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Clinical and surgical evaluation of gynecomastia: tactic and results

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ABSTRACT

Objectives: To perform an assessment of the clinical and surgical characteristics of gynecomastia as a tactic used and the results obtained in the breast. **Methods:** A prospective and observational study was carried out in the mastology service of Hospital Barão de Lucena in 40 patients. To determine which factors are associated with the cosmetic outcome, the contingency table was constructed and the χ^2 test for independence was applied. In cases in which the assumptions of the χ^2 test were violated, Fisher's exact test was applied. **Results:** Findings showed that most patients were from the metropolitan region of Recife (72.5%), studied until high school (62.5%), were aged 10 to 20 (42.5%), were in gynecomastia grade III (47.5%), underwent double incision (52.5%), had no complications (75.0%), and had a good and excellent cosmetic outcome (75.0%). The proportion comparison test was significant in all factors evaluated ($p<0.05$), except for the variable level of education ($p=0.114$), indicating that the numbers of patients who studied until high school and had higher education are close. The independence test was significant only in the variable complications ($p<0.001$), indicating that having complications significantly increases the risk for regular/bad cosmetics. **Conclusion:** Gynecomastia is a pathology of strong social impact. We observed this after analyzing the epidemiological, clinical, and surgical characteristics of our patients. In patients who underwent surgical treatment and who had no complications, there was a greater degree of satisfaction.

KEYWORDS: man; surgery; estrogen; breasts.

INTRODUCTION

Gynecomastia was conceptualized by Galeno in the 2nd century BC, who defined it as a fatty accumulation in the man's breast.[1]

Its incidence in the world population is still unknown. However, there are peaks of incidence in newborns between 60 and 90%, presenting a transient development at puberty, beginning at 10 years of age and with a greater peak between 13 and 14. In the adult population, there is more prevalence approximately at 50 years of age, which is maintained until the 8th decade of life.[3,4] According to Medeiros, there is an incidence of gynecomastia in 8 for every 100,000 individuals in our country. This pathology is responsible for 65% of benign pathologies in men.[5]

As to pathophysiology, gynecomastia can arise from an imbalance between the concentrations or the effects of free estrogens and androgens. Most gynecomastias have an idiopathic cause, roughly 25%, or persistent gynecomastia at puberty, roughly 25%, but there are pathological causes (cirrhosis and malnutrition= 8%, or primary hypogonadism= 8%), less frequently testicular tumors (3%), secondary hypogonadism (2%), hyperthyroidism (1.5%), or kidney disease (1%), medications and drugs (10–20%).

In the treatment of gynecomastia, several available techniques are observed (Figure 1), the choice being based on the degree of pathology, the surgeon's experience, and the adopted tactic.

In the medical field, the treatment of gynecomastia has been little addressed, making it necessary to evaluate the epidemiological and clinical characteristics and the most adopted type of surgery, complications, cosmetic results, and factors related to these results, justifying the present study.

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METHODS

This is a prospective and observational study, carried out in the mastology and breast reconstruction service of Hospital Barão de Lucena in 40 patients, between April 2017 and April 2018. Patients were clinically examined at the outpatient clinic, with requests for hormonal tests in some cases, with mammography and ultrasound images in all patients, in which the following variables were analyzed: origin, education level, age, personal history (use of medications), degree of gynecomastia, type of surgery, complications, and cosmetic result.

Patients were assessed using sociodemographic data and background, in addition to factors related to gynecomastia, its treatment and results. A standardized form was used, and data were tabulated in descriptive statistics. For data analysis, a database was built on a Microsoft Excel spreadsheet, which was exported to SPSS software, version 18, in which the analysis was performed. To characterize the personal and clinical profiles, the observed frequencies and percentages of the patients evaluated were calculated, and based on these data, the frequency distribution was constructed. To determine which factors are associated with the cosmetic outcome, the contingency table was constructed and the χ^2 test for independence was applied. In cases in which the assumptions of the χ^2 test were violated, Fisher's exact test was applied. All conclusions considered a 5% significance level. Research was approved by the Ethics and Research Committee under number CAAE 63295816.0.0000.5197.

