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Ana Beatriz Morais Silva

Enxertos Autólogos de Derme Abdominal para Reconstrução Mamária Imediata com Prótese – Um Estudo Preliminar/ **Autologous Abdominal Dermal Grafts for Immediate Prosthetic Breast Reconstruction – A Preliminary Study**

Abril, 2021

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Professor Doutor António Manuel Domingues da Costa Ferreira

E sob a Coorientação de:

Professora Doutora Maria Helena Tabuaço Rego Martins Peres

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UC Dissertação/Projeto (6º Ano) – DECLARAÇÃO DE REPRODUÇÃO

NOME

Ana Beatriz Morais Silva

NÚMERO DE ESTUDANTE	E-MAIL
201404362	beatrizmsilva.2@hotmail.com

DESIGNAÇÃO DA ÁREA DO PROJECTO

Cirurgia Plástica, Reconstrutiva e Estética

TÍTULO DISSERTAÇÃO/~~MONOGRAFIA~~ (riscar o que não interessa)

Autologous Abdominal Dermal Grafts for Immediate Prosthetic Breast Reconstruction – A Preliminary Study

ORIENTADOR

Professor Doutor António Manuel Domingues da Costa Ferreira

COORIENTADOR (se aplicável)

Professora Doutora Maria Helena Tabuaço Rego Martins Peres

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Aos meus pais,
À minha família,
Ao meu namorado,
Aos meus amigos.

Autologous Abdominal Dermal Grafts for Immediate Prosthetic Breast Reconstruction – A Preliminary Study

Authors:

Ana Beatriz Morais Silva, Medical Student *

Maria Helena Tabuaço Rego Martins, Ph. D. †

António Manuel Domingues da Costa Ferreira, M.D., Ph.D. ‡

Affiliation:

* Porto University Medical School, Portugal

† Interdisciplinary Center of Marine and Environmental Research (CIIMAR) and Science Faculty, Porto University, Porto, Portugal

‡ Department of Surgery and Physiology, Porto University Medical School; Department of Plastic, Reconstructive and Aesthetic Surgery, São João University Hospital, Porto, Portugal

Correspondence: António Costa-Ferreira, M.D., Ph.D., Department of Plastic, Reconstructive and Aesthetic Surgery, São João Hospital, Porto University Medical School, Alameda Prof. Hernâni Monteiro, 4200-319 Porto, Portugal. Contact: +351 225 512 100. Fax: +351 225 025 766 E-mail: antoniof@med.up.pt

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ABSTRACT

BACKGROUND: Acellular dermal matrices (ADM) have been extensively used and have demonstrated several advantages. However, ADM increase procedure's cost and have been associated with complications such as seroma, infection and mastectomy flap necrosis. Dermal autografts may represent a safe alternative. Our study aims to perform a literature review and evaluate the efficacy and safety of autologous dermal grafts for prosthetic immediate breast reconstruction.

METHODS: This was a retrospective study including all patients who underwent immediate breast reconstruction with autologous abdominal dermal grafts after skin-sparing mastectomy in a 4-year period. Information was extracted from patient's hospital records. Complications were recorded and compared with published data.

RESULTS: Six patients for a total of six breasts were included. The reconstruction with autoderm was successful in four patients (66.7%) and failed in two patients (33.3%). The latter represented high risk patients for immediate breast reconstruction (smoker and overweight) with mastectomy flap necrosis and infected seroma from sentinel biopsy zone. Regarding complications: there were three wound dehiscence/delayed healing, one mastectomy flap necrosis and one seroma. There were two rippling and one capsular contracture as late complications. No donor-site complications were reported. It was possible to harvest a transverse rectus abdominis musculocutaneous (TRAM) flap in one of the failed cases. Average follow-up time was 50.8 months.

CONCLUSION: The utilization of abdominal dermal grafts for immediate prosthetic breast reconstruction may be a good alternative to ADM, particularly in patients with low body mass index who are not candidates for autologous reconstruction. Further studies are needed to validate this surgical option.

