



Male Tuberos Breast: A Rare Variant of Gynecomastia. Clinical Considerations and Personal Experience: Tips and Tricks to Maximize Surgical Outcomes



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Received: 1 April 2019 / Accepted: 30 May 2019 / Published online: 19 June 2019

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Abstract

Introduction Tuberos breast deformity, even rarely, might be observed in the gynecomastia population. It can clinically appear very similar to tuberos breast in females, including a footprint resembling a feminine inframammary fold (IMF). Because of its anatomical characteristics, its correction could benefit from particular surgical measures and therefore it should be carefully diagnosed. A clear footprint defining a very feminine inframammary fold is very difficult to correct and renders very difficult the management of the extra skin. Transection of the fibrous constrictions at the level of inframammary fold is not sufficient to obtain a satisfactory result, and adjunctive surgical measurements are required.

Materials and Methods From January 2007 to December 2015, twenty-one patients, affected by gynecomastia with tuberos breast deformity, underwent surgical correction consisting of parenchyma debulking and transection of the stenotic fibrous ring of the footprint. The recontouring of the chest profile was optimized using parenchymal flaps which helped to maximize the surgical correction with minimal scarring.

Result The mean age at surgery was 28.8 years. The average follow-up period was 32 months. The average hospitalization stay was 1.28 days. Routine laboratory tests and histological examinations did not demonstrate any anomalies. No major complications and no recurrences of the disorders have not been observed. No major complications were reported: one seroma, one skin depression,

two scar revisions and three cases of bilateral minimal crescent ptotic skin appearance were observed.

Conclusion Although tuberos breast in the gynecomastia population is a rare clinical entity, it should be taken into consideration because it could benefit from some specific surgical measures. The use of glandular flaps showed a satisfactory reshaping of the pectoral area.

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Keywords Tuberos breast · Gynecomastia · Male chest disorder tuberos breast · Breast malformation · Breast deformity · Tuberos breast classification · Tuberos breast correction

Introduction

Gynecomastia is a benign hypertrophy of the breast in males. Even in a minor form, it may cause embarrassment and low self-confidence, especially during adolescence. It can appear with different clinical variants, some of which are very similar to tuberos breasts observed in females [1–4].

Male tuberos breast (MTB) is a rare form of gynecomastia characterized by the presence of a fibrous constriction that clearly imprints the base of the male breast with a sub-mammary fold above which projects a breast with a very feminine appearance. This sulcus can be sometimes very challenging to correct as it tends to conserve its memory. It can also complicate the distribution of the extra skin (remaining after glandular removal) onto a

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wider area on the chest; moreover, it may produce extra scarring [5–9].

To the best of our knowledge, MTB deformity is still poorly investigated among the different variants of gynecomastia; as a result, there is a lack of a classification system in the current literature [10]. Although MTB represents a rare variant of gynecomastia, it is a clinical entity in itself with distinctive morphological characteristics which could benefit from some particular surgical measures; therefore, it should be taken into consideration. The aim of this paper is to highlight this particular type of gynecomastia, proposing at the same time some surgical techniques to maximize patient outcomes.

Materials and Methods

From January 2007 to December 2015, twenty-one patients, bilaterally affected by MTB, were enrolled in the study and underwent surgical correction. Eligibility criterion is the presence of MTB. Exclusion criterion is the use of hormones or drugs. All the patients were preoperatively examined with ultrasound. Because gynecomastia can be related to the ponderal index, preoperative investigation included BMI assessment of the subjects. Preoperative and postoperative digital photographs, and personal and clinical data were carefully collected. The minimum follow-up was 12 months; maximum follow-up was 5 years. Histological examination was performed in all patients. Written informed consent was obtained from all patients.

The patients were asked to respond to a satisfaction ratings questionnaire at 12 months post-op, evaluating the preoperative perception of the gynecomastia disorder and postoperative satisfaction with chest profile, numbness, symmetry, nipple/areola contouring and scarring value, which was assessed using a 5-point Likert scale (1 = very dissatisfied, 2 = dissatisfied, 3 = neither, 4 = satisfied, 5 = very satisfied) [11].

Surgical Technique

As in subcutaneous mastectomy, the outer surface of the glandular parenchyma was completely dissected from the overlying skin through an incision approximately 2.5 cm in length made at the inferior border of the areola (Fig. 1 a, b) [12]. The gland was vertically split into two, and the fascial plane was reached. The caudal part of the separated parenchyma was pulled out, while the remaining portion of breast tissue connected to the pectoralis fascia was left in site (Fig. 1 c–e). Following the fascial plane, the dissection proceeded caudally and a subcutaneous pocket, approximately 1.5 cm in height, was harvested below the entire length of the inframammary fold (IMF). The fibrous

constrictions at the IMF were released with multiple radial incisions.