RESULTS

Table 1 shows the distribution of the personal and clinical profiles of the patients evaluated. Most patients seem to be from the metropolitan region of Recife (72.5%), studied until high school (62.5%), are aged from 10 to 20 (42.5%), have no history (75.0%) for breast cancer, have gynecomastia grade III (47.5%), underwent double incision (52.5%), had no complications (75.0%), and had good or excellent cosmetic outcome (75.0%). The proportion comparison test was significant in all factors evaluated ($p<0.05$), except for the variable education level ($p=0.114$).

Table 2 shows the distribution of the cosmetic result according to personal and clinical factors. There is a higher prevalence of regular/poor cosmetic results in the group of patients from outside the metropolitan region of Recife (27.3%), with higher education (33.3%), over 50 years old (50.0%), with personal history (50.0%), with gynecomastia grade III or IV (50.0%), having undergone periareolar surgery (31.2%) and with complications (20.0%). Even though a higher prevalence of regular/bad cosmetics was observed in the group of patients with the profile described, the independence test was significant only in the variable complications ($p<0.001$), indicating that having complications significantly increases the risk for regular/bad cosmetic, which is about 26 times higher (prevalence ratio=26) than that of the group of patients without complications.

DISCUSSION

Gynecomastia is a benign disorder, due to a proliferation of ductal tissues, stroma and fat.[6,7] However, cosmetic changes and physical discomfort in patients cause serious stress and psychological problems, especially in adolescent boys, who avoid taking their shirts off in public places. In our casuistry, most patients were

Table 1. Distribution of clinical and surgical profiles of the studied population (n=40).

Factor evaluated	n	%	p-value*
Place of origin			
MR of Recife	29	72.5	0.004
Outside the MR of Recife	11	27.5	
Education level			
Until high school	25	62.5	0.114
Undergraduate	15	37.5	
Age range (years old)			
10 to 20	17	42.5	<0.001
21 to 30	9	22.5	
31 to 40	5	12.5	
41 to 50	1	2.5	
51 to 60	5	12.5	
Over 60	3	7.5	
Medical personal history			
No history	30	75.0	<0.001
Drugs / alcoholism	4	10.0	
Medications	6	15.0	
Degree of gynecomastia			
Degree I	10	25.0	0.001
Degree II	10	25.0	
Degree III	19	47.5	
Degree IV	1	2.5	
Type of surgery			
Periareolar	16	40.0	<0.001
Double incision	21	52.5	
Pitanguy	2	5.0	
Subcutaneous mastectomy	1	2.5	
Complications			
None	30	75.0	<0.001
Seroma	5	12.5	
Bruise	4	10.0	
Keloid	1	2.5	
Cosmetic			
Great	14	35.0	0.004
Good	16	40.0	
Regular	9	22.5	
Bad	1	2.5	

*p-value of the χ^2 test for comparison of ratios; MR: metropolitan region.

at puberty (43%). These results are in accordance with the world literature, which shows, the occurrence of 30 to 60% of gynecomastias in this age group. If the patient has pain or hypersensitivity or feels embarrassed by gynecomastia, the possibility of removing the mammary gland should be suggested.[8,9]

Gynecomastia is a very frequent alteration, which justifies the wide range of publications regarding its treatment. There are many causes of gynecomastia, including an imbalance between estrogens and androgens, although its exact etiology is unknown.[10]

Modern surgical treatment begins with the concern to hide the scar as much as possible, by incisions through the areola or very close to it.[11] The periareolar incision has an excellent access route for Simon's small type I and II gynecomastias, with discrete scars, but it promotes a small operative field and, if indicated for larger gynecomastias, it may cause technical difficulties and areolopapillary suffering due to excessive tension[12-14] (Figure 1). For the transareolo-nipple incision or Pitanguy technique, the same considerations are valid (Figure 1).

The R. Sinder zeta incision allows wider access but is still deficient for major gynecomastias. Stewart's submammary incision and/or female glandular resection techniques leave final horizontal and transverse scars, in addition to the periareolar incision, which offers the possibility of proceeding with gland and skin resection in moderate and large hypertrophies, but they are complicated techniques and leave very visible scars (Figure 1).

