

## Case Report

# Circumareolar Incision-subdermal Tunneling Dissection for Excision of Multiple Breast Fibroadenomata

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### ABSTRACT

Excision of multiple fibroadenomas (MF) in separate breast quadrants presents difficulties of number and location of incision(s) and extent of tissue dissection and may be associated with more complications and poorer cosmetic outcome. This is a report of excision of MF in multiple quadrants of the breast using a modification of subcutaneous dissection technique dubbed the circumareolar incision and subdermal tunneling (CAST) dissection. After exposure of the superficial fascia with circumareolar incision, subdermal cone-wise dissection was made to allow mobilization of the segment bearing the lump(s). The lump(s) were enucleated and removed. MF were removed from four breasts in three young unmarried females. The first patient had multiple adenomas removed from three quadrants of both breasts: 14 on the right and six on the left. The second patient had excision of three lumps in three separate quadrants, and the third patient had excision of two lumps in two separate quadrants. All patients had edema and bruising. One breast had wound infection and dehiscence. There were no skin necrosis, no nipple loss, and no breast distortion. All ensuing scars were camouflaged. CAST dissection was used for excision of MF in multiple quadrants of the breast with preservation of excellent cosmetic outcome of a single circumareolar incision.

**KEYWORDS:** Breast, fibroadenoma, quadrant, subdermal, tunneling

## INTRODUCTION

After excision of fibroadenoma(s), leaving a cosmetically acceptable postoperative surgical scar is important to the young patients having breast fibroadenoma(s), so the surgeon selects the incision type with care. The selection of surgical incision(s) and technique for excision of solitary breast lumps should be fairly straightforward. However, in an instance where the patient is young and unmarried female and the lesions are multiple and in separate quadrants of the breast, selecting the type of incision, the location of incision, the number of incisions, and method of dissection can be challenging because of the need to balance esthetic and functional reasons with successful excision.

Fibroadenomas are the most common indication for breast biopsy,<sup>[1,2]</sup> and most patients with fibroadenomas are young females below 30 years and up to 25% of

presentations are with multiple fibroadenomas (MF).<sup>[3]</sup> This implies that in young females who constitute majority of patient with fibroadenoma when surgical intervention is indicated, the surgeon may be faced with the decision of balancing successful excision with preservation of function and acceptable esthetic outcome, yet literature is scanty about the management of MF, even more limited still are reports addressing the decision about choice of incision, number of incisions, and the dissection method.

MF in separate quadrants have been excised by incision in the circumareolar region after stringent selection criteria,<sup>[4]</sup> or by multiple incisions placed on the breast skin directly over the lumps<sup>[5]</sup> with risk of poor esthetic

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outcome. They have also been removed with round block incision technique which isolates the nipple-areolar complex and by reduction mammoplasty of Rezai and which is a more extensive procedure, particularly suited for patients who have asymmetry of the breasts.<sup>[3,6,7]</sup>

The circumareolar incision and subdermal tunneling (CAST) technique was first presented in the 62<sup>nd</sup> Scientific Meeting of the Nigerian Surgical Research Society.<sup>[8]</sup> In this article, we report excision of MF in separate quadrants of the breast by CAST technique, a modification of the parenchyma dissection method. We wish to publish our experience because of the good cosmetic outcome from our center.

## METHODS

After the diagnosis of fibroadenomata following clinical review, breast ultrasound, and fine-needle aspiration biopsy, the patients were counseled for either multiple incisions for excision of their lumps or single circumareolar incision. At surgery locations of the lesions were marked and photographed to avoid missing smaller lesions after the edema of local anesthesia. The location of the circumareolar incision and the cone of dissection were planned. For all the procedures, cone-wise field block was done around the lesion(s) using 0.5% xylocaine with adrenaline. Prophylactic antibiotics were not used.

### Surgical technique of cast dissection and postoperative care

A single circumareolar incision ranging from 3 to 4 cm was used in all cases. After exposure of the superficial fascia with circumareolar incision, subdermal cone-wise dissection was made beyond the target lesion to allow mobilization of the segment

bearing the lump(s) into the circumareolar wound. After making the incision on the epidermis, the dermis was incised in light strokes until a bulge of the breast tissue still covered with the flimsy white superficial fascia was identified. Cone-wise dissection was continued centrifugally in the plane of the superficial fascia until the segment bearing the lump can be mobilized into the wound. Entrance of this plane was facilitated by the local infiltration which provided a relatively bloodless plane and widened the fascial plane. Care was taken not to dissect into the dermis while dissecting centrifugally in the plane of the superficial fascia.

After mobilization of the segment bearing the lesion, the subcutaneous tissue and the parenchyma over the lesion were divided to expose and enucleate the lump. Hemostasis was secured. The dead space from where the lumps were removed was not obliterated, and drains were not inserted in any of the cases. The skin incision was closed with intracuticular running nonabsorbable nylon 2-0 suture. Compression bandaging was applied immediately and retained for 3–5 days. The wounds were inspected on the 3<sup>rd</sup> postoperative day and then on the 10<sup>th</sup> day when the patients came for stitch removal. The patients were followed up on two weekly visits for a minimum of 3 months. Clinical photographs were taken on clinic follow-up visits.

