HIV, plastic surgery and Brazil: a narrative review

HIV, cirurgia plástica e Brasil: uma revisão narrativa

Introduction: Brazil presents one of the best HIV programs globally, and one of the characteristics of this approach is multidisciplinarity, where plastic surgery is involved. Objective: To conduct a non-systematic review of what has already been published on HIV by Brazilian plastic surgeons, analyzing the main themes studied. Methods: Research at PubMed, EMBASE, MEDLINE, LILACS, SciELO, Revista Brasileira de Cirurgia Plástica with the following terms: “plastic surgery HIV”, “plastic surgery AIDS”, “HIV plastic surgery”, “AIDS plastic surgery”, “HIV” and “AIDS. Results: We found 862 articles, and after selecting those written by Brazilian plastic surgeons, we reached a final number of 15, produced by 10 institutions from 5 Brazilian states. The most addressed theme was lipodystrophy in 13 publications. Discussion: From the selected articles, it is clear the concentration in the Southeast region. The most addressed theme was lipodystrophy, and the articles on it were published after ordinance GM/MS 2582. Areas such as skin cancer, genetics and surgery for gender reassignment have not been published, although there is already content related to HIV and plastic surgery in other countries. Conclusion: Despite quality publications, there are still areas in which Brazilian plastic surgery research needs to explore concerning HIV/AIDS.

Keywords: HIV; HIV-associated lipodystrophy syndrome; Ethics; Plastic surgery; Review, review.

ABSTRACT

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INTRODUCTION

Through the Unified Health System (SUS), Brazil remains one of the leading countries in the fight against acquired immunodeficiency syndrome (AIDS). The universal and free treatment policy for patients diagnosed with human immunodeficiency virus (HIV) resulted in a drop in the number of infected and mortality. Today, the epidemic is considered stable in the national territory, with a prevalence of 0.4% of the population.\(^1,2\)

And it is not only the distribution of antiretrovirals that HIV-positive people have access. The Ministry of Health guarantees integrated and multidisciplinary-based care. This is essential in the follow-up and better treatment of drug treatment.\(^3\)

Plastic surgery is one of the areas involved in the management of these patients. In addition, the scope of specialty functions is broad, such as tumor resections and reconstructions, treatment of soft tissue infections, and the approach of lipodystrophy associated with the use of antiretrovirals.

With the advent of antiretroviral therapy and increased survival, lipodystrophy associated with this medication has become a frequent complaint of HIV-infected patients. With an estimated prevalence between 6-80%, complaints range from lipoatrophy in the face, limbs and buttocks, to accumulation of adipose tissue in the abdomen, cervical region and back. Since 2004, the Ministry of Health has been offering plastic surgery for the treatment of this condition. Thus, Brazil became the first country in the world to offer this therapy for free.\(^4-11\)

Given the role and importance of plastic surgery in the multidisciplinary treatment of HIV, its availability of care and procedures guaranteed by the Ministry of Health, this work aims to conduct a non-systematic review of what has already been published, with an exclusive focus on AIDS/HIV, by Brazilian plastic surgeons.

METHODS

The study was conducted at the State University of São Paulo, in Botucatu, in July 2020. The research was conducted at PubMed, MEDLINE, LILACS, SciELO, EMBASE with the following terms: “plastic surgery HIV”, “plastic surgery AIDS”, “HIV cirurgia plástica”, “AIDS cirurgia plástica”, “HIV” and “AIDS. Results: No total encontramos 862 artigos e após selecionar os escritos por cirurgiões plástico brasileiros, chegamos a um número final de 15, produzidos por 10 instituições de 5 estados brasileiros. O tema mais abordado foi lipodistrofia em 13 publicações.

Discussão: Dos artigos selecionados, fica clara a concentração na região Sudeste. O tema mais abordado foi a lipodistrofia e os artigos sobre este foram publicados posteriores à Portaria GM/MS 2582. Áreas como neoplasia cutânea, genética e cirurgia para mudança de sexo não foram alvos de publicações, embora em outros países já haja conteúdo relacionado a HIV e cirurgia plástica produzido. Conclusão: Apesar de publicações de qualidade ainda há áreas em que a pesquisa da cirurgia plástica brasileira necessita explorar em relação ao HIV/AIDS.

Descritores: HIV; Síndrome de lipodistrofia associada ao HIV; Ética; Cirurgia plástica; Revisão.
We analyzed the theme addressed, the year, the city and the institution of the publication, the type of study, the objective, and the results obtained.

**RESULTS**

In total, we found 862 articles. After reading the titles, abstracts and evaluations of the authors’ information, we selected 132 articles produced by plastic surgeons as authors or co-authors. Of these, 17 studies were carried out or had the collaboration of Brazilians. Two were excluded from the study. One was a report of a surgical technique with an HIV-negative patient, and the other was “Letter to the Editor”. Thus, 15 articles remained8-22 (Table 1). The first article dates from the year 2002.

