

SWISS ROLL OPERATION FOR GIANT FIBROADENOMA

Saleem A Soomro, Sohail A Memon, Noor Mohammad, Mumtaz Maher

Department of Surgery, Jinnah Postgraduate Medical Centre, Karachi

Background: Fibroadenoma 5 cm or more is called giant fibroadenoma. Giant fibroadenoma can distort the shape of breast and causes asymmetry, so it should be excised. There are several techniques for excision of giant fibroadenoma. In our technique we remove them through cosmetically acceptable circumareolar incision to maintain the shape and symmetry of breast. The objectives were to assess the cosmetic results of Swiss roll operation for giant fibroadenoma. The study was conducted for six years from January, 2002 to December, 2007. **Methods:** Seventy patients of giant fibroadenoma were included in this study. They were diagnosed on history and clinical examination supported by ultrasound and postoperative histopathological examination. Data were collected from outpatient department and operation theatre. Swiss roll operation was performed under general anaesthesia. **Results:** Mean tumor size was 6.38 cm. Three cm and 4 cm incisions were used for tumour ≤ 6 cm and >6 cm in size respectively. Skin closed with Vicryl 3/0 subcuticular stitches. Sixteen out of 70 patients had no scar while others had minimal scar. All patients had normal shape and symmetry of breast. On histopathology fibroadenoma was confirmed. **Conclusion:** Giant fibroadenoma should be removed through cosmetically acceptable circumareolar incision especially in unmarried young females who have small breast. Swiss-roll operation is superior in maintaining the shape and symmetry of breast. No major complication was found in our series except seroma formation in 10 patients.

Keywords: Swiss roll operation, Giant fibroadenoma, Circumareolar incision, Cosmetic results, Breast

INTRODUCTION

Giant fibroadenoma, (≥ 5 cm in size) is an uncommon variant of fibroadenoma. It is characterized by massive and rapid enlargement of encapsulated breast mass.^{1,2} The mass can grow to immense proportions, compressing and displaying normal breast tissue and stretching the overlying skin and nipple areola complex.³ These tumors are poorly understood because of their rarity and unpredictable behavior. Their rapid growth is associated with skin congestion and ulceration, and tendency to recur, gives rise to a suspicion of malignancy.⁴

A giant fibroadenoma should be excised as its increasing size may distort the shape of breast. The optimal management for treatment of giant fibroadenoma remains controversial. In the 1950's breast were amputated for this relatively non-threatening condition.⁵ Patients with giant fibroadenoma should be treated, assumption that the lesion is benign and therefore local excision is treatment of choice.⁵

Cosmesis is an important consideration when making breast incisions especially in young girls. Excision of giant fibroadenoma poses a significant challenge and is generally performed through sub mammary incision, which may produce unacceptable scarring.⁶ There are several techniques for excision of giant fibroadenoma, which include plastic bag removal, endoscopic removal and excision followed by mammoplasty. In our technique, we removed giant fibroadenoma using a circumareolar incision⁷ and cutting the lesion in the shape of Swiss roll, the mass can be removed

entirely. Swiss roll operation allows these large tumors to be removed through cosmetically acceptable small circumareolar incision⁸ which causes little disruption of breast tissue.

MATERIALS AND METHODS

This study was conducted in the Surgical Department Ward-2, Jinnah Postgraduate Medical Centre, Karachi, Pakistan for a period of six years from January, 2002 to December, 2007. Total numbers of patients selected were seventy. The cases having fibroadenoma 5 cm or more and young females willing for surgery were included in this study. Those patients who have carcinoma of breast or lactating mothers were excluded from this study.

The information was collected through structured Proforma. Data was collected from Out Patient Department and Operation Theatre. Giant fibroadenoma was diagnosed clinically and confined by ultrasound scan and postoperative histopathological examination of the specimen. The Swiss roll operation was performed under general (laryngeal mask) anaesthesia after taking written and informed consent.

In this technique, 3 cm and 4 cm incisions were made for giant fibroadenoma ≤ 6 cm and >6 cm in size respectively. Breast skin was mobilized over the lump. The mass was mobilized using the index finger until it was completely free from the surrounding breast tissue. The mass was then grasped using towel clip and pulled up to the skin, and an oblique incision was made into the fibroadenoma. This incised portion rotated out of the incision, and the lump was progressively incised

and rotated out of incision and rotated until the entire mass was taken in a 'Swiss-roll' type fashion. Haemostasis was secured. Skin was closed with vicryl 3/0 continuous subcuticular stitches. Pressure bandage applied, which was removed on 5th postoperative day in Out Patient Department. Patients were allowed for daily activities and bath, and again asked to come after 6 weeks for assessment of cosmetic results.