The double incision periareolar technique (round-block) has been used in our service at Hospital Barão de Lucena for the treatment of grades III and IV gynecomastias. In our material, grades III and IV corresponded to 50% of the cases, and double incision was performed in 52% of the patients, unlike what was found in Montiel et al., which had 50% of the periareolar incisions, because it provides simplicity, insofar as surgeons are familiar with this type of approach in female mammoplasty; safety, by maintaining a wide upper pedicle for the nipple-areolar complex; maintenance and/or correction of the positioning of the nipple-areola complex; symmetry of the nipple-areola complexes, when removing the excess skin in a circular manner; enlargement of the operative field, facilitating and reducing the time of the surgical act and the resection of the excess skin in the surgery with approach in the double incision technique (Figures 2, 3 and 4).

Just like with female mammoplasties, the circular periareolar technique represents an alternative access route in the surgical treatment of large gynecomasties, grades II, III and IV, in which, in addition to excision of the gland, excess skin resection is required. According to Rohrich et al., its classification is based on grades I to IV, in which the volume and degree of ptosis are evaluated.[15]

Scars widening is a frequent complication. Is does not occur due to tension, but to extensive skin resection, as well as the

Table 2. Distribution of the cosmetic aspect according to personal and clinical factors.

Factor evaluated	Cosmetic		p-value	PR	95%CI
	Regular/Bad (%)	Great/Good (%)			
Place of origin					
MR of Recife	7 (24.1)	22 (75.9)	1.000*	1.00	-
Outside the MR of Recife	3 (27.3)	8 (72.7)		1.13	0.35–3.61
Education level					
Until high school	5 (20.0)	20 (80.0)	0.457*	1.00	-
Undergraduate	5 (33.3)	10 (66.7)		1.67	0.58–4.82
Age range (years old)					
Until 30	5 (19.2)	21 (80.8)	0.236*	1.15	0.16–8.15
31 to 50	1 (16.7)	5 (83.3)		1.00	-
Over 50	4 (50.0)	4 (50.0)		3.00	0.44–20.44
Personal history with medicines or drugs					
Absent	5 (16.7)	25 (83.3)	0.085*	1.00	-
Present	5 (50.0)	5 (50.0)		3.00	1.09–8.25
Degree of gynecomastia					
Degrees I and II	4 (20.0)	16 (80.0)	0.465**	1.00	-
Degrees III and IV	6 (30.0)	14 (70.0)		1.50	0.50–4.52
Type of surgery					
Periareolar	5 (31.2)	11 (68.8)	0.482*	1.50	0.52–4.36
Another	5 (20.8)	19 (79.2)		1.00	-
Complications					
Absent	1 (3.3)	29 (96.7)	< 0.001*	1.00	-
Present	9 (90.0)	1 (10.0)		27.00	3.89–187.53

PR: prevalence ratio; CI: confidence interval for PR; *p-value of Fisher's exact test; **p-value of the χ^2 test for independence; MR: metropolitan region.

formation of hematoma and seroma represented 20% of our complications in the post-surgical period. Lapid et al. demonstrated in their casuistry of 20 years of experience that hematoma followed by seroma are the most common complications.[16]

The independence test was significant only in the postoperative complications variable (p<0.001), indicating that these complicating patients significantly increased the risk for unsatisfactory cosmetic results. Most of our patients had a degree

