Original Article

Secondary mastopexy with exchange of prosthesis: mirror "D" technique

Mastopexia secundária com troca de prótese: técnica em "D" espelhado

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■ **ABSTRACT**

Introduction: Breast implantation combined with mastopexy is challenging, not only because a standard procedure is lacking, but also because of the high potential for complications, including a high rate of post-surgical revision. Originally intended for primary mastopexy and inclusion of silicone implants in hypoplastic breasts with moderate to severe ptosis, the use of the mirror "D" technique is now extended to treatment of ptosis recurrence with displacement of prostheses, with or without capsular contracture and/or unsightly scars. **Method:** The procedure described was performed in 90 patients, using specific marking to determine block resection of skin and underlying parenchyma for symmetrization. The procedure included use of a medial pedicle flap and exchange of original implants for textured, high-profile, round silicone prostheses with equal volumes bilaterally and positioned in the submuscular plane, resulting in a final vertical scar. **Results:** No surgical revision was required in any of the cases. There was no occurrence of postoperative infection or necrosis of the nipple-areola complex or scar. The average parenchyma resection was 80 g. Eighty-nine patients (98.8%) were submitted to resection of different volumes. The average prosthesis volume was 300 mL. The length of the vertical scar was stable with an average of 6.5 cm after 2 years. The results were considered satisfactory according to patient assessment. **Conclusion:** Secondary mastopexy is a more complex surgery due to severe atrophy of the tissue as a result of previous surgery. Its benefits include improved symmetrization, thinner scars and reduction in tension on the nipple-areola complex, long-lasting results, and a high degree of patient satisfaction.

Keywords: Breast implants; Mammoplasty; Atrophy; Secondary prevention; Reconstructive surgical procedures.

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■ **RESUMO**

Introdução: A inclusão de implante mamário combinada com pexia é uma cirurgia desafiadora, não somente pela ausência de procedimento padrão, mas por se mostrar uma cirurgia com elevado potencial de complicações, entre elas, alto índice de revisões pós-cirúrgicas. Neste trabalho é descrita a utilização da técnica em "D" espelhado originalmente usada para mastopexia primária e inclusão de implantes de silicone em mamas hipoplásicas associadas à ptose moderada a grave, agora se estendendo o uso para o tratamento de recidiva de ptoses com deslocamento das próteses com ou sem contratura capsular e/ou cicatrizes inestéticas. **Método:** O procedimento descrito, realizado em 90 pacientes, faz uso de marcação própria que determina ressecção em bloco de pele e parênquima subjacente para simetrização, retalho de pedículo medial, troca dos implantes originais para próteses de silicone texturizada, perfil alto, redonda, volumes iguais bilateralmente, posicionadas em plano submuscular, resultando em uma cicatriz final vertical. **Resultados:** Pelos dados obtidos não foi necessária revisão cirúrgica em nenhum dos casos. Não houve ocorrência de infecção pós-cirúrgica ou necrose da placa areolopapilar, bem como da cicatriz. A ressecção média do parênquima foi de 80g. Oitenta e nove pacientes (98,8%) foram submetidas à ressecção de diferentes tamanhos. O volume médio das próteses incluídas foi de 300ml. O comprimento da cicatriz vertical se mostrou estável em média de 6,5cm após 2 anos. Os resultados foram considerados satisfatórios pela avaliação feita pelos pacientes. **Conclusão:** A mastopexia secundária mostrou-se uma cirurgia de maior complexidade devido à atrofia severa dos tecidos, resultado da cirurgia prévia. Seus benefícios incluem maior simetrização, cicatrizes mais finas com diminuição da tensão da placa areolopapilar, resultados duradouros e alto grau de satisfação das pacientes.

Descritores: Implantes de mama; Mamoplastia; Atrofia; Prevenção secundária; Procedimentos cirúrgicos reconstrutivos.

INTRODUCTION

Combined mastopexy with implant placement would appear to be simple, but is in fact an architecturally challenging intervention, with technical difficulties, risks, and non-durable results[1].

There has been no consensus regarding ideal technique[1-3], with reported postsurgical revision rates reaching 54%[4-6].