Level of Evidence: Level III, therapeutic study.

KEY WORDS: mastectomy**,** breast reconstruction**,** acellular dermal matrix**,** dermal autograft

INTRODUCTION

Breast cancer is the most common cancer affecting women worldwide, with almost half of the patients undergoing some form of breast reconstruction. [1,2]

Postmastectomy breast reconstruction techniques with tissue expanders and/or breast implants have continuously improved over the past years, shifting from the traditional total submuscular coverage technique to a “dual-plane” approach.[1,3-5] In this technique the upper half of the expander or prosthesis is placed in a submuscular plane and the lower half in a subcutaneous plane, and thus in a less protected position.[3-5] Acellular dermal matrices (ADM) can be used to create a connection between pectoralis major muscle’s inferior border and inframammary fold, providing implant’s lower pole coverage.[3,5-9]

ADM are collagen-based meshes prepared from cadaveric skin that serve as support for cellular ingrowth and angiogenesis[1,3,8,9] and have been extensively used for immediate breast reconstruction since 2005 due to several well documented advantages.[10] It has been shown to provide a better control not only of the inframammary and lateral mammary folds but also of pectoralis major muscle migration[1,3-9], leading to superior aesthetic outcomes[3,4,6,8,9,11]. In addition, it extends the subpectoral space, allowing a greater initial expander fill which translates in a reduction of in-office expansions and a shorter reconstructive timeline and protects the device from being exposed in case of cutaneous necrosis[1,3-9,11]. A decreased capsular contracture rate[3,4,8,9] and a protective effect against radiation changes[9] were also reported. Nevertheless ADM add very significant cost to the procedure and have been recently associated with

complications such as seroma, infection and mastectomy flap necrosis. [1,4,5,7-9,11-13]

Autologous tissues may be a possible alternative if available. Dermal autografts have been presented as possible substitute that can be used in the same fashion as ADM with the advantages of being cheaper and readily available. [1,4,5,7-9,11-13] In women with larger and ptotic breasts a dermal flap can be harvested and used to create the retropectoral pocket as Bostwick described.[14] In smaller breasts where harvesting this flap is not possible, dermal autografts, such as lower abdominal dermal grafts, can be an option.[12] Nevertheless this is a recent technique with few studies published. Our study aims to perform a literature review and evaluate the efficacy and safety of autologous abdominal dermal grafts for prosthetic immediate breast reconstruction after total skin-sparing or nipple-sparing mastectomy in a preliminary clinical series.

MATERIALS AND METHODS

This was a retrospective review, performed in Porto, Portugal, at Centro Hospitalar e Universitário de São João, Faculty of Medicine Porto University from January 2020 to March 2021. Approval was granted by the Ethical Committee of this institution.

A research was conducted through PubMed/MEDLINE between November 2020 and March 2021 using the MeSH terms “Autoderm”, “Dermal autograft AND breast reconstruction” and “Autologous graft AND breast reconstruction”.

Immediate breast reconstruction (two-stage expander/implant or direct-to-implant) with autologous abdominal dermal grafts was offered to all patients with negative sentinel lymph node biopsy proposed for immediate breast reconstruction after total skin-sparing or nipple-sparing mastectomy in whom the use of autologous flaps was not indicated or was not desired. All patients who underwent this technique between January 2016 and January 2020 were identified.

Data were extracted from patient's hospital records and included demographic characteristics, body mass index, smoking history, medical history, indications for mastectomy, type of breast cancer and breast cancer treatment. Type of immediate reconstruction (two-stage expander/implant or direct-to-implant), prosthesis and expander characteristics, including initial and final fill expander volumes, number of expansions and time to complete expansion (when tissue expanders were used) were also recorded.

Procedures performed in both reconstructed and contralateral breasts were documented as well as duration of hospital stay.

Complications analyzed included wound dehiscence/delayed healing, mastectomy flap necrosis (defined as significant tissue lost), infectious complications, fluid collections (seroma or hematoma), rippling and capsular contracture. Major complications were defined as those requiring an unplanned hospital admission or reoperation. Reconstructive failure and donor-site complications were also assessed.