RESULTS

Seventy female patients were included in this study. Patient mean age±SD was 21.13±4.26 (ranged from 14 to 35) years. Most frequent age was 20 years. Patients between 20–25 years were 55.71% (n=39), below 20 years were 32.86% (n=23), while only 11.43% (n=8) were above 25 years. All fibroadenomas were unilateral. It was commonly found on left side in 47 (67%) patients while 23 (33%) patients were having on right side. It was most commonly present in upper outer quadrant, i.e., in 37 (52.86%) patients, while 18 (25.71%) were in lower outer quadrant, 9 (12.85%) were in upper inner quadrant and 6 (8.5%) patients had in lower inner quadrant. Mean tumor size±SD was 6.38±1.35 (range 5–12 cm). Most frequent size encountered was 6 cm (n=13, 18.57%). Largest was 12 cm (n=1, 1.42%) and smaller one was 5 cm (n=2, 2.86%) (Figure-1).

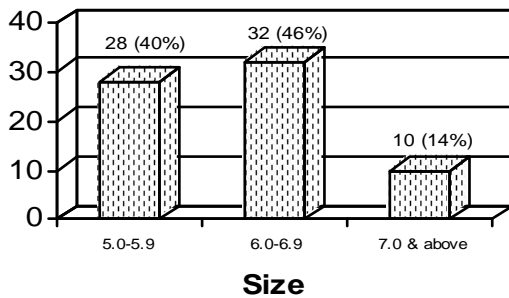


Figure-1: Fibroadenoma size

The length of incision was 3 cm in 42 (60%) patients for tumour <6 cm in size and 4 cm incision was given for tumour >6 cm in 28 (40%) patients. Patients were followed up in Out-patient Department for six weeks after surgery. The seroma formation was seen in 10 (14.2%) patients, which was managed conservatively by single aspiration. Cosmetic results, operation techniques and histopathological findings are tabulated in Table-1 and 2.

Table-1: Cosmetic results

		Frequency	Percent
Scar Marks	None	16	23
	Minimal	54	77
Breast	Normal shape	70	100
	Symmetrical	70	100

Table-2: Incision shape, suture material, stitch technique and histopatological results (n=70)

Incision shape	Circumareolar
Suture material	Vicryl 3/0
Stitch technique	Subcuticular continuous
Histopathology	Giant fibroadenoma

DISCUSSION

Fibroadenoma 5 cm or more in diameter is considered as giant fibroadenoma.^{1,9} Giant fibroadenoma is the most common cause of breast enlargement and cause asymmetry of breast in adolescent and young adult female. It can grow to huge proportion and compress the surrounding normal breast tissue.¹⁰ If giant fibroadenoma is diagnosed, surgical excision is necessary, in order to avoid mass effects such as ulceration, skin changes, venous congestion and pain.⁹

Length of incision was 3 cm in 42 patients and 4 cm in 28 patients as compared to Narynsingh *et al*⁷ whose incisions were 4 cm in all patients; their study comprised of five patients. Only largest tumour observed in our study was 12 cm as compared to Hanna RM *et al*¹¹ in which largest tumour size was found to be 15 cm. Common age encountered was below 25 years in our study similarly Roganian *et al*¹² observed that out of 20 patients 16 were below 25 years of age.

There is no consistent surgical approach to giant fibroadenoma in literature. For cosmetic purpose, a technique with a small incision was found to be ideal provided it is simple, safe and has low tumour recurrence rate. In our study we used the swiss roll operation. In this technique the tumour was removed in a shape of Swiss roll after complete enucleation, which was confirmed by observing tumour being freely moved within breast cavity. After removal of tumour no attempt was made to obliterate the cavity by sutures and no drainage was used. This was a standard practice after previous prospective randomised trial showed no significant benefit of suture and drainage.¹³ It is also described by Jacob¹⁴ that there will be subsequent symmetry in patients, with resection of mass only, citing the fact that there is no breast hypertrophy in standard cases of giant fibroadenoma and that with time the normal parenchyma will re-establish its shape.

Endoscopic breast excision reported by some institutions.¹⁵ However, it is difficult and time consuming and associated with long term learning curve. Other technique is using plastic bag to collect a large fibroadenoma that has completely enucleated and removed through small incision.¹² This technique has good cosmetic results but is time consuming and difficult technically. Other technique is submammary incision but the scar produced is large and may not be hidden by the non-pendulous smaller breast.¹⁶

One alternate is to fragment the fibroadenoma in situ and then remove the fragments. However; there is obvious risk of leaving pieces back. If our technique is carried out correctly that prevents this complication and allow access to tumours in all quadrants of the breast. Swiss-roll operation allows these large tumours to be removed through cosmetically acceptable small circumareolar incision.¹⁷ Day care surgery based Swiss roll operation was used to treat giant fibroadenoma in 70 patients, which were histopathologically proven.^{7,18} In contrast to other procedures, little operating time was required and there were less technical difficulties. Scarring was minimal and cosmesis was outstanding. Swiss roll operation is considered to be the best surgical treatment for giant fibroadenoma especially in unmarried girls who are very concerned about cosmesis.