The surgery has been performed in patients with inverted T mastopexy with prostheses who develop ptosis relapse (grade III and IV) with prosthesis displacement. We present a variation of the mirror "D" technique[7] with long-lasting results and a high degree of patient satisfaction.

The changes described include the form of marking, positioning of the patient during surgery, and surgical techniques. The mirror "D" technique consists of combined resection of skin and breast parenchyma, use of a medial pedicle[8], a new submuscular prosthesis[9,10], and a vertical scar[11].

OBJECTIVE

To provide lasting results and reduce the rate of recurrence of ptosis with prosthesis displacement.

METHODS

Results obtained with the mirror "D" technique for secondary mastopexy with replacement of prostheses were evaluated in 90 female patients aged 30-60 years old, with no exclusion by race, between July 2013 and July 2015 and living in the city of São Paulo, Vale do

Paraíba and the north coast. Surgery was performed by the author at the Hospital Antoninho da Rocha Marmo in São José dos Campos, SP, with the approval of the Ethics Committee of the hospital and with signed informed consent, according to the principles of the Declaration of Helsinki (001/ADM/HARM/2018).

Patients had undergone inverted T mastopexy with subglandular prostheses and complained of grade III and IV ptosis relapse with prosthesis displacement, with or without capsular contracture and/or unsightly scarring. The patients were evaluated weekly during the first month, then monthly for 6 months, then every 3 months for 2 years following surgery.

RESULTS

Marking

Marking is performed in supine position with arms next to the trunk (Figure 1); this position accentuates the mammary groove up to 1 cm more compared with marking in upright position.

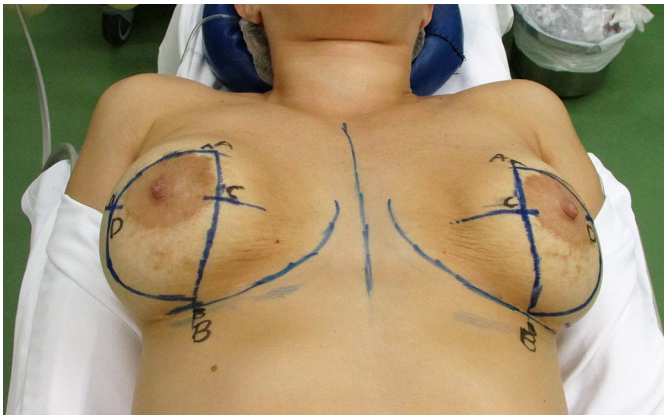


Figure 1. Horizontal marking with arms next to the body.

When properly positioned, a midline incision is marked from the sternal notch to the umbilicus.

The groove formed naturally by the positioning of the breasts in decubitus position is marked.

According to the position naturally adopted by the breasts, point A is marked 9 cm from the midline and 10 cm from the inframammary groove.

According to the groove naturally formed in decubitus position, point B is marked at the level of the groove, 10 cm from the midline. Point C is marked 6 cm from the inframammary groove by following the junction line from point A to point B. Using a bidigital block maneuver, point D is marked according to the maximum extent of skin resection.

Closure in mirror "D" technique is performed by the linear apposition of points A and B and an arc extended laterally from point A to point B through D, including the areola superiorly, according to the limits of point D for inferior continuation of the arc. The junction of points C and D at the end of surgery will coincide with the location of the lower edge of the new position of the areola and beginning of the vertical scar. This is found approximately 6 cm from the groove marked at the beginning, while point B guides the end of the vertical scar.

Technique

1. **Schwartzman Maneuver:** Surgery begins with marking of the areola with a 4 cm areolotome, followed by decortication of skin over the tissue that gives rise to the medial pedicle flap;

2. **Preparation of the medial flap:** The medial flap is marked with a 5-cm base, measuring at least 1 cm around the areola. The tissue is removed by maintaining a thickness of at least 2 cm from the lateral edge to the base of the flap[8].

3. **Preparation of the submuscular pocket:** Marking is performed to the level of subcutaneous tissue. Inferior periareolar mammotomy is performed to remove the prosthesis. A new submuscular inframammary pocket is created at the level of point B (Figure 2). The anatomical limits of the submuscular pocket are: clavicle superiorly at 2 cm from the medial line, not exceeding the anterior axillary line laterally, and inferiorly up to the mammary groove, partially releasing the tendon insertion in the inferior medial direction.