Although all women are still being followed by a plastic surgeon in hospital appointments we set follow-up time to our work as the time from first breast reconstructive procedure to the end of this study, in March 2021.

Surgical Method

All patients were submitted to skin sparing or nipple-sparing mastectomy for breast cancer treatment and immediate prosthetic breast reconstruction with either tissue expander or breast implant. All procedures were performed under general anesthesia. The patients received a dermal autograft for the lower pole coverage of the device. The dermal autograft was harvested as a horizontally oriented ellipse located in the lower abdomen as a miniabdominoplasty and planed considering the breast dimensions. The evaluation of the dermal graft dimensions are made with pectoralis major contraction and marked on the abdomen with the patient supine. The lower incision line should start just above the pubic hairline. The upper border of this incision should be located in a way to allow primary wound closure preferably without undermining. For patients presenting with lower abdominal scars, the ellipse for autoderm harvested was centered on the previous scar

After induction of anesthesia, intravenous antibiotics were administered.

Tumescent infiltration was used in the abdomen and applied before the deepithelization (solution with 1 ml epinephrine 1:1000 in 1000 ml SF). This is important as it provides skin turgor and a vasoconstrictive effect which facilitates both deepithelization and the deep plane dissection so as to include as little fat as possible.

The dermal graft was deepithelialized in situ with a n 10 blade, then excised and defatted. The donor site was closed in a standard abdominoplasty fashion without undermining in order to preserve the musculocutaneous perforators. This strategy is important in the case a transverse rectus abdominis

musculocutaneous flap, free or pedicled, is needed in the future. This part of the reconstruction was done concurrently with the mastectomy (performed by general surgery).

The dermal autograft was then sutured with the superficial side up to the inframammary fold, lateral mammary fold and inferior border of the pectoralis major muscle with 2/0 vicryl™. The deep surface of the dermal graft was facing the expander or breast implant. When a tissue expander is inserted, before the final sutures are placed between the pectoralis major and the dermal graft, the expander is inflated until the dermal graft is taut.

Two suction drains are inserted: one in the expander/implant pocket and the other in the subcutaneous space between the dermal autograft and the mastectomy flaps. We routinely drain both subcutaneous and submuscular spaces. The mastectomy flaps are sutured. The drains are kept until there is less than 30 ml of drainage in 24 hours.

Intravenous antibiotics are administrated at the start of the procedure and oral antibiotics are continued for a week postoperatively. Two weeks after surgery, the expansion process was initiated by weekly office visits until the target volume was reached. Once the target volume was reached , 3 to 4 months were allowed for consolidation after which the expander was changed for a permanent implant.

RESULTS

A total of six patients submitted to unilateral immediate breast reconstruction were enrolled in this study. All the mastectomies were therapeutic:

five nipple-sparing and one skin-sparing. Three patients had direct-to-implant reconstruction and three had two-stage tissue expander/implant reconstruction.

The mean age was 50.3 years (range 40-65 years). The mean body mass index (BMI) was 21.3kg/m^2 (range 19.0-27.1kg/m^2). One patient was overweight (BMI: 27.1kg/m^2). Three patients had invasive ductal carcinoma stage 1A and three had ductal carcinoma in situ (stage 0): two high grade and one intermediate grade. One patient had hypertension and hyperlipidemia. There were two active smokers (none of them stopped smoking before surgery) and four nonsmokers. One patient underwent adjuvant chemotherapy, two had hormone therapy and one had adjuvant chemotherapy and hormone therapy. No patients were submitted to radiation therapy. The average duration of hospital stay in the first breast reconstructive time was 8.8 days (range 2-15 days). The overall mean device (implant or expander) volume in both groups was 253cc (range 200-420cc).

