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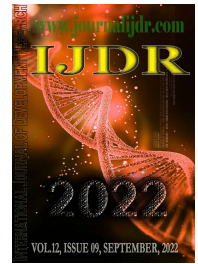
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DERMATOLOGICAL INTERVENTIONS IN COMPLICATIONS ARISING FROM PLASTIC SURGERY

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ABSTRACT

Plastic surgeries are procedures that allow remodeling or repair of external parts of the body. As with any procedure, they present risks of complications and sequelae, which are often unavoidable and expected. The present study seeks to investigate in the literature how the dermatological interventions performed in the face of these complications. **METHOD:** This is an integrative literature review carried out in July 2022, in the Scielo, LILACS and MEDLINE databases. The descriptors "Plastic Surgery" and "Postoperative complications" were used, associated with the Boolean operator AND. Publications between 2012 and 2022, in Portuguese were included. Among the articles published with the determined descriptors, 2198 articles were found, however, only 11 articles were used for the theoretical basis of this study. **RESULTS:** The complications resulting from these surgeries are divided into major and minor, the major ones being represented by hematomas, suture dehiscence and necrosis; and among the minor ones, we have seromas, edema, ecchymosis, hypertrophic scars, localized infections, and granulomas. Lymphatic taping was considered the main technique for reversing ecchymosis, serosis, edema and fibrosis. Surgical and enzymatic debridements are used for drainage and hygiene in cases of major complications. **CONCLUSION:** The complications can bring, in addition to systemic repercussions, impacts on the patient's mental and social nt. Looking at the aesthetics of the healing process is also important in order to preserve the patient's self-esteem.

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INTRODUCTION

Plastic surgery is one of the great aspirations of the population and has been gaining ground among people of different age groups and socioeconomic conditions, who seek to maintain physical well-being and follow aesthetic standards (CUNHA, COSTA, NUNES and LIMA, 2022). These procedures allow for the remodeling and repair of external parts of the body. They have been used in a curative way since antiquity and have been expanded from technological innovations and the advent of less invasive techniques and purely aesthetic perspectives, strengthening their popularization in several countries (GOMES et al., 2021). Current aesthetic conceptions promote female and male beauty standards that generate a greater search for these surgical interventions by those who wish to achieve an ideal image standard and regain self-esteem and youthfulness (GOMES et al., 2021). On the other hand, plastic surgery has also increasingly acted in the repair of injuries resulting from accidents, burns and other traumas (CUNHA, COSTA, NUNES and LIMA, 2022). Among the most performed plastic surgeries we have mammoplasty, liposuction, blepharoplasty, abdominoplasty and rhinoplasty. These surgeries, when performed properly, generate good results, although, in some cases, unwanted complications occur (SANTOS, et al., 2019). Like any surgery, plastic surgery causes tissue trauma and can generate inevitable and expected sequelae and complications. These complications can impact the quality of life of patients, such as changes in sensitivity, reduced range of motion, postural changes, fibrosis, seroma and edema (SILVA et al, 2020). Faced with complications, dermatological interventions are contributors in the postoperative period, treating the responses of surgical interventions (MIGOTTO, SIMÕES, 2013). These dermatological care after complications aim to ensure that the area and underlying tissues remain in good condition (CUNHA, COSTA, NUNES and LIMA, 2022). In addition, dermatological procedures help to improve skin texture, decrease edema, disappearance of fibrotic nodules in the subcutaneous tissue, accelerate recovery time, reduce bruises and ecchymosis and improve venous and lymphatic circulation (SILVA et al, 2020). Knowing the increasing number of plastic surgeries and their possible complications, this study aims to analyze, in the literature, the main dermatological interventions performed in the face of these complications.