The *Revista Brasileira de Cirurgia Plástica* contains 11 of these publications. The other three were published in international journals in English: Annals of Plastic Surgery, International Journal of Dermatology, and International Journal of STD & AIDS (Figure 1).

The studies are from 10 Brazilian institutions in 5 states: Minas Gerais, Pernambuco, São Paulo, Rio de Janeiro and Rio Grande do Sul (Figures 2 and 3).

### Table 1. Articles on HIV performed by Brazilian plastic surgeons.

| Authors          | Title                                                                 | Year | Magazine                                  | Type of study                          |
|------------------|----------------------------------------------------------------------|------|-------------------------------------------|----------------------------------------|
| Robadey et al.   | Cosmetic plastic surgery in patients with human immunodeficiency virus (HIV) - is there consensus? | 2002 | RBCP                                      | Non-systematic review                   |
| Gonella et al.   | Evaluation of the use of polymethylmethacrylate in the correction of facial lipodystrophy associated with antiretroviral therapy in HIV-positive patients | 2007 | RBCP                                      | Non-randomized non-controlled clinical trial |
| Araujo et al.    | Logistics of surgical treatment of lipodystrophy in HIV/AIDS seropositive patients at the Hospital do Servidor Público Estadual de São Paulo | 2010 | RBCP                                      | Retrospective                          |
| Sakabe et al.    | Treatment of gluteal lipatrophy secondary to antiretroviral therapy with inclusion silicone implants | 2010 | RBCP                                      | Retrospective                          |
| Martins et al.   | Facial aging and lipatrophy: how to differentiate in patients living with AIDS | 2011 | RBCP                                      | Cross-sectional convenience sample      |
| Gomes et al.     | Rithydraplasty for the treatment of facial lipodystrophy in HIV+ patients | 2011 | RBCP                                      | Case report                            |
| Warde et al.     | The impact of facial lipatrophy treatment with polymethylmethacrylate in AIDS patients as measured by four quality-of-life questionnaires | 2011 | International Journal of STD & AIDS       | Non-randomized controlled trial         |
| Dornelas et al.  | Bioplasty in lipodystrophy of patients with HIV/AIDS | 2012 | RBCP                                      | Retrospective                          |
| Quintas et al.   | Treatment of facial lipatrophy with polymethylmethacrylate among patients with human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS): impact on the quality of life | 2014 | International Journal of Dermatology      | Non-randomized uncontrolled clinical trial |
| Scozzafave et al.| Surgical treatment of 510 patients with lipodystrophy secondary to the use of antiretrovirals | 2015 | RBCP                                      | Retrospectivo                          |
| Mütüller Neto et al. | Surgical correction of lipodystrophy related to the use of antiretroviral therapy: an analysis of the procedures performed and the impact on patients | 2015 | RBCP                                      | Retrospective                          |
| Martins et al.   | Facial filling with polymethylmethacrylate in patients living with acquired immunodeficiency syndrome (AIDS) | 2016 | RBCP                                      | Cross-sectional convenience sample      |
| Barreiro et al.  | Impact on quality of life in patients who use retroviral medication and submitted to gluteoplasty: a historical cohort study | 2017 | RBCP                                      | Retrospective - historical cohort       |
| Andrade et al.   | Gluteal augmentation with intramuscular implants in patients with human immunodeficiency virus with lipatrophy related to the use of antiretroviral therapy | 2017 | Annals of Plastic Surgery                 | Retrospective                          |
| Silva et al.     | Case report: persistent urinary retention after abdominoplasty in HIV-positive patients. | 2019 | RBCP                                      | Case report                            |
DISCUSSION

The first cases of AIDS in Brazil were diagnosed in 1982, but the first article found in our review, with authors and themes related to plastic surgery, was 20 years later, in 2002. In the discussion held by Robadey et al. (2002)\(^8\), with Professor Ivo Pitanguy, always illustrious and pioneer, ethics concerning elective aesthetic procedures in infected patients, was discussed\(^8,23\). This article reviewed the literature and researched members of the SBCP-RJ on the subject. As emphasized in this publication, the intention was not to define conduct about operating or not HIV-positive patients with cosmetic complaints but to raise the discussion in the plastic surgery environment. Most of the interviewees would perform aesthetic procedures in these patients, and the greatest fear of surgeons was the contamination of the team. Finally, the article leaves guidelines followed today: the need for preoperative tests, the importance of the patient’s clinical stability, good multidisciplinary care and those surgical expectations correspond to reality\(^8\).