The parenchyma left connected to the fascial plane was meticulously tailored—both in size and shape—and inset as an advancement flap in the subcutaneous pocket, where it was fixed with a few transcutaneous stitches, to realign the stenotic appearance of the pectoral area below the IMF with the rest of the chest profile (Fig. 1 e–f).

When necessary, extra skin was usually removed by the circumareolar approach; an approach that would produce extra areola scarring was rarely used. Ptosis was corrected by nipple areola transposition using a dermal pedicle.

In the presence of only a persistent intra-areolar herniation of parenchyma overlying a normal masculine pectoral area, no subcutaneous dissection was performed. The areola was incised inferiorly, and the fascial plane was reached with a vertical incision. The dissection proceeded cranially to separate the posterior surface of the gland bulk from the pectoralis fascia. Once completely dissected from the fascial plane, a glandular flap was harvested from behind the areola, basing its vascularization on a superficial distal pedicle. The flap was transferred downward, as a finger glove, and after tailoring, it was fixed in a subcutaneous pocket to recontour the pectoralis area below the inferior border of the areola to the rest of the pectoral region (Fig. 2).

At the end of the procedure, an elastic compression jersey was applied for 5 days and minimal activity was suggested for the first week.

Result

The mean age at surgery was 28.8 years (ranging from 18 to 46 years old). The average follow-up period was 32 months, ranging from 12 to 60 months. Twelve patients (57%) with a BMI > 25 were overweight; out of the nine patients with BMI ≤ 25, only three subjects (14.28%) showed a permanent intra-areolar herniation of the parenchyma. Routine laboratory tests did not demonstrate any hematocrit or hemoglobin anomalies, with renal, thyroid and liver functionality in range. The operative time ranged from 25 to 120 min. Drains were used in four patients bilaterally and maintained for 24 h. The average hospital stay was 1.28 days: Fifteen (71.4%) procedures were performed in a day-hospital while 6 subjects (28.6%) were admitted for two days. Excised glandular tissue weight ranged from 45 to 240 gr per side. No breast cancer was found during the histological examinations. There have been no reports of recurrence of the disorder (Fig. 3).

Fourteen (66.6%) surgical incisions at the inferior border of the areola, six (28.6%) circumareolar surgical

Fig. 1 Surgical technique: **a**, **b** parenchyma dissection; **c**, **d** parenchyma recontouring; **e**–**f** parenchyma flap inset and native inframammary fold releasing

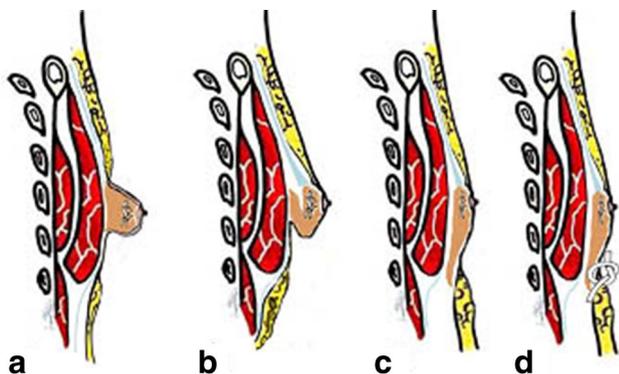
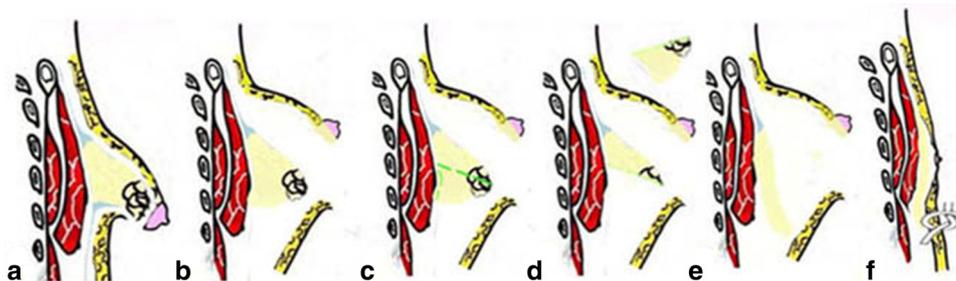


Fig. 2 Surgical technique: **a** permanent herniation of parenchyma behind the areola; **b** retro areola distally based flap of parenchyma dissection; **c** downward flap rotation with a finger glove maneuver; **d** flap inset, native inframammary fold releasing and chest recontouring

approaches and only one (4.8%) vertical scar in an overweight patient were reported.

Reported complications are as follows: one unilateral seroma (4.7%) required percutaneous drainage; one unilateral skin depression (4.7%) resolved by one-section lipofilling; two minimal scar revisions (9.5%); and three cases of bilateral (14.28%) minimal crescent ptotic skin appearance in overweight patients; only one out of these three patients required surgical correction because of low self-confidence with the result (Fig. 4). No major complications such as infections, or skin or nipple areola complex necrosis were reported. The data are reported in Table 1.