A total of four patients successfully completed breast reconstruction using autologous dermal grafts. Explantation was necessary in two patients who had major complications namely mastectomy flap necrosis and fluid collection (seroma). No patient had donor-site complications. The average number of interventions in both groups was 3.8 (range 2-5) in the reconstructed breast and 1.2 (range 0-3) in the contralateral breast. The average follow-up time was 50.8 months (range 38.5-61.0 months). Complications reported in our study are summarized in Table 1. Wound dehiscence/delayed healing occurred in three patients (50%), mastectomy flap necrosis in one patient (16.7%) and a fluid collection in one patient (16.7%). There were no infectious complications. Two

women had major complications. Two rippling and one capsular contracture were reported as late complications.

In women who underwent direct-to-implant reconstruction, the mean implant volume was 280cc (range 210-420cc). In this group immediate breast reconstruction using autoderm was successfully completed in two patients and failed in one patient. This failure was due to mastectomy flap necrosis that required surgical debridement and exchange to tissue expander. This patient was an active smoker who had been previously submitted to a breast augmentation. Out of the patients who completed reconstruction with autoderm one had delayed wound healing managed conservatively. Both had late complications apparently unrelatable to autoderm: one had rippling, treated with fat grafts, and one had severe capsular contracture (Baker 4) that required change of prosthesis and latissimus dorsi muscular flap.

In the two-stage group, the mean intraoperative expander volume was 227cc (range 200-280cc). The reconstruction with autoderm and expander was successful in two patients. One did two in-office expansions and achieved a final expander volume of 260cc within thirty days and the other patient did five in-office expansions and reached a final expander volume of 400cc within forty-six days. Out of these patients one reported no postoperative complications and the other had wound dehiscence that resolved spontaneously. The reconstruction using autoderm failed in a patient due to a fluid collection (seroma) in the axilla close to the sentinel lymph node biopsy site that spread to the implant pocket and led to delayed wound healing and a periprosthetic infection that failed oral antibiotic treatment. This complication was treated with explantation and conversion to an autologous reconstruction with TRAM flap. The latter was performed without

complications despite the previous harvest of lower abdominal dermal graft. One of the patients who completed reconstruction had rippling as a minor late complication unrelatable to autoderm.

The bibliographic research gathered a total of eight articles published in indexed journals. Studies reporting autologous dermal grafts reconstruction postoperative outcomes are summarized in Table 2 and Table 3. The majority of these articles are retrospective reviews, including a total sample of 56 patients.[5,7,11] One of the articles is a prospective study with a sample of 21 patients that included comparison data for patients undergoing ADM.[8] This study showed a lower incidence of wound healing complications (including wound dehiscence, mastectomy flap necrosis and fluid collection), infectious complications and major complications, along with a greater intraoperative expander volume in the group where reconstruction with autologous dermal grafts was performed, suggesting autoderm has a safer profile than ADM.[8] Explantation rate reported in these studies ranged from 0 to 10.5%.[5,7,8,11] In 2015 Lynch et al were the first reporting and comparing capsular contracture scores between ADM and autologous dermal grafts in a prospective study, showing no differences between both groups.[9]

DISCUSSION

This preliminary study suggests that dermal autograft in immediate breast reconstruction may have a role for patients with low BMI who are not good candidates for autologous techniques. A success rate of 66.7% was achieved in this small clinical series. Explantation was necessary in two patients due to major

complications. The classical donor area for abdominal based autologous reconstruction (pedicled TRAM, free TRAM, DIEP) was not jeopardized as a TRAM flap was successfully performed.

In all patients, the initial expander volume or implant volume placed as well as number of in-office expansions fell within the ranges documented to ADM and dermal autografts by other authors as shown in Table 2.