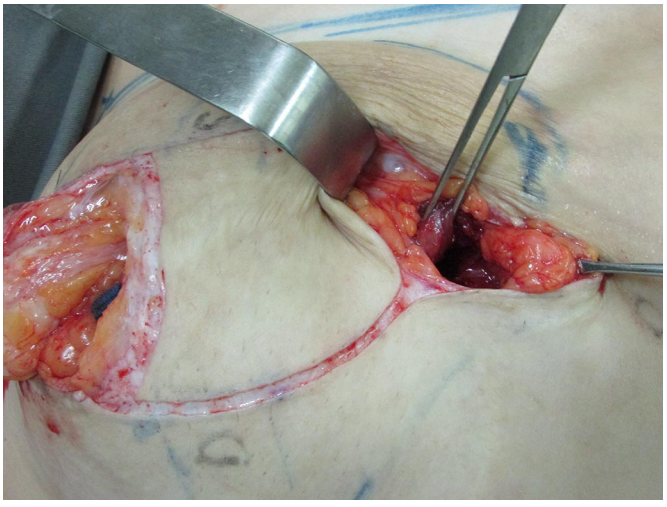


Figure 2. Preparation of the submuscular pocket.

4. **Placement of the prosthesis:** The mammary parenchyma underlying the marking protects the muscle to avoid disruption during placement of prostheses. We use textured, high-profile, round silicone implants, with volumes varying from 225 to 400 mL (Figure 3).

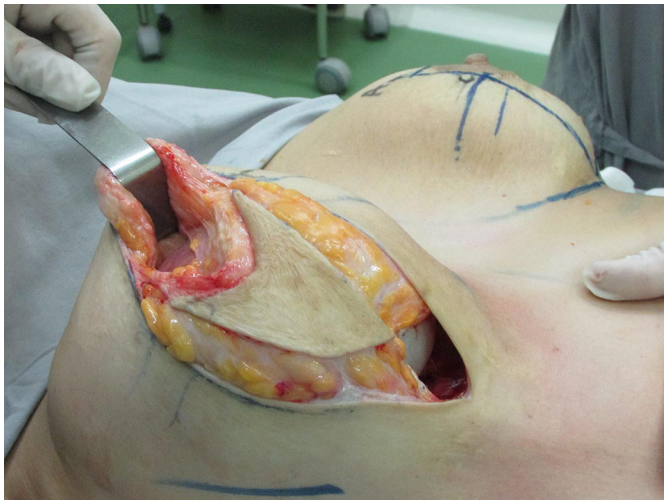


Figure 3. Placement of the prosthesis.

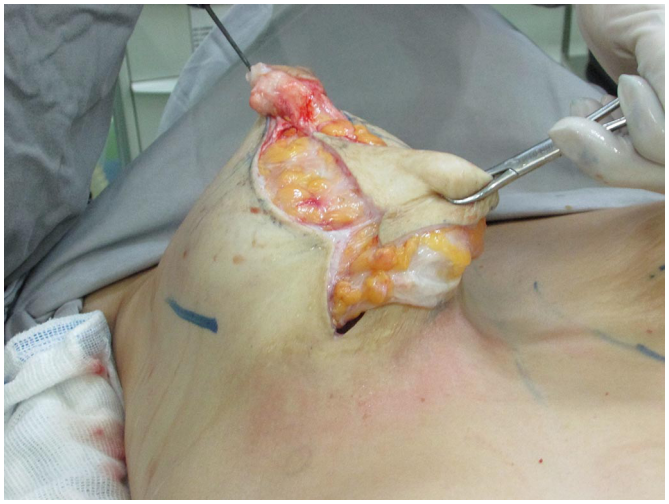


Figure 5. Lateral resection of the parenchyma.

5. **Resection for symmetrization:** Pulling the flap superiorly, a line is drawn parallel to the midline, coinciding with the A-B line; an incision is made perpendicular to the muscle (Figure 4). The lateral portion of the breast is freed in the lateral direction, on the projection of a D arc. Once the lateral portion is released, the flap is pulled along a vector directed toward the notch (superomedially), followed by resection of tissue that exceeds the projection of the incision in AB (Figure 5 and 6). After resection of the parenchyma, the lateral muscular support of the prosthesis becomes apparent, preventing communication with the previous subglandular pocket; severe atrophy of the tissues in these cases is also evident (Figure 7).