CONCLUSION

In adolescent and young adult females, a common pathological cause of breast asymmetry is giant fibroadenoma of breast and it also distorts the shape of breast. It is most commonly found between 20–25 years of age. It can be concluded that swiss-roll operation is best surgical technique especially in unmarried young girls having smaller breasts because it is safe, technically simple, having good cosmetic results and performed as a day case surgery. Over six weeks follow up scarring was minimal and Cosmesis was outstanding.

REFERENCES

1. Raganonon C, Fairbain JK, Williams S, Hughes LE. Giant breast tumours of adolescence. *Aust NZ J Surg* 1987;57:243–7.
2. Lo-Martire N, Nibid A, Farello G, Gabriele A, Giuliani M. Giant fibroadenoma of the breast in an adolescent: a case report. *Ann Ital Chir* 2002;73:631–4.
3. McGrath MH. Benign tumors of the teenage breast. *Plast Reconstr Surg* 2000;105:218–22.

4. Thomson AM, Dewar JA. Disorders of breast. In: Cuschieri A, Steele RJC, Mossa A. *Essential surgical practice, higher surgical training in general surgery*. 4th ed. New York: Arnold; 2002. p. 61–93.
5. McDonald JR, Harrington SW. Giant fibro-adenoma of the breast (cystosarcoma phyllodes). *Ann Sug* 1950;131:243–51.
6. Alagaratnam TT, Ng WF, Leung EXF. Giant fibroadenoma of the breast in an oriental community. *J R Coll Surg Edinb* 1995;40:161–2.
7. Naraynsingh V, Maharaj D, Rampaul R. Swiss-Roll operation for giant fibroadenomas. *Breast J* 2002;8:46–6.
8. Mizaushev BA, Kazdokhova ZHKH, Kantsaliev AL. A comparative analysis of effectiveness of surgical treatment of fibroadenoma young girls. *Vestn Khir Im II Greak* 2004;163:35–9.
9. Bauer BS, Jones KM, Talbot CW. Mammary mass in the adolescent female. *Surg Gynecol Obstet* 1987;165: 63–5.
10. Park CA, David LR, Argenta LC. Breast asymmetry: Presentation of a giant fibroadenoma. *Breast J* 2006;12:451–61.
11. Hanna RM, Dahniya MH, Ashebu SD. Giant fibroadenoma of the breast in an Arab population. *Australasian Radiol* 2002;46:252–6.
12. Rojananin S, Ratanwichitrasin A. Limited incision with plastic bag removal for a large fibroadenoma. *Br J Surg* 2002;89:787–8.
13. Ratanawichitrasin A, Rojanin S, Bhothisuwan K, Tansupasiri V. Drainage and suture of breast parenchyma in excisional biopsy of a breast mass. Is it worthwhile? In: Rojananin'S *et al*, eds. *Head, Neck and Breast Surgery*. Vol. 1. Bangkok: Reankeaw; 1995. p. 453–8.
14. Jacob MM. Application of reduction mammoplasty in treatment of giant breast tumour. *Br J Plast Surg* 2002;53:265–6.
15. Agarwal B, Agarwal S, Gupta M, Mahajan K. Transaxillary endoscopic excision of benign breast lumps: a new technique. *Surg Endosc* 2008;22:407–10.
16. Farquharson M, Moran B. Surgery of breast and axilla. In: Joanna Koster, Sarah Burrows (eds). *Farquharson's textbook of operative general surgery*, 9th ed. Great Britain: Edward Arnold; 2005. p. 21–32.
17. Kaufman CS, Bachman B, Littrup PJ, White M, Carolin KA, Freman-Gibb LN *et al*. Office-based ultrasound-guided cryoablation of breast fibroadenomas. *Am J Surg* 2002;184:394–400.
18. Millar JM. Day surgery. In: Russel RCG, William NS, Bulstrode CJK editors. *Bailley and Love's short practice of surgery*. London: Arnold; 2004; p. 228–38.

Address for correspondence:

Dr. Saleem Ahmed Soomro, Surgical Ward-2, Jinnah Postgraduate Medical Centre, Karachi. Tel: +92-21-9201300, Cell: +92-333-2271846
Email: salimsoomrobreastclinic@yahoo.com