Fig. 3 A 21-year-old male presented with a severe form of gynecomastia related to Klinefelter syndrome: **a** preoperative frontal view; **b** postoperative frontal; **c** a lateral view

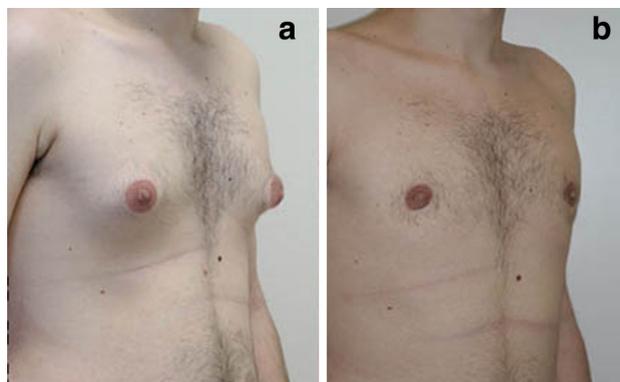
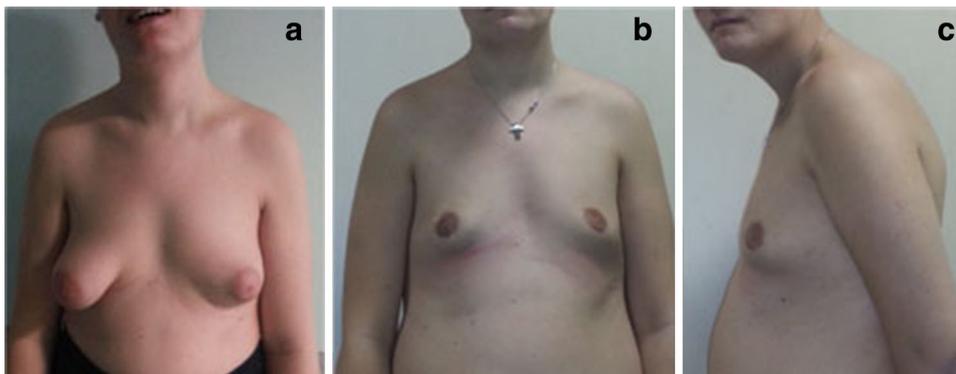


Fig. 4 A 22-year-old male with overweight body type who had a severe form of gynecomastia since his early teenage years. His gynecomastia became more pronounced at the age of 16. Good quality of skin texture was observed. **a** Preoperative frontal view showing significant female ptotic breasts with wide areola; **b** postoperative frontal view showing a satisfactory resolution of the gynecomastia disorder obtained through a full-circle areola approach with a significant decreasing of areola diameter; **c** lateral view

The preoperative mean Likert Score for patient satisfaction with chest appearance was 1.28. Postoperatively, the score ranged between 3 and 5 with an average of 4.57. Ninety-five percent of the patients declared that the result was very satisfactory (Fig. 5).

Table 1 Personal, clinical and surgical data

N°	Age ^y	Hospital stay	Surgical incision	Overweight	Normal weight	Athletic	Complications	Secondary procedure
1	18	Day surgery	Inferior areola incision		x	x		
2	21	Day surgery	Inferior areola incision		x	x		
3	44	Two days	Circumareolar	x			Crescent ptotic skin appearance	Scar revision
4	46	Two days	Circumareolar	x			Seroma	Drainage + lipofilling
5	19	Day surgery	Inferior areola incision		x	x		
6	20	Day surgery	Inferior areola incision	x				
7	24	Two days	Circumareolar + vertical	x				
8	41	Day surgery	Inferior areola incision	x				
9	34	Two days	Circumareolar		x			
10	43	Day surgery	Inferior areola incision	x				
11	31	Two days	Circumareolar	x			Crescent ptotic skin appearance	
12	28	Two days	Circumareolar		x			
13	30	Day surgery	Inferior areola incision		x			
14	29	Day surgery	Inferior areola incision	x				
15	24	Day surgery	Inferior areola incision		x			
16	26	Day surgery	Inferior areola incision	x				
17	22	Day surgery	Inferior areola incision		x			
18	20	Day surgery	Inferior areola incision		x			
19	31	Day surgery	Circumareolar	x			Crescent ptotic skin appearance	Scar + ptotic appearance revision
20	30	Day surgery	Inferior areola incision	x				
21	25	Day surgery	Inferior areola incision	x				

Discussion

The term “tuberous breast” was first used by Rees and Aston in 1976 [13]. The authors described a heterogeneous series of congenital breast malformations in females, commonly showing a reduction in both vertical and horizontal diameters of the mammary base. If the epidemiology for tuberous breast is still unclear in females, the prevalence of the disorder among the gynecomastia population remains totally undetermined [14].