Figure 6. Resection of skin and underlying parenchyma for symmetrization.

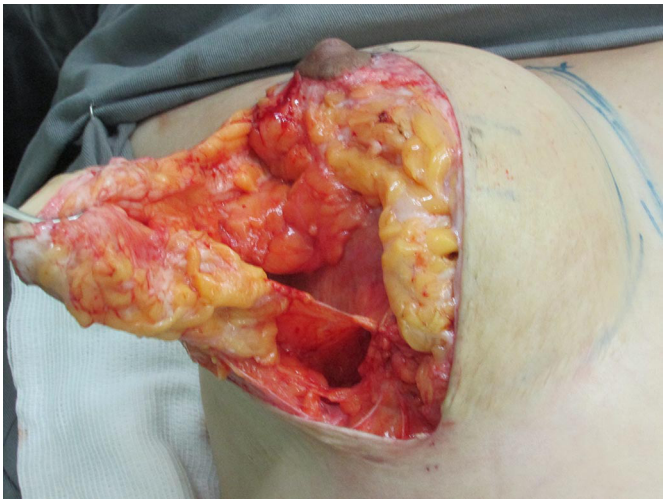


Figure 4. Medial resection of the parenchyma.

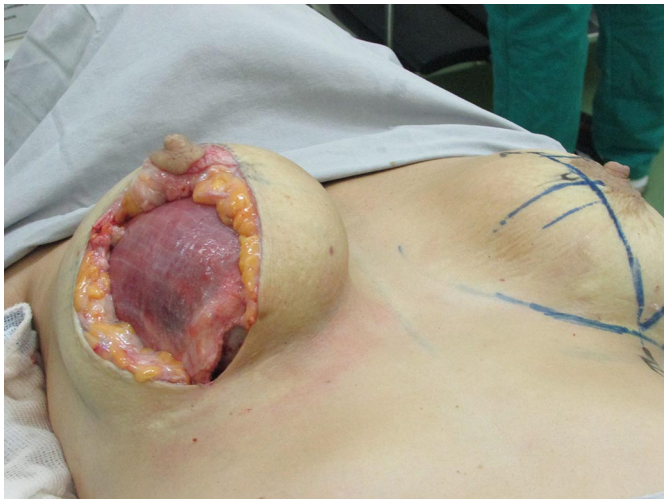


Figure 7. Final resection of the parenchyma.

6. **Capsulotomy or capsulectomy:** In grade I and II capsular contracture, capsulotomy is performed (Figure 8) with radiating incisions until the mammary parenchyma

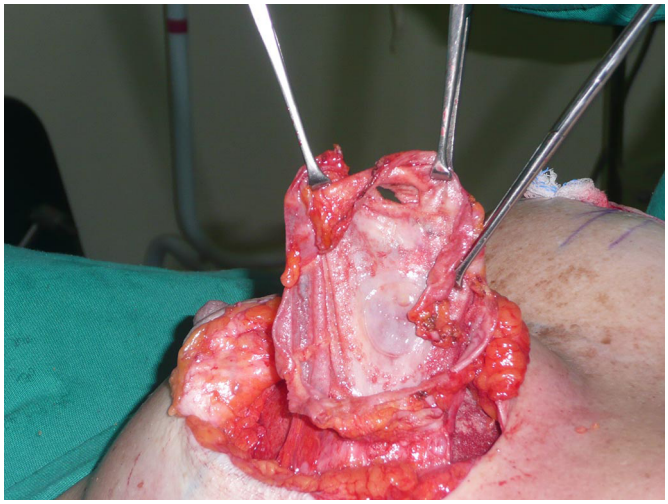


Figure 8. Capsulotomy.

is reached. Capsulectomy is used in grades III and IV contracture.

7. **Sutures:** Closure of muscle is performed with nylon 2.0, and mammary parenchyma is sutured with inferomedial traction on the lateral parenchyma for medialization, thus approaching the medial and lateral pillars with inverted nylon 2.0 sutures. Sutures are placed to join pillars and muscle at each point (Figure 9).

Figure 9. Suture (closure in planes).