A successful reconstruction was achieved in most of our patients with results that pleased both the patient and the surgeon. Nevertheless our explantation rate was quite high and not in line with the results by other authors who have used dermal grafts for immediate breast reconstruction. The major complications justifying explantation in our study (one case of mastectomy flap necrosis and a case with fluid collection) were apparently unrelated to the dermal graft itself. One third of our population was active smoker, which led to an overrepresentation of this group and a possible increased number of complications. Smoking is a well-known risk factor for tissue necrosis and wound healing problems particularly relevant in the context of skin and nipple sparing mastectomy. As none of our patients ceased consumption before surgery, this group represented a high risk for developing postoperative complications regardless the technique used. This may explain the case with mastectomy flap necrosis reported in our cohort. Also, the patient who underwent surgical debridement and exchange to tissue expander due to mastectomy flap necrosis had previous breast augmentation. The seroma case observed in our population presented with fluid collection did not start at the reconstructed breast but in the axilla. This patient underwent autologous breast reconstruction with a pedicled TRAM flap after explantation. The latter patient was overweight (BMI =

27,1kg/m^2), actually was the only in our cohort, a known risk factor for seroma. Suggesting a patient's predisposition to develop fluid collections. The fact is that this patient also developed a seroma in the donor area of the TRAM flap.

Another detail we must take into consideration while analyzing our results is the fact that rippling and capsular contracture appear to be complications related to prosthetic breast reconstruction regardless the technique applied so we do not assume they were specifically related to the use of dermal autografts.

Available literature shows ADM has emerged as an alternative in breast reconstruction but it's not flawless and it was associated with considerable economic costs and some complications[1,3-9,11-13]and it is not always available. On the other hand autologous dermal grafts may be a good alternative as they are readily available and provide equivalent aesthetic outcomes with similar complications rate at lower costs.[1,4,5,7-9,11-13] Dermal autografts are autologous tissues and so are potentially less immunogenic, more biocompatible and quickly incorporated.[1,5,7-9,11,12] This was demonstrated by two studies in which a sample collection of the breast capsule was performed at the time of expander exchange.[7,8] Histologic analysis of the capsule showed dermal grafts were highly revascularized and indistinguishable from the surrounding tissue.[7,8] A total integration was verified.[7,8] Complications reported in published series using ADM are showed in Table 4. Three are retrospective and two are prospective studies, representing a total of 502 patients.[3,4,6,8,15] Four series approached exclusively ADM outcomes[3,4,6,15] and one included comparison data for autologous dermal graft[8].

Published series using autologous dermal grafts showed complication rate ranges similar to those reported for ADM, except for fluid collections whose rate

was higher in ADM cohorts. Wound dehiscence/delayed healing ranged from 0 to 6.25%, infectious complications ranged from 0 to 14.3%, mastectomy flap necrosis ranged from 0 to 15.8% and major complications (defined as those requiring an unplanned hospital admission or reoperation) ranged from 0 to 10.5% as summarized in Table 3. [5,7,8,11]

A prospective study performed by Lynch et al compared both techniques and demonstrated higher complication rates for ADM versus autoderm, as previously described.[8]

Autologous dermal grafts from abdomen seem to be particularly suited for lower BMI patients and do not preclude the use of TRAM flap as previously described by Lynch et al[8,9], Rinker[7] and Selber et al[11]. A different perspective was presented by Hudson et al[5] and Maguina et al[12] who suggested abdominal dermal harvesting eliminates the ability to perform breast reconstruction with abdominal based flaps. The authors think that the abdominal wall may still be used for autologous breast reconstruction after dermal graft harvest if certain technical principles are applied.[7-9,11] The latter are described in the Material and Methods section and refer to careful scar placement and limited upper undermining. The dermal graft technique has few disadvantages basically limited to a donor-site scar.[1,5,7-9,11,12]

Therefore, our study appears to demonstrate similar outcomes than those published to date and thus, showing that autologous dermal grafts may represent a viable alternative to ADM.

To our knowledge, this preliminary study reports the longest follow-up of breast reconstruction with autoderm but has some limitations such as the small sample size and the retrospective design. Further prospective randomized

studies with a larger sample are needed to clarify whether autologous abdominal dermal grafts are a safe and effective option for prosthetic immediate breast reconstruction.

CONCLUSION

This retrospective review suggests a potential role for dermal autograft in immediate prosthetic breast reconstruction. It may represent a safe and effective alternative to acellular dermal matrices. Moreover it does not interfere with abdomen as a donor area for autologous reconstruction if harvested correctly.