Regarding geographic distribution, ten institutions from eight cities were responsible for the production of these articles: Federal University of São Paulo (UNIFESP), Federal University of Juiz de Fora (UFJF), University of São Paulo-Ribeirão Preto (USP-RP), Hospital Heliópolis and Municipal Secretariat of São Bernardo has more than one publication. However, they are concentrated in 5 states – São Paulo, Minas Gerais, Rio de Janeiro, Rio Grande do Sul and Pernambuco.

The Southeast has the highest rate of infected per thousand inhabitants, followed by the South. However, the detection rate in the last decade has fallen in both regions and has increased in all states of the Northeast and North (except Rondônia). However, it is not only the question of the number of HIV-positive patients that causes more publications but rather greater investments in research due to more favorable economic conditions and a higher concentration of lipodystrophy outpatient clinics (since this was the most addressed subject) in the Southeast\(^24,25\).

Except for the article on ethics, all others were related to lipodystrophy. Even the case report published on urinary retention was a patient submitted to lipoadominoplasty due to complaints of adipose tissue accumulation in the abdomen. There is also an article on outpatient flow and patients treated with lipodystrophy but without data analysis. The article shows the benefit of care and surgeries\(^9-22\).

The expressive number of publications affirms the importance of the ordinance GM/MS 2582, not only for patients but also for the scientific environment\(^8\).
Face lipodystrophy was the main subject in seven articles. Gonella et al. (2007) were the first to publish on this topic, evaluating facial filling with polymethylmethacrylate (PMMA) in facial lipoatrophy. Among the 46 patients, 56% were male, with a mean age of 35 years; 31% required more than one application of PMMA to achieve satisfaction with the result, and the nasogenic region was the place with the highest number of fillings. The complication described was severe pain in 22% of the cases during the procedure, but they reported tolerating the symptom.

In 2011, three studies were published on facial complaints. Warde et al. analyzed the impact of facial filling on the quality of life of patients, concluding improvement after treatment and improvement of symptoms of depression and increased self-esteem. Gomes et al. published a case report on the treatment of facial lipodystrophy, but in a case where there was an accumulation of adipose tissue, through rhytidoplasty, with good results. And Martins et al. evaluated the diagnostic differences between facial lipoatrophy caused by aging and antiretrovirals, however, without achieving success in this objective.

The following year, Dornelas et al. (2012) evaluated the treatment with completion, concluding good results and patient satisfaction. However, 12.1% of the patients presented complications (granulomas), which were treated with triamcinolone.

Thursdays et al. (2014) evaluated the quality of life after completion, and the conclusion was the improvement after the procedure. One data presented in this study, which is not included in the other evaluated, is the socioeconomic profile of these patients. Most were male; education level: high school; civil status: single; income less than one minimum wage; and retirees.

In a new study on facial lipodystrophy, Martins et al. (2016) evaluated the discomfort caused by lipoatrophy before application, the expectation before treatment, and the satisfaction after. Most of the sample noticed atrophy, have high expectations of filling out and considered the treatment satisfactory. In addition, this article evaluated the race of patients, with 100% being white.

Concerning the other complaints of lipodystrophy, two addressed surgical procedures in general and three others that focused on the treatment of gluteal atrophy.

In 2015, Scozzafave et al. published an analysis of the case series of surgeries performed to treat lipodystrophy in a total of 510 procedures. Most were women (65.5%). The most performed surgery was liposuction of the back/gibbon in 199 patients and 88 surgeries to include gluteal prostheses. The patients presented satisfactory aesthetic results and improvement of psychological aspects.

In the same year, Müller Neto et al. (2015) presented data on the complaints and procedures most performed in 26 patients seeking care for surgical correction of lipodystrophy. The female gender was predominant, 77.8%. The main reasons for care were dorsal gibbon (44.4%), abdominal lipodystrophy (44.4%) and gluteal lipoatrophy (37.04%); 36 procedures were performed.

Giba liposuction (48.1%) and liposuction of the abdomen and flanks (44.4%) were the most common. There were two complications. Although the majority presented satisfaction (70.4%), more than half (59.2%) would like new procedures due to other complaints related to lipodystrophy.

Sakabe et al., in 2010, performed the first specific work to treat HIV-related gluteal lipodystrophy; 47 patients were analyzed. 82% were women, the mean volume of implants was 220ml. Five patients presented complications: four dehiscence of the surgical wound and one episode of late infection from the implant store; 87% were satisfied in the postoperative period.

Barreiro et al. (2017) analyzed the impact of the inclusion of gluteal prosthesis on the quality of life of patients with complaints of lipoatrophy in this anatomical region; 23 patients submitted to this surgery, performed with the X-Y technique, mostly women (83.7%), with an average volume of 330ml. There was a significant improvement in 19 of the 32 items of the questionnaire applied. Thus, the authors proved the benefit of surgery in the quality of life of patients.