Suturing is performed in planes and the final closure of the skin is performed with inverted colorless nylon 4.0.

8. **Marking of Areola:** The junction of points C and D (Figure 10) coincides with the location of the bottom edge of the new position of the areola and beginning of the vertical scar, and is found approximately 6 cm from the groove marked in the beginning, while point B guides the end of the vertical scar.

Figure 10. Marking of areola.

9. **Portovac drain is placed**: For drainage of the subglandular pocket.

10. **Dressing:** Is performed with Micropore tape crisscrossing directly on the scar, and is maintained for 10 days (Figure 11).

Figure 11. Final closure of the skin and placement of Micropore dressing.

RESULTS

No surgical revision was required in any of the cases. There was no postsurgical infection or necrosis of the nipple-areolar complex or scar (Figures 12 to 20).

The average resection of the parenchyma measured 80 g, ranging from 25 g to 350 g (Figure 21). Resection of different volumes was performed in 98% of cases, with an average difference between breasts of 50 g, ranging from 20 to 200 g.

Figure 12. 3 weeks postoperative scar.

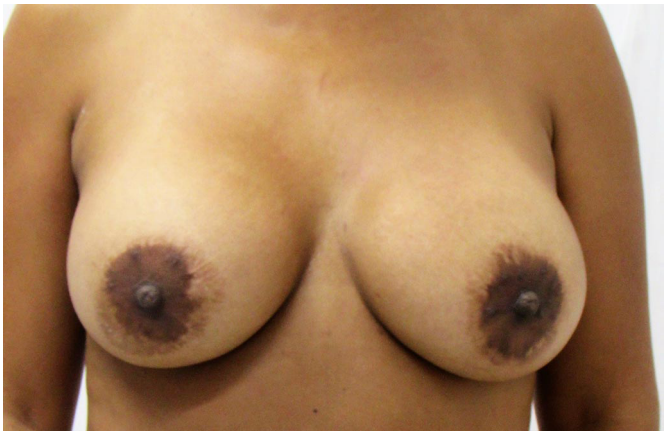


Figure 13. Preoperative aspect.

Figure 14. 2 years postoperative aspect.

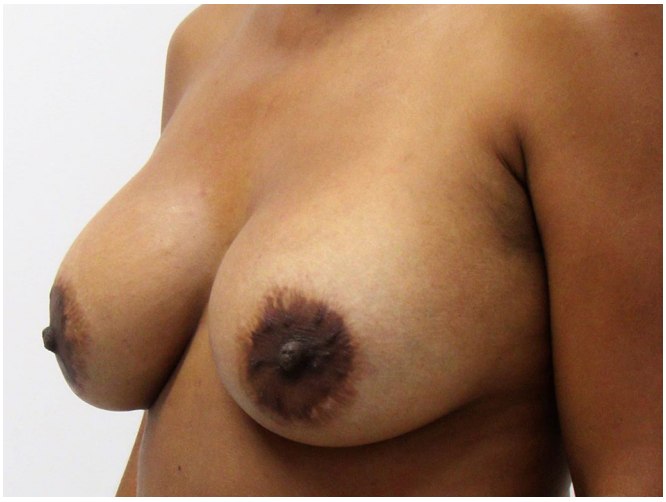


Figure 15. Preoperative aspect.

Figure 16. 2 years postoperative aspect.

Figure 17. Preoperative aspect.

Figure 18. 6 months postoperative aspect.

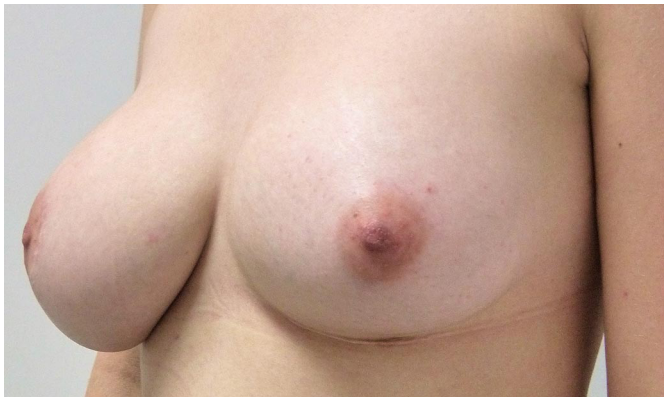


Figure 19. Preoperative aspect.