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The authors declare that they have no conflict of interest.

COMPLIANCE WITH ETHICAL STANDARDS

For this type of study formal consent is not required.

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TABLES

Table 1. Complications reported in our study (*n*=6)

	Type of Reconstruction		Total (%)
	Direct-to-implant (%)	Two-stage (%)	
No. Patients	3	3	6
Wound Dehiscence/ Delayed Healing	1 (16.7%)	2 (33.3%)	3 (50%)
Mastectomy Flap Necrosis	1 (16.7%)	0 (0.0%)	1 (16.7%)
Infectious Complications	0 (0.0%)	0 (0.0%)	0 (0%)
Fluid Collections (Seroma/Hematoma)	0 (0.0%)	1 (16.7%)	1 (16.7%)
Rippling	1 (16.7%)	1 (16.7%)	2 (33.3%)
Capsular Contracture	1 (16.7%)	0 (0.0%)	1 (16.7%)
Major Complications	1 (16.7%)	1 (16.7%)	2 (33.3%)
Explantation	1 (16.7%)	1 (16.7%)	2 (33.3%)

Table 2. Characteristics of Study Populations Reporting Autologous Dermal Grafts Reconstruction Outcomes

				Patient Characteristics			Course of Expansion			
Reference	Study Design	No. Patients/No. Breasts	Compared With	Mean or Median Patient Age (years) (range)	Mean or Median Follow-up (months) (range)	Mean BMI (range) (kg/m^2)	Mean Intraoperative Expander Fill (cc) (range)	Mean Final Expander Fill (cc) (range)	Mean No. of In-Office Expansions (range)	Mean Time To Complete Expansion (days) (range)
Hudson et al[5], 2012	R	19/21	___	48 (29-64)	17 (6-36)	___	___	___	___	___
Rinker[7], 2012	R	16/26	4 Patients with ADM	51 (41-66)	10 (6-16)	30.5 (19.1-48.8)	190	___	3.5	95.5 (84-196)
Selber et al[11], 2013	R	21/36	___	47 (35-67)	12 (9-18)	29.3 (21-43)	167 (50-650)	___	___	___
Lynch et al[8], 2013	P	21/33	27 Patients with ADM	52.5	9.8 (6-24)	29.6	185.6 (50-400)	598.4 (340-730)	3.8 (2-6)	131.9 (84-238)

Information not reported is represented with a hyphen.
R: Retrospective; P: Prospective; BMI: Body Mass Index; ADM: Acellular Dermal Matrix.

Table 3. Complications reported in published series of Immediate Reconstruction with Autologous Dermal Grafts

Reference	No. Of Wound Dehiscence/Delayed Healing (%)	No. Of Infectious Complications (%)	No. Of Mastectomy Flap Necrosis (%)	No. Of Fluid Collections (Seroma/Hematoma) (%)	No Of Major Complications (%)	No. Of Explantation (%)	No Of Donor-site complications (%)
Hudson et al[5], 2012	0	2 (10.5)	3 (15.8)	0	2 (10.5)	2 (10.5)	0
Rinker[7], 2012	1 (6.25)	2(12.5)	0	0	0	0	0
Selber et al[11], 2013	0	0	3 (14.3)	0	1 (4.8)	1 (4.8)	0
Lynch et al[8], 2013	1 (4.8)*	3 (14.3)	1 (4.8)*	1 (4.8)*	0	___	0

Information not reported is represented with a hyphen.
Major complications were defined as those requiring an unplanned hospital admission or reoperation
* In this study Wound Dehiscence/Delayed Healing, Mastectomy Flap Necrosis and Fluid Collections were in the same cluster (overall rate of 4.8%).

Table 4. Complications reported in published series using Acellular Dermal Matrix.