### Case summaries and outcome

The first patient was a 26-year-old unmarried female; she presented with multiple breast lumps in both breast and in the left axillary tail of 5 years duration. She presented because of fear of malignant transformation and disfigurement of the breast. She wanted all her breast lumps excised. The right breast was operated upon first, and 14 lumps were excised from three separate quadrants (both lower quadrants and the upper outer quadrant). The farthest lump was about 10 cm away from the areola edge; five of the lumps were deeper



**Figure 1:** (a) Preoperative mapping of the right breast lumps, (b) remapping of the some of the excised lumps and (c) Display of all excised lumps



**Figure 2:** (a) Right breast edema and bruise on the third postoperative day and (b) resolved edema with good healing after 2 weeks

than 2 cm from the skin as judged by preoperative ultrasound scan. The largest lump was 3.5 cm in widest diameter [Figure 1a-c]. There were edema and bruising of the breast on the 3<sup>rd</sup> postoperative day, and the edema and bruising had resolved by the 14<sup>th</sup> postoperative day [Figure 2]. Two weeks later, the same technique was used to excise six lumps in three separate quadrants of the left breast (both lower quadrants and the upper outer quadrant). An axillary skin crease incision was used to excise the cluster of lumps in her left axillary tail [Figure 3a-c].

Two of the left breast lumps were deeper than 2 cm from the skin, and the farthest distance from the areola was 8.5 cm. The largest lump was 4.5 cm in the longest diameter. She had edema, bruising, and infection with wound dehiscence on the left side. The bruising and edema resolved within 14 days of operation. The wound healed completely within 8 weeks leaving well-camouflaged scars.

The second patient was a 22-year-old patient who presented with three lumps in three separate quadrants of her right breast. She had previously excised three lumps in the same breast about 2 years earlier. For the previous excisions, she had two separate scars which were both hypertrophic [Figures 1 and 4a-d].

She had CAST dissection and excision of all three lumps. The farthest lump from the areola was 6 cm. Each of the lumps was about 2 cm in diameter, and two of the lumps were superficial. She had edema and bruising which subsided within 10 days, and the incision scar was camouflaged within the dark pigmentation of the areola.

The third patient was a 19-year-old female with two lumps in her right breast, one in each lower quadrant. Each was about 7 cm from the areola and about 2 cm in diameter. Both lumps were superficial (<2 cm deep from the skin). She had excision of the two lumps using the CAST dissection technique. She had edema and bruising [Figure 5] which subsided within 10 postoperative days.

## DISCUSSION

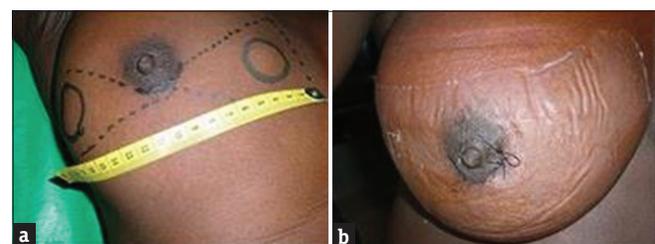
The breast is enclosed within two layers of fascia; the superficial fascia (anterior layer of the superficial pectoral fascia) and deep fascia (posterior layer of the superficial pectoral fascia). All breast parenchyma including the ductal system and the major and named blood vessels lie in a plane below the superficial fascia.<sup>[9-11]</sup> Subdermal tunneling technique utilizes this anatomical knowledge for the removal of MF in multiple quadrants of the breast via a single circumareolar incision. This CAST dissection technique is a modification of the plane of



**Figure 3:** (a) Preoperative mapping of the locations of the left breast lumps, (b) infection and dehiscence, and (c) good final cosmetic outcome at 3 months



**Figure 4:** (a) Preoperative mapping showing previous scars and current location of three new lumps, (b) points of lump excision demonstrated through circumareolar incision, (c) bruising and edema third postoperative day, and (d) well-camouflaged scar 10 weeks after surgery



**Figure 5:** (a) Preoperative mapping showing planning of cone-wise dissection, and (b) edema on third postoperative day

dissection. It differs from other methods of dissections for fibroadenomas which also utilize circumareolar incision in two respects; one is that this method utilizes the subdermal plane along the superficial fascia which is between the skin and subcutaneous tissue in contrast to other methods that utilize the subcutaneous plane or

outright parenchyma dissection.<sup>[4]</sup> The second difference is that the dissection is carried out in a cone-wise spreading manner, rather than radial sagittal manner which is commonly described in other methods of fibroadenoma excisions.<sup>[4]</sup>

Most fibroadenomas occur in the young unmarried age group<sup>[3]</sup> in whom using an incision that leaves a cosmetically acceptable, or a camouflaged scar is the next important desire after removal of the lump(s). The circumareolar incision that is hidden within or around the areola grants this desire. Unfortunately, the incision has numerous contraindications and is difficult to use when there are multiple lumps in the breast. The technique of CAST dissection which we have described and used in this series challenges some of these contraindications. This technique demonstrates that the plane of dissection below the skin can also be utilized without skin necrosis or nipple loss. However, the same plane of dissection is responsible for the incidence of bruising and skin edema in all the breasts operated upon. These demerits were acceptable to the patients because of eventual resolution and good camouflaging of the final scar.

The depth of the periareolar incision just to the anterior layer of the superficial fascia reduces the chances of ductal injury and the diameter of the incision less than half of the diameter of the areola prevents nipple-areola complex isolation; these again further allay the fears limiting the use of circumareolar incision, and by extension, may potentially widen the indications for the use of the cosmetically acceptable circumareolar incision in our clinical practice. This technique, however, still requires further studies to identify its place in the routine use for treatment of fibroadenomata.

## CONCLUSION

This article demonstrates the feasibility of using a single incomplete CAST to excise multiple lumps at varying depths from the skin, varying distance(s) from the areola and in separate quadrants without extensive parenchyma dissection and with the excellent final cosmetic outcome of single circumareolar incision.

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## Conflicts of interest

There are no conflicts of interest.

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