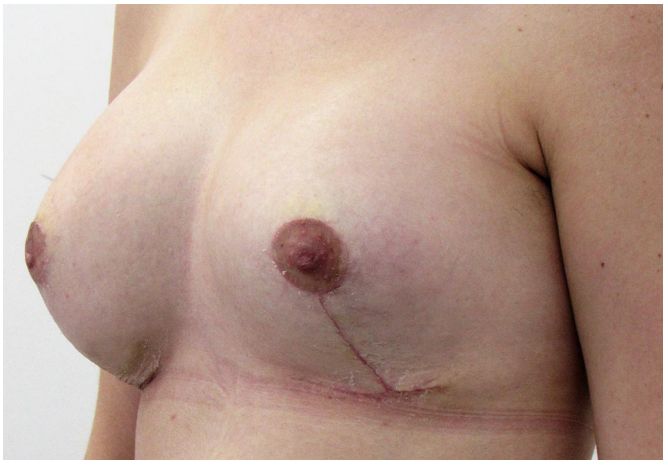
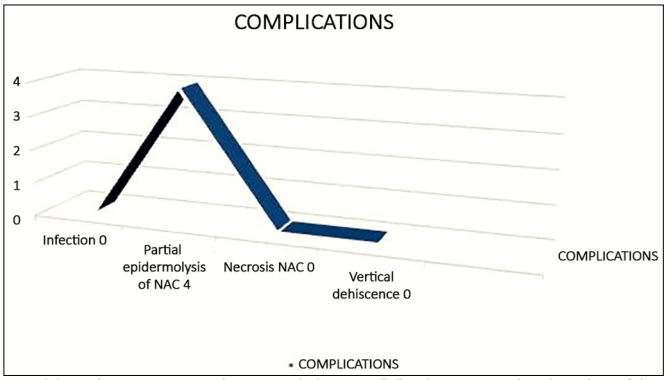
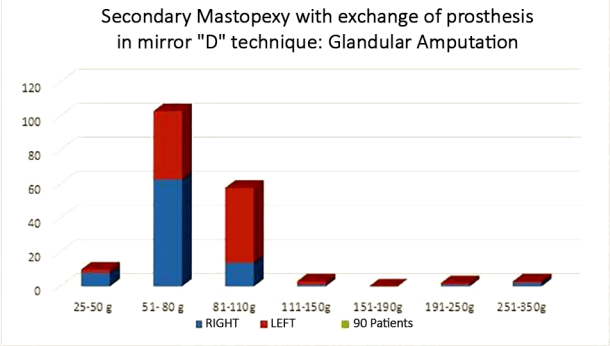


Figure 20. 6 months postoperative aspect.



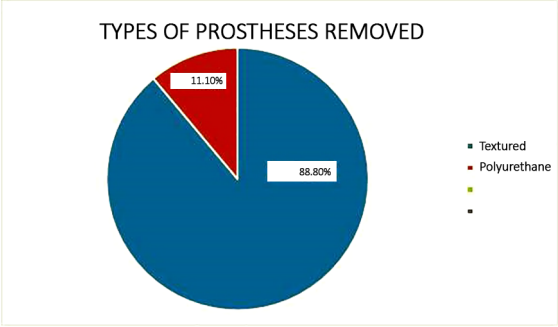
We did not observe major complications with the mirror "D" technique; partial epidermolysis of the nipple-areola complex occurred in 4.4% of all patients (90). We took into account the ease of elevation and reimplantation of the nipple-areola complex with this technique.

Figure 21. Complications.



Average resection was 80 g and 98% of patients underwent resections of different volumes.

Figure 22. Glandular amputation.