Reference	Study Design	No. Patients/No. Breasts	Wound Dehiscence/ Delayed Healing (%)	Infectious Complications (%)	Mastectomy Flap Necrosis (%)	Fluid Collections (Seroma/Hematoma) (%)	Major Complications (%)	Explantation (%)	Capsular Contracture
Spear et al[3], 2008	P	43/58	0	8.3	4.2	2.1	2.1	2.1	2.8
Nahabedian[15], 2009	R	76/100	4	5	3	5	3	2	___
Antony et al[4], 2010	R	96/153	___	6.9	4.6	9.2	5.9	5.9	___
Salzberg et al[6], 2011	R	260/466	___	0.2	1.1	1.1	___	1.3	0.4
Lynch et al[8], 2013	P	27/43	14.8*	25.9	14.8*	14.8*	18.5	___	___

Information not reported is represented with a hyphen.
R: Retrospective; P: Prospective
Major complications were defined as those requiring an unplanned hospital admission or reoperation.
* In this study Wound Dehiscence/Delayed Healing, Mastectomy Flap Necrosis and Fluid Collections were in the same cluster (overall rate of 14.8%).

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Este trabalho só foi possível graças ao apoio e colaboração de diversas pessoas, às quais gostaria de expressar os meus mais profundos agradecimentos e reconhecimento pela ajuda prestada no decurso da sua elaboração, em particular:

Ao professor António Costa Ferreira, pelo seu apoio e compreensão em todos os aspetos da elaboração deste trabalho.

Ao meu namorado e aos meus amigos, em especial à Helena e à Margarida, por todo o suporte e por me terem feito sentir acarinhada ao longo de todo este percurso.

E, finalmente, aos meus pais, que sempre me apoiaram e me fizeram acreditar que tudo isto seria possível.

ANEXOS

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STROBE Statement—Checklist of items that should be included in reports of ***cohort studies***

	Item No	Recommendation	Page No
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract (*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2; "This was a retrospective study" 2, 3; "Information was extracted from patient's hospital records. Complications were recorded and compared with published data." "The reconstruction with autoderm was successful in four patients (66.7%) and failed in two patients (33.3%)." "Regarding complications: there were three wound dehiscence/delayed healing, one mastectomy flap necrosis and one seroma. There were two rippling and one capsular contracture as late complications. No donor-site complications were reported. It was possible to harvest a transverse rectus abdominis musculocutaneous (TRAM) flap in one of the failed cases."
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4, 5; "Nevertheless ADM add very significant cost to the procedure and have been recently associated with complications such as seroma, infection and mastectomy flap necrosis. Autologous tissues may be a possible alternative if available."
Objectives	3	State specific objectives, including any prespecified hypotheses	5; "Our study aims to perform a literature review and evaluate the efficacy and safety of autologous abdominal dermal grafts for prosthetic immediate breast reconstruction after total skin-sparing or nipple-sparing mastectomy in a preliminary clinical series"
Methods			
Study design	4	Present key elements of study design early in the paper	5, 6; "This was a retrospective review, performed in Porto, Portugal, at Centro Hospitalar e Universitário de São João, Faculty of Medicine Porto University from January 2020 to March 2021. Approval was granted by the Ethical Committee of this institution. A research was conducted through PubMed/MEDLINE between November 2020 and March 2021 using the MeSH terms "Autoderm", "Dermal autograft AND

			breast reconstruction" and "Autologous graft AND breast reconstruction"."
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5 "All patients who underwent this technique between January 2016 and January 2020 were identified. Data were extracted from patient's hospital records …"
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	6, 7; "Immediate breast reconstruction (two-stage expander/implant or direct-to-implant) with autologous abdominal dermal grafts was offered to all patients with negative sentinel lymph node biopsy proposed for immediate breast reconstruction after total skin-sparing or nipple-sparing mastectomy in whom the use of autologous flaps was not indicated or was not desired. ". "… we set follow-up time to our work as the time from first breast reconstructive procedure to the end of this study, in March 2021."
		(*b*) For matched studies, give matching criteria and number of exposed and unexposed	Não aplicável
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6 "… demographic characteristics, body mass index, smoking history, medical history, indications for mastectomy, type of breast cancer and breast cancer treatment. Type of immediate reconstruction (two-stage expander/implant or direct-to-implant), prosthesis and expander characteristics, including initial and final fill expander volumes, number of expansions and time to complete expansion (when tissue expanders were used) were also recorded." "Complications analyzed included delayed wound healing/wound dehiscence, mastectomy flap necrosis (defined as significant tissue lost), infectious complications, fluid collections (seroma or hematoma), rippling and capsular contracture. Major complications were defined as those requiring an unplanned hospital admission or reoperation. Reconstructive failure and donor-site complications were also assessed."
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	6 "Data were extracted from patient's hospital records"
Bias	9	Describe any efforts to address potential sources of bias	Não aplicável