MATERIALS AND METHODS

This is a bibliographic, descriptive study, of the integrative literature review type. The integrative literature review represents a method that enables the investigation and synthesis of data on a given topic. In addition, it allows the analysis of published studies and the deepening of discussions on health practices (SOUZA, MARQUESVIEIRA, SEVERINO, ANTUNES, 2017). To carry out this study, the six steps of the integrative review were used: selection of the theme and research question; establishment of sampling inclusion and exclusion criteria; categorization of studies; critical analysis of the data; interpretation of results; and presentation (SOUZA, MARQUESVIEIRA, SEVERINO, ANTUNES, 2017) The bibliographic survey took place in July 2022, through the following databases: Scientific Electronic Library Online (SCIELO), Latin American and Caribbean Literature in Health Sciences (LILACS) and Online System of Search and Analysis of Medical Literature (MEDLINE). For better identification of the intended studies, the following Health Sciences Descriptors (DeCS) were used: "Plastic Surgery", and "Post-Operative Complications". These descriptors were associated through the Boolean operator "AND". As inclusion criteria, complete publications, in Portuguese, and published and a time interval from 2012 to 2022 were selected. Articles that, after reading the title and abstract, showed no association with the objectives, duplicate articles in the databases that were incomplete. The pre-selection of articles was carried out by reading the title and abstract, in order to identify whether it covered the theme of the study. After reading the title and abstract, the selected articles were read in full and later obtained in

full. The selection of articles was guided by the PRISMA recommendations, which consist of a checklist aimed at helping authors to improve the reporting of reviews (MOHER, LIBERAT, TETZLAFF, ALTMAN, 2015).

RESULTS

Data used, 2198 articles. After adopting the inclusion and exclusion criteria, 84 articles remained, and the final sample consisted of 11 articles. The results were organized in Table 1 according to the title, authors, year of publication and method used in the study.

DISCUSSION

The scientific literature points out that complications resulting from plastic surgery can occur locally or systemic (NASSIF et al, 2018). Most of the studies found referred mainly to complications resulting from abdominoplasty, however, breast surgeries, body contouring and facial rejuvenation procedures also have their rates of complications (PONTELLI, SCIALOM, SANTOS-PONTELLI). In general, complications are classified into major and minor, the major ones being those that require a new surgical intervention, such as hematomas, suture dehiscence and necrosis (ROSA et al, 2018) and minor complications are those located in the surgical wound. That do not require new surgical procedures, such as seromas, hypertrophic scars, localized infections, granulomas and others (SMANIOTTO, 2012). In the study by Cintra, Modolin, Rocha and Gemperli (2021), minor complications are more prevalent than major complications in abdominoplasty. Among the major complications in this surgery are dehiscence and symptomatic anemia. The minor complications presented are small dehiscence, bleeding, seroma and hypertrophic scars. Rosa et al (2018) corroborates the findings, where in their study, they present an overall complication rate of 31.5% in abdominoplasty, of which 20.4% are minor complications. Regarding breast surgeries, Montadon (2014) presents contractures, seroma and ptosis as the most common complications. These findings coincide with those of Araújo and Itikawa (2022), where it appears that the main complications in mastopexy are more related to the tissue than to the implant. For Montandon (2014), ptosis is directly related to the complexity of the procedure, and is progressively greater with increasing complexity. Seroma is more frequent in reduction mammoplasties. Ecchymoses are also significant adversities that arise in the postoperative period of these repairing and aesthetic procedures. They occur due to the rupture of microvessels, generating an intravascular extravasation to the soft and underlying tissues and causing an increase in recovery time (CHI, MARQUETTI, DIAS, 2021). Edema, in the same way, is a change that can impair the patient's recovery, and can arise in abdominoplasty, liposuction, rejuvenation procedures and plastics in general (RIASCO and BAROUDI, 2012; STENMANN et al, 2021).

For Gomes, Vilela and Flavio (2019), necrosis after plastic surgery represents an unfortunate situation for the patient and the medical team, since these procedures are purely elective and of an aesthetic nature. Necrosis results from blood perfusion deficiency or excessive compression and according to Rosa et al (2018) it is associated with the number of surgical procedures performed by the patient, where those who perform only one procedure have one are less victims of necrosis and other complications. The complications developed can lead to systemic and aesthetic damage to the skin, and in these cases, intervention must be taken to minimize them. The literature, however, does not clearly show how the treatment process occurs in the face of these complications. In the study carried out by Pontelli, Scialom and Santos-Pontelli (2015), baric oxygen therapy was used as a treatment in a case of facial ischemia resulting from a filling of nasolabial juice. Baric therapy is used in cases of radiation injuries, wounds, flaps and grafts. In addition, it promotes a reduction of edema, and allows correction of possible retractions.