Even in males, according to the etiopathogenetic theory proposed by Mandrekas in 1999, the malformation could be due to a thickening of the superficialis fascia around the mammary bud that occurred during gestation [15]. In the presence of factors causing gynecomastia, this fascial thickening would not enable the centrifugal growth of the gland, forcing it forward, behind the areola, where the fascia is absent.

In the present literature, MTB is poorly investigated, even if some authors have published their interesting experiences and approach to this rare disorder [16–18].

The management of the deformed breast is completely different for men and women: While in women, tuberous breast correction aims at a conical breast reshaping of the lower pole, in men the goal is to obtain a masculine contour of the chest.

In patients suffering from tuberous gynecomastia, the skin is usually in excess compared to the gland. The anchorage of this skin surplus at the underlying fascial thickening forms a well-defined footprint, resembling a female IMF, which appears stenotic in the most severe cases. Because it tends to conserve its memory, this footprint is very difficult to correct after gland removal; furthermore, it represents a severe limitation to the redistribution of the extra skin onto a wider area in the mammary region.

Transection of IMF fibrous constrictions and wide undermining of the flap skin coverage may not be sufficient to distribute the extra skin onto the new chest profile and avoid the memory of the malformation. The flap inset in the subcutaneous pocket, harvested below the IMF, releases the retracted aspect of the IMF footprint, projecting forward the skin overlying the footprint. The use of the flap reduces the prominent aspect of the areola and projects

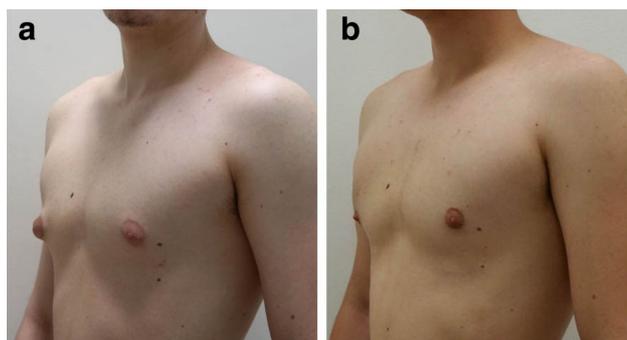


Fig. 5 A 21-year-old male presented with a permanent intra-areolar herniation of parenchyma: **a** preoperative lateral view; **b** postoperative lateral view

forward the IMF, balancing the difference in contour between the areola and the chest. Consequently, the need for areola thinning and circumareolar scarring for areola flattening is reduced and areola survival is more likely. However, the shape and thickness of the extra parenchyma flap must be tailored according to the chest profile and the amount of parenchyma to be removed, for the realignment of the areola to the rest of the chest.

Liposuction, especially in obese patients, represents a valid surgical method as a complementary way of managing the disorder.

In our experience, glandular excision, liposuction and flap recontouring represent the best surgical approach in the presence of the combination of constriction at the footprint and parenchyma herniation through the areola.

Areola diameter reduction is another main field of interest among the gynecomastia population. In the presence of an elastic skin cover, areola shrinkage may be achieved through an aggressive thinning of the sub-dermal tissue during dissection of the outer surface of the gland from the overlying skin; usually, it makes the areola shrink almost instantly, reducing the recurrence to circumareolar incision when strictly necessary [19–21]. Obviously, it is essential to respect the dermal plexus to avoid necrosis.

Despite the small sample of subjects in the study (21 patients), considering the low incidence of the malformation, some considerations can still be drawn:

- Twelve (57.1%) were overweight;
- Permanent intra-areolar herniation of parenchyma was observed only in thin, athletic subjects (high muscle mass patients with BMI < 25 and body fat < 9%);
- Unlike in the female population affected by tuberous breast, where unilateral and/or asymmetrical malformations are frequently present, out of 21, 95.2% (20 subjects) showed bilateral and symmetrical MTB disorder;

- Crescent ptotic skin appearance of the mammary region was the most frequent postoperative complication. It was observed only in overweight patients;
- Although all the patients declared preoperatively that they were very distressed by the disorder, they all stated that gynecomastia correction requiring minimal scarring was their main priority; only one patient accepted extra areola vertical scarring to optimize the postoperative outcomes [22, 23];
- Since scars represent a very sensitive issue for patients that could cause permanent embarrassment that may negatively influence the perception of the final result, they should be limited to the most severe cases and thoroughly discussed with patients [11].

Conclusion

The masculine reshaping of the chest is the aim in gynecomastia correction; therefore, a careful preoperative evaluation is essential to select the most appropriate surgical planning. The high attention toward chest appearance paid by men nowadays requires maximum results with minimal morbidity; consequently, an appropriate diagnosis could be useful to obtain optimum patient satisfaction [24, 25].

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