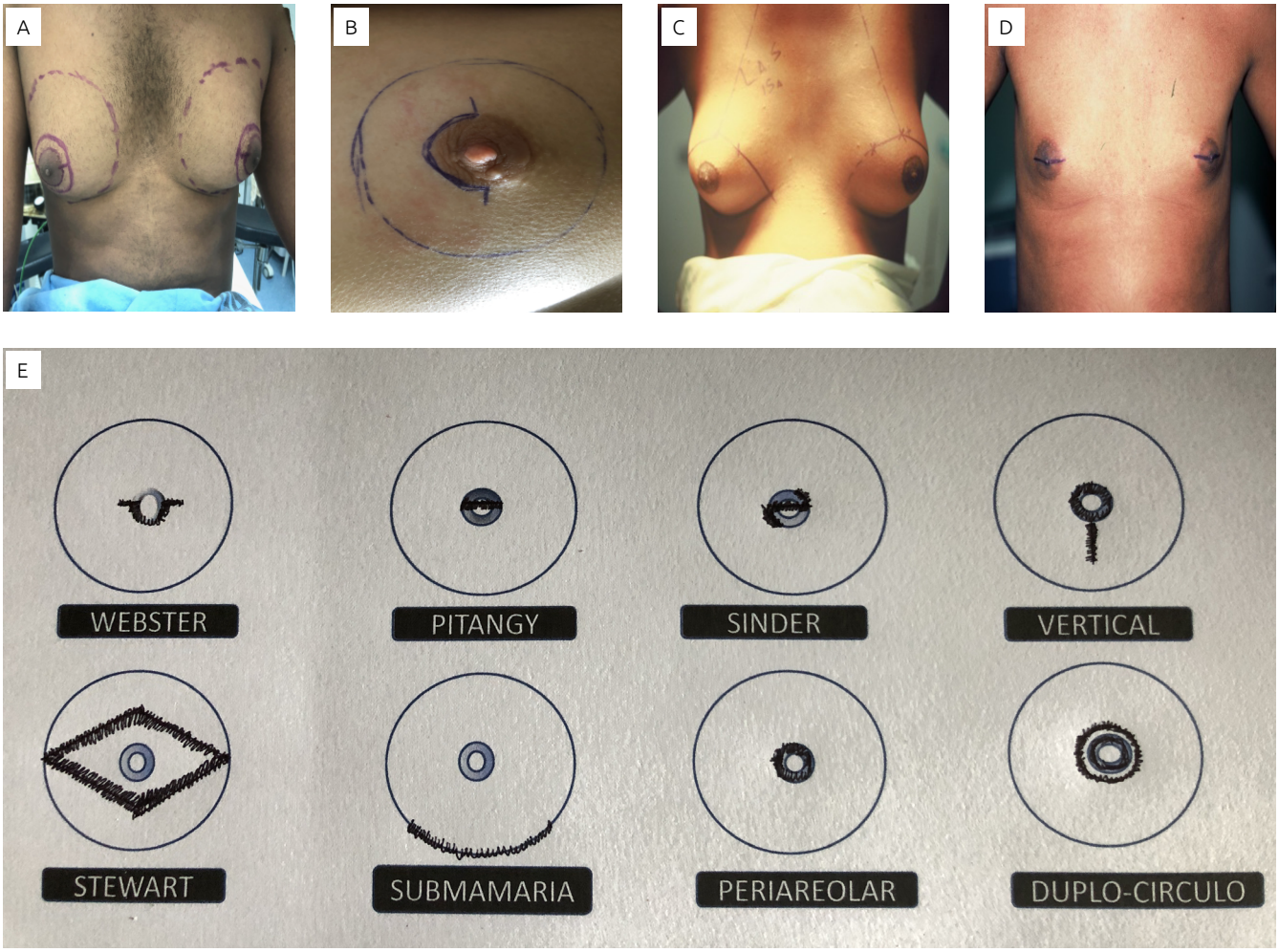


Figure 1. Some incisions that can be used in the correction of gynecomastia (double incision [round-block], Webster, periareolar, mastoplasty using the Pitanguy technique, transareolopapillary, Sinder, vertical, and Stewart).

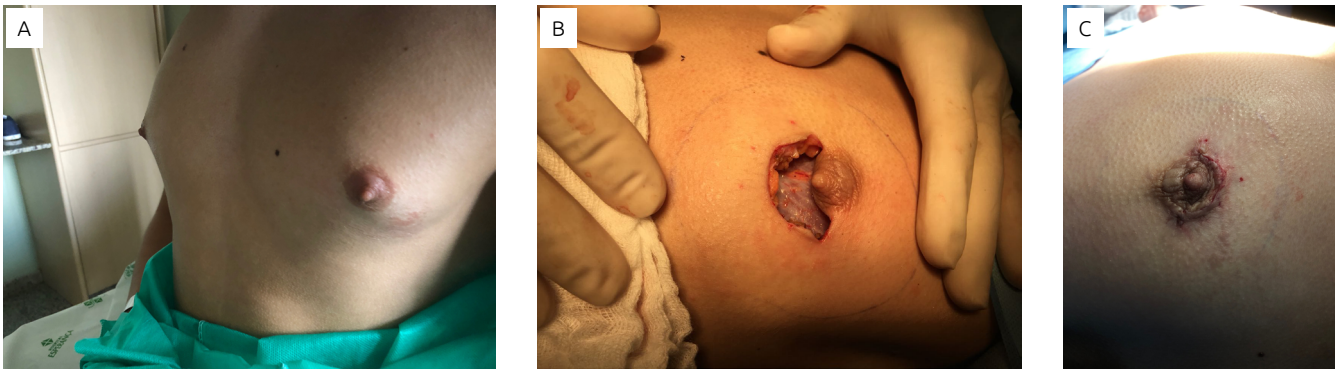


Figure 2. Degree I gynecomastia. Pre and postoperative (Webster's periareolar technique).