Study size	10	Explain how the study size was arrived at	6 “All patients who underwent this technique between January 2016 and January 2020 were identified.”
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	6 “Data were extracted from patient’s hospital records (…) recorded.”
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding (*b*) Describe any methods used to examine subgroups and interactions (*c*) Explain how missing data were addressed (*d*) If applicable, explain how loss to follow-up was addressed (*e*) Describe any sensitivity analyses	Não aplicável uma vez que este trabalho não se acompanhou de análise estatística.
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram	9 “A total of six patients submitted to unilateral immediate breast reconstruction were enrolled in this study.””Three patients had direct-to-implant reconstruction and three had two-stage tissue expander/implant reconstruction” 9 “. Explantation was necessary in two patients who had major complications namely mastectomy flap necrosis and fluid collection (seroma).” Não aplicável
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	9 “The mean age was 50.3 years (range 40-65 years). The mean body mass index (BMI) was 21.3kg/m2 (range 19.0-27.1kg/m2). One patient was overweight (BMI: 27.1kg/m2). Three patients had invasive ductal carcinoma stage 1A and three had ductal carcinoma in situ (stage 0): two high grade and one intermediate grade. One patient had hypertension and hyperlipidemia. There were two active smokers (none of them stopped smoking before surgery) and four nonsmokers. One patient underwent adjuvant chemotherapy, two had hormone therapy and one had adjuvant chemotherapy and hormone therapy. No patients were submitted to radiation therapy. The average duration of hospital stay in the first breast reconstructive time was 8.8 days (range 2-15 days). The overall mean device (implant or expander) volume in both groups was 253cc (range 200-420cc).”

		(b) Indicate number of participants with missing data for each variable of interest (c) Summarise follow-up time (eg, average and total amount)	Não aplicável 9 "The average follow-up time was 50.8 months (range 38.5-61.0 months)."
Outcome data	15*	Report numbers of outcome events or summary measures over time	9-11 "A total of four patients successfully completed breast reconstruction (…)One of the patients who completed reconstruction had rippling as a minor late complication unrelatable to autoderm.."
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included (*b*) Report category boundaries when continuous variables were categorized (*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	Não aplicável Não aplicável Não aplicável
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	10, 11; "This patient was an active smoker who had been previously submitted to a breast augmentation" "The reconstruction using autoderm failed in a patient due to a fluid collection (seroma) in the axilla close to the sentinel lymph node biopsy site that spread to the implant pocket and led to delayed wound healing and a periprosthetic infection that failed oral antibiotic treatment."
Discussion			
Key results	18	Summarise key results with reference to study objectives	12 "This preliminary study suggests that dermal autograft in immediate breast reconstruction may have a role for patients with low BMI who are not good candidates for autologous techniques."
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	15 "(…) has some limitations such as the small sample size and the retrospective design."
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	12-15 "A success rate of 66.7% was achieved in this small clinical series. (…)The dermal graft technique has few disadvantages basically limited to a donor-site scar."
Generalisability	21	Discuss the generalisability (external validity) of the study results	15 "Therefore, our study appears to demonstrate similar outcomes than those published to date and thus, showing that autologous dermal grafts may represent a viable alternative to ADM."
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Não aplicável

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at http://www.strobe-statement.org.