cases with post operative mastalgia and pain score on 15<sup>th</sup> day

No. of cases post operative mastalgia (94)	Pain Score	
10	4	Mean=6.14 Standard Deviation=1.0969
10	5	
40	6	
24	7	
10	8	

**Table 4-** No. of cases with post operative mastalgia and pain score after 90 day of treatment with vitamine E

No. of cases post operative mastalgia (20)	Pain Score	
5	2	Mean=3.35 Standard Deviation=1.3008
6	3	
4	4	
3	5	
1	6	

Table-5

Complain after 3 month	Result After 3 month of vitamin E
No Breast pain	74 (78.7 %)
Breast pain	20 (21.27%)
Total	94

Table-6

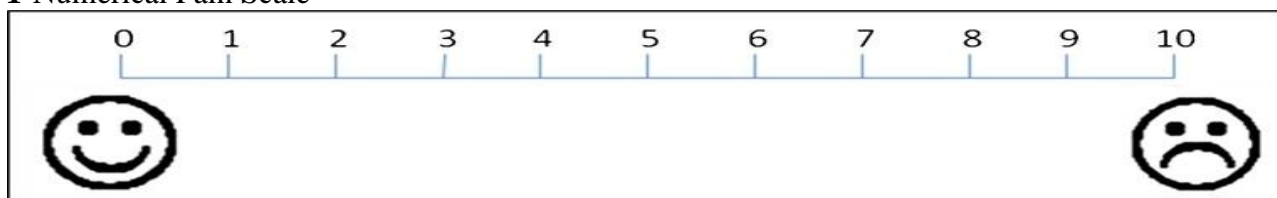
	On 15 <sup>th</sup> Day (After excision of fibroadenoma)	After 1 month (Vitamin E 200mg once a day)	After 2 month (Vitamin E 200mg once a day)	After 3month (Vitamin E 200mg once a day)
No. of Patients having Mastalgia	94	52	32	20
Pain Score	6.14	4.82	3.56	3.35

Table-7

OBSERVATION	Before treatment (94)	After Treatment (20)	P value
Pain Score	6.14(S.D.±1.0969)	3.35(S.D.±1.30080)	P value <0.0001

Interval value  $t=9.9905$ ,  $df=112$ , standard error=0.279

Fig. 1-Numerical Pain Scale



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### Declarations

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**Conflict of interest:** None declared

**Ethical approval:** The study was approved by ethical committee of RKDF Medical College.

### References

- Arca MJ, Caniano DA. Breast disorders in the adolescent patient. *Adolesc Med Clin*, 2004; 15(3): 473-485.
- Norman s Williams, Christopher JK, Bulstrode, P ronanan O Connell. *Bailey & Love's, Short Practice of surgery 26e* (CRC Press book 2008) 8-16.
- Courtney M. Townsend,R. Daniel Beauhamp, B. Mark Evers, Kenneth L.Mattox.Sabiston *Text book of surgery18e*( Elsevier Inc. 2009) 866- 868.
- Dupont WD, Page DL, Parl FF, Vnencak-Jones CL, Plummer WD, Jr, Rados MS, et al. Long-term risk of breast cancer in women with fibroadenoma. *N Engl J Med*, 1994; 331(1): 10-15.
- West KW, Rescorla FJ, Scherer LR, III, Grosfeld JL. Diagnosis and treatment of symptomatic breast masses in the pediatric population. *J Pediatr Surg*, 1995; 30(2): 182- 186.
- Kyriakos Kalogerakos, Chrisostomos Sofoudis, Nikolaos Baltayiannis. Early breast cancer, *A review. Cancer Therapy*, 2008; 6: 463-476.
- Van der Heiden E, Bechoux N, Muller M, et al. Food flavonoid aryl hydrocarbon receptor-mediated agonistic/antagonistic/synergic activities in human and rat reporter gene assays. *Anal Chim Acta*, 2009; 637: 337-45.

8. Dijkstra SC, Lampe JW, Ray RM, et al. Biomarkers of dietary exposure are associated with lower risk of breast fibroadenomas in Chinese women. *J Nutr*, 2010; 140: 1302-10.
9. Bundred NJ. Etiological factors in benign breast disease. *Br J Surg*, 1994; 81: 788–9.
10. Pasqualini JR, Cortes-Prieto J, Chetrite G, et al. Concentrations of estrone, estradiol and their sulfates, and evaluation of sulfatase and aromatase activities in patients with breast fibroadenoma. *Int J Cancer*, 1997; 70: 639–43.
11. Coriaty Nelson Z, Ray RM, Gao DL, et al. Risk factors for fibroadenoma in a cohort of female textile workers in Shanghai, China. *Am J Epidemiol*, 2002; 156: 599-605.
12. Einbond L.S., Wen-Cai Y., He K., Wu H.A., Cruz E., Roller M. and Kronenberg F. Growth inhibitory activity of extracts and compounds from *Cimicifuga* species on human breast cancer cells, *Phytomedicine*, 2008; 15(6): 504-511.
13. Pashby NL, Mansel RE, Hughes LE. A clinical trial of evening primrose oil in mastalgia. *Br J Surg*. 1981;68:801. doi: 10.1002/bjs.1800681115.
14. Srivastava A, Mansel RE, Arvinda N. Evidence-based management of mastalgia: a meta-analysis of randomized trials. *Breast*. 2007;16(5):503–512. doi: 10.1016/j.breast.2007.03.003.
15. Greenblatt RB, Dmowski WP, Mhesh VB. Clinical studies with an antigonadotrophin—danazol. *Fertil Steril*. 1971;22: 102–112.
16. Shukla HS, Kumar S. Benign breast disorders in nonwestern populations: Part II—benign breast disorders in India. *World J Surg*. 1989;13(6):746–749. doi: 10.1007/BF01658426.
17. Asch RH, Greenblatt RB. The use of an impeded androgen danazol in the management of benign breast disorders. *Am J Obstet Gynecol*. 1971;127:130–134.
18. Gonenc A, Tokgoz D, Aslan S, Torun M. oxidative stresses in relation to lipid profiles in different stages of breast cancer. *Indian Journal of Biochemistry and Biophysics*, 42:190-194,(2005).