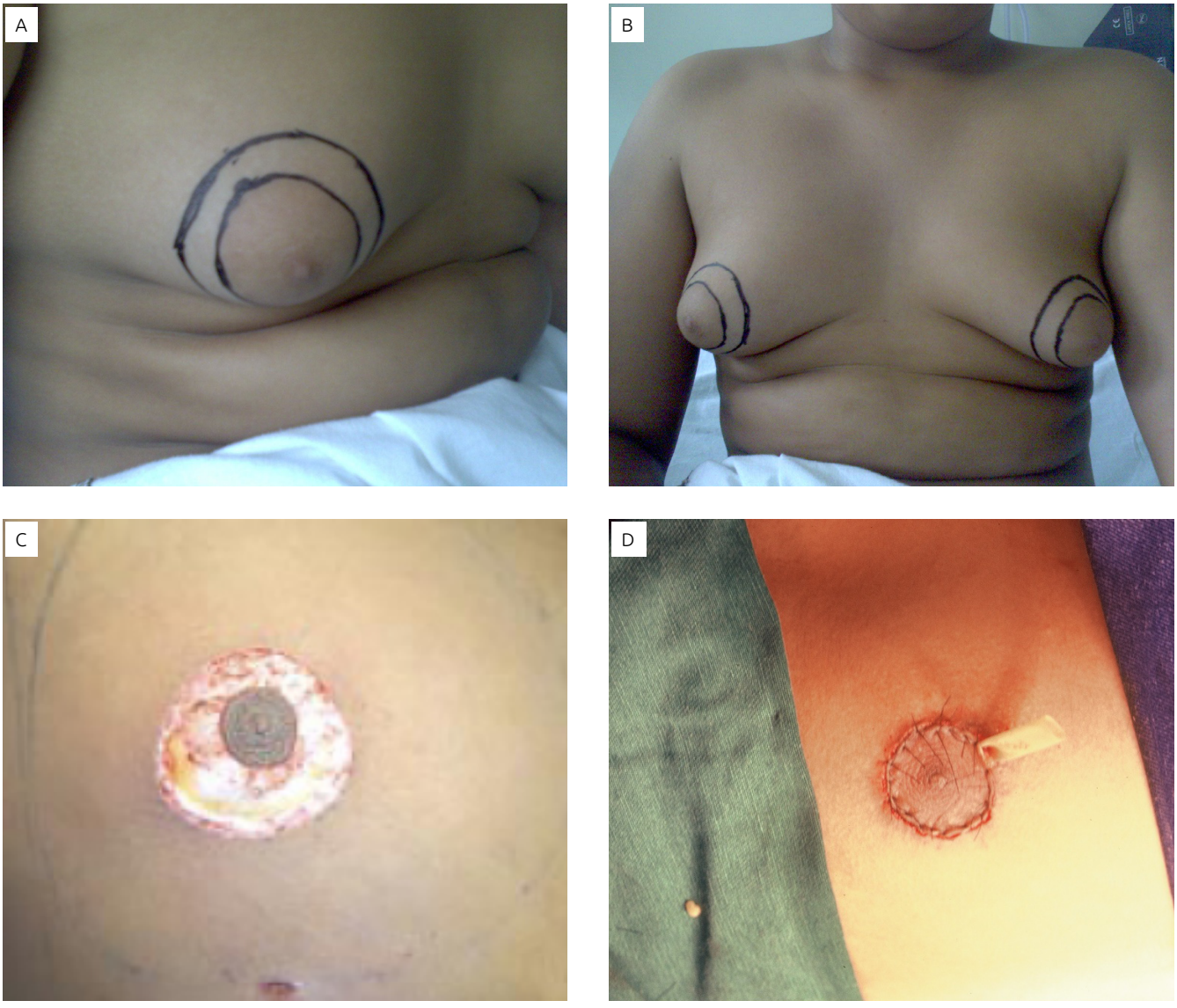


Figure 3. Degree II/III gynecomastia. Pre and postoperative (double incision).