TITLE	AUTHORS	YEAR OF PUBLICATION	METHOD
Modified double space technique for augmentation mastopexy	ARAÚJO, L.R.R.; ITIKAWA, W.M.	2022	Retrospective study
Pyoderma gangrenosum as a differential diagnosis of ischemic and infectious complications after abdominoplasty: a case report	STENSMANN, I.C.W., et al.	2021	Case report
Use of lymphatic taping to prevent the formation of ecchymosis in abdominoplasty and liposuction	CHI, A.; MARQUETTI, M.G e DIAS, M.	2021	clinical trial
Simple and compound circumferential abdominoplasty: technical evolution, 10-year experience and analysis of complications	CINTRA, W; MODOLIN, M; ROCHA IR; GEMPERLI, R.	2021	retrospective study
Comparative analysis of evolution and postoperative complications in body contouring plastic surgery in elderly and young patients with massive weight loss	SMANIOTTO, P.H.S., et al.	2012	retrospective study
Ritidoplasty without periauricular scar	RIASCO A.; BAROUDI R.	2012	Case report
Abdominoplasty in post-bariatric patients: anthropometric profile, comorbidities and complications	ROSA, S.C., et al.	2018	retrospective study
Prevention and treatment of ecchymosis, edema and fibrosis in the pre, trans and postoperative period of plastic surgery	CHI A., et al	2018	clinical trial
Analysis of risk factors in seroma formation in classic abdominoplasty	NASSIF, T.M., et al.	2018	retrospective study
Facial necrosis after fat grafting and treatment with hyperbaric oxygen therapy	PONTELLI, E.P.; SCIALOM, J.M.; SANTOS-PONTELLI, T.E.G.	2015	clinical trial
Study of complications in breast implants: evaluation of 546 cases in eight years	MONTANDON, R.E.	2014	retrospective study

Source: Prepared by the authors, 2022

Lymphatic taping together with manual lymphatic drainage are identified as the main techniques for reversing fibrosis, ecchymosis and edema (CHIA, LANGES, GUIMARÃES and SANTOS, 2018). Taping is a procedure that promotes an increase in the opening of lymphatic capillaries, thus allowing the absorption of edema and reduction of ecchymosis. (CHI, MARQUETTI, DIAS, 2021). In the case study by Chia, Langes, Guimarães and Santos (2018), different taping techniques were used in the surgical wound. The “web” and “basket” cut were used in cases of fibrosis, the “fan” cut in cases of edema and the “hashtag” cut for ecchymosis and showed good results in the reversal of fibrosis, ecchymosis and edema. Also according to the authors, taping promotes greater physiological effects such as reduced pain, and decreased lingatic congestion, fluids and skin hemorrhages. Still with regard to minor complications, in the study carried out by Cintra, Modolin, Rocha and Gemperli (2021), various dressings were used to treat small dehiscence, and resection techniques were applied to hypertrophic scars to improve the results. The use of hydrogel dressings, silver calcium alginate and non-adherent oily dressings are cited in the report by Stensmann et al. (2021) as a topical treatment in a case of rare neutrophilic dermatitis. The hydrogel associated with alginate brings benefits due to its absorptive, regenerative, biocompatibility and other capacities, in cases of necrosis of the superficial layers of the skin (SOARES, et al., 2018). Surgical debridement and resuture are considered the main interventions for the control of said major complications. Debridement is used for surgical wound drainage and hygiene (STENSMANN, et al., 2021). However, these new surgical procedures increase the chance of systemic repercussions and deep vein thrombosis (SMANIOTTO, et al., 2012). Finally, drug treatment is essential in the face of these complications. Antibiotic therapy is used in the evidence of infections, orally or intravenously (STENSMANN et al, 2021). Corticosteroid therapy is guided by the dermatology team to stabilize wounds and limit ulcerated regions. It is performed with a gradual reduction plan and when used early it allows good aesthetic results (PONTES, FILHO, GUERRERO, 2021).

CONCLUSION

The high demand for plastic surgery comes from an expectation of improved self-esteem and quality of life for the patient. Scarring problems such as fibrosis, seroma and edema, and operative scars from new surgical interventions can impact the patient’s mental, physical and social health. The literature has a greater focus on the systemic treatment of major complications, and describes good aesthetic results even in the face of these complications, but there are

few studies that clearly show how and if this aesthetic repair occurs. It is also important to keep this look at the aesthetics of the healing process in order to favor the well-being and satisfaction of patients.

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