PROSTHESES REMOVED: 88.80% of the prostheses removed were textured while 11.10% were polyurethane

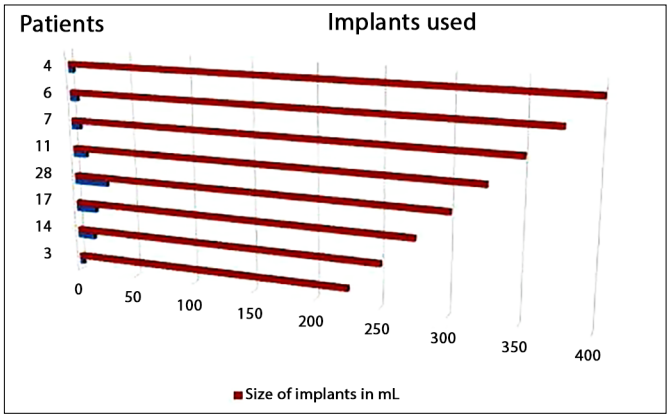
Figure 23. Types of prostheses removed.

The prostheses removed in 80 patients (88.8%) were textured, and were polyurethane covered in 10 patients (11.1%); volumes ranged between 200 and 460 mL (Figure 22).

The average new standard commercial prosthesis volume was 300 mL, ranging between 225 and 400 mL; prostheses were textured and round, with high profile (Figure 23).

The average final breast volume increase (mean of breast implant volume subtracted from mean dry volume) was 250 g (textured silicone, high profile, round, 200 mL = 200 g). The length of the vertical scar was stable with time, measuring 6.0 cm in the immediate postoperative period and averaging 6.5 cm after 2 years.

Four (4.4%) cases of partial epidermolysis of the nipple-areolar complex were successfully treated with conservative measures (dressing with alginate hydrogel) (Figure 24).



We used textured, high-profile breast prostheses, always of the same type; the average size was 300 mL, ranging between 225 mL and 400 mL.

Figure 24. Implants used.

Patients who underwent the mirror "D" technique rated their results at two different time points using predetermined criteria (Tables 1 and 2).

In this position, the breasts naturally assume symmetric spatial adjustment that is easily visualized in the positioning of the nipple-areola complex (NAC). This cancels the asymmetry induced by gravity that is seen in upright position, resulting in naturally symmetrical breasts in the postoperative period[9,12,13].

These patients present with severe tissue atrophy[14-16] (skin, parenchyma, muscle), requiring small changes in the preparation of the submuscular pocket that now includes an inframammary opening (previously at the level of the second costal arch in the midclavicular line), in addition to preservation of the parenchyma (resection prior to placement of the prosthesis); we avoid any communication with the old pocket, providing improved lateral support of the prosthesis, and thus, avoiding lateralization.

After resection and closure of the parenchyma, the mirror "D" marking technique along with the submuscular breast prosthesis provide symmetrical, medialized breasts without tension on the NAC, and with parallel vertical scars (with a difference of 1 cm between point A and B); the results have a high rate of patient satisfaction.

Table 1. Degree of satisfaction in 90 patients.

After 6 months	Poor		Fair		Good		Excellent		Total
Quality of scar	__	__	6	6.6%	18	20%	66	73.3%	90-100%
Aesthetic format	__	__	3	3.3%	22	24.4%	65	72.2%	90-100%
Symmetry	__	__	4	4.4%	24	26.6%	62	68.8%	90-100%
Total									

Table 2. Durability of results in 90 patients.

After 24 months	Poor		Fair		Good		Excellent		Total
Quality of scar	__	__	2	2.2%	25	27.7%	63	70%	90-100%
Aesthetic format	__	__	1	1.1%	33	36.6%	56	62.2%	90-100%
Symmetry	__	__	4	4.4%	34	37.7%	52	57.7%	90-100%
Total									

DISCUSSION

This variation of the mirror "D" technique was used in 90 patients, with a high degree of satisfaction.

The mirror "D" technique uses specific markings with the patient in dorsal decubitus and arms next to the trunk. This position accentuates the mammary groove up to 1 cm more compared with marking in upright position, resulting in a more suitable format and natural final result, while facilitating placement of the prosthesis in the submuscular plane.

CONCLUSION

The mirror "D" technique is a good option in secondary mastopexy, resulting in correction despite the increased complexity of the desired results caused by severe atrophy of tissues in these patients[4,7,15] as a result of previous surgery. The benefits include symmetrical breasts, parallel vertical scars, decreased tension on the NAC, lasting results, and a high degree of patient satisfaction.

COLLABORATIONS

JCSL Completion of surgeries and/or experiments; writing the manuscript or critical review of its contents.

PE Analysis and/or interpretation of data.

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