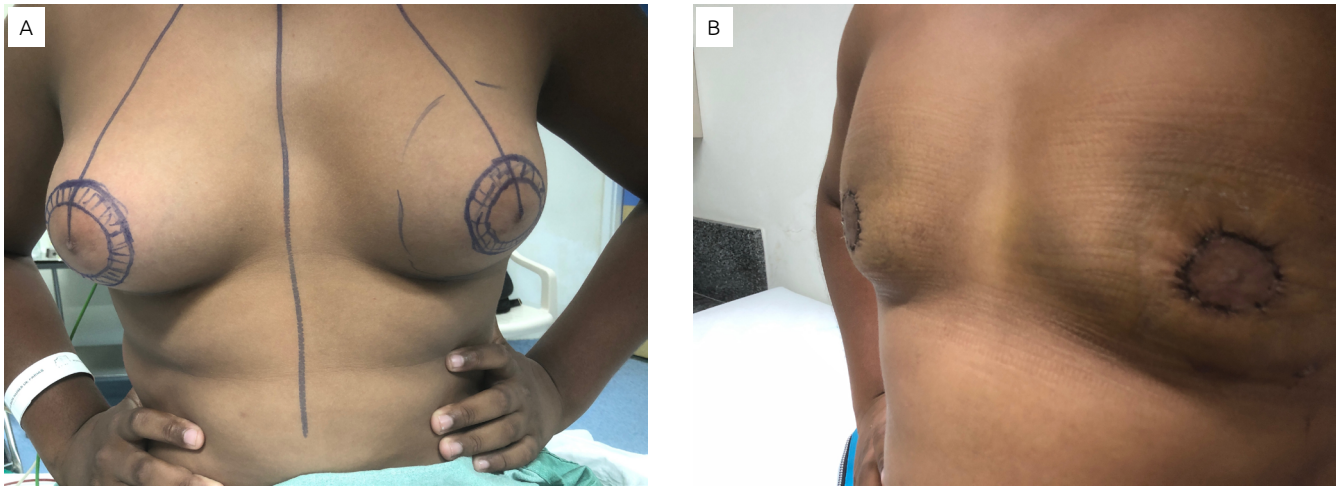


Figure 4. Degree III/IV gynecomastia. Pre and postoperative (double incision).

of gynecomastia III/IV (around 50%), with a higher probability of complications. In our casuistry, the degree of satisfaction was 75%. Unlike our results, Gabra et al., in a study with 39 adolescents, found a satisfactory result in 88% of patients, only 12% reported dissatisfaction.[17] Colombo-Benkmann et al. also observed, in their analysis of 100 patients, that the degree of gynecomastia II and III and the type of incision are associated with specific sequelae. The degree of patient satisfaction was 86%.[18]

None of our patients underwent treatment with medication to reduce breast volume, given that the Unified Health System (SUS) only releases this type of medication for cancer patients. Besides that, our patients had a large breast volume. Testosterone was used only in hypogonadism. Dihydrotestosterone was effective in some uncontrolled studies. Danazol can bring some benefit, but it has a high cost. Tamoxifen was effective in several studies, at a dose of 20 mg/day for three months, similar to raloxifene. Regarding aromatase inhibitors, there are few studies, although they have shown a positive response with anastrozole 1 mg.[18-22]

CONCLUSION

Gynecomastia is a pathology that causes great psychosocial impact, and its surgical treatment can bring satisfaction and better adaptation of young patients to society. Patients who do not have postoperative complications are those who have the highest degree of satisfaction.

AUTHORS' CONTRIBUTION

D.F.: conceptualization, funding acquisition, investigation, methodology, investigation, project administration, supervision, validation, visualization, writing — review & editing.
N.F.: investigation, validation, visualization, writing — review & editing.
N.F..: data curation, formal analysis, investigation, writing — original draft.
T.F.: data curation, formal analysis, investigation, writing — original draft.
D.F.: conceptualization, data curation, formal analysis, investigation, visualization, writing — original draft, writing — review & editing.

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