Andrade et al. (2017) evaluated ten patients about the technique, complications, and satisfaction regarding the surgery to include gluteal implants; 80% were women, the mean volume of the implants was 243ml. There were two episodes of seroma and one of wound dehiscence as postoperative complications; 80% of the patients reported that the result was excellent.

When analyzing the articles, we noticed an improvement in the quality of life and patient satisfaction in almost all the works mentioned here. This factor is extremely important in the multidisciplinary treatment of HIV, as it also contributes to better adherence to treatment and reducing stigma related to this disease.

**CONCLUSION**

The national articles on plastic surgery and HIV were carried out mainly in the Southeast region, focusing on lipodystrophy. The studies show the importance of the specialty, especially in improving patients’ quality of life, helping to reduce the stigma caused by this disease.
**COLLABORATIONS**

**MSS**
Analysis and/or data interpretation, Conception and design study, Data Curation, Formal Analysis, Methodology, Project Administration, Writing - Original Draft Preparation.

**BFMN**
Data Curation, Writing - Original Draft Preparation.

**LBC**
Writing - Original Draft Preparation.

**ABPMO**
Data Curation.

**MMC**
Data Curation.

**IDS**
Data Curation, Writing - Original Draft Preparation.

**AAP**
Supervision, Writing - Review & Editing.

**REFERENCES**

1. Nattrass N. Are country reputations for good and bad leadership on AIDS deserved? An exploratory quantitative analysis. J Public Health (Oxf). 2008 Dec;30(4):398-406. DOI: https://doi.org/10.1093/pubmed/fdm075

2. Galvão J. Brazil and access to HIV/AIDS drugs: a question of human rights and public health. Am J Public Health. 2005 Jul;95(7):1110-6. DOI: https://doi.org/10.2105/AJPH.2004.044313

3. Casseb J, Fonseca LAM, Duarte AJS. Is it possible to control HIV infection in a middle-income country through a multidisciplinary approach?. AIDS Res Hum Retroviruses. 2018 Feb;34(2):165-7. DOI: https://doi.org/10.1089/AID.2017.0106

4. Zambrini H. Estudo de dados clínicos e laboratoriais de pacientes com AIDS e lipodistrofia atendidos no programa de lipodistrofia do Hospital Heliópolis [dissertação]. São Paulo: Universidade de São Paulo (USP); 2011.

5. Ministério da Saúde (BR). Portaria GM/MS nº 2582, de 02 de dezembro de 2004. Inclui cirurgias reparadoras para pacientes portadores de AIDS e lipodistrofia secundárias ao uso de antirretrovirais. Rev Bras Cir Plást. 2015;30(1):24-32.

6. Müller Neto BF, Andrade GAM, Lima RVKS, Barros MEPM, Farina Junior JA. Correção cirúrgica da lipodistrofia relacionada ao uso da terapia antirretroviral: Uma análise sobre os procedimentos realizados e o impacto sobre os pacientes. Rev Bras Cir Plást. 2015;30(2):250-7.

7. Martins WH, Pessôa KVO, Martins MA, Silva MH, Pereira Filho GV, Abreu LC. Preenchimento facial com polimetilmetacrilato em pacientes que vivem com a síndrome da imunodeficiência adquirida (AIDS). Rev Bras Cir Plást. 2016;31(2):216-28.

8. Barreiro G, Zanella FA, Rosa KGD, Pereira Neto AH, Cavazzola LT, Martins PAM. Impacto na qualidade de vida em pacientes usuários de medicação retroviral e submetidos à gluteoplastia: estudo de coorte histórico. Rev Bras Cir Plást. 2017;32(3):388-401.

9. Andrade GA, Coltro PS, Barros ME, Müller Neto BF, Lima RV, Farina Junior JA. Glutéal augmentation with intramuscular implants in patients with human immunodeficiency virus with lipodystrophy related to the use of antiretroviral therapy. Ann Plast Surg. 2017 Nov;79(5):426-9.

10. Silva PV, Cruz PHR, Pedrosa NV, Vieira DR, Alfonso GB, Costa AMD. Relato de caso: retenção urinária persistente após abdominoplastia em paciente HIV-positivo. Rev Bras Cir Plást. 2019;34:87-9.

11. Pinto ACS, Pinheiro PNC, Vieira NFC, Alves MDS. Compreensão da pandemia da AIDS nos últimos 25 anos. DST J Bras Doenças Gastrointestinais. 2015;18(3):249-55.

12. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Boletim Epidemiológico DST/AIDS. Brasília (DF): Ministério da Saúde; 2010; [acesso em 2020 Jul 30]. Disponível em: https://documentos.com/embed/v1/ministerio-da-saude-secretaria-de-vigilancia-em-saude-dst-aids-boletim-epidemiologico

13. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Envelhecimento facial e lipoatrofia: como diferenciar em pacientes que vivem com AIDS. Rev Bras Cir Plást. 2010;25(3):90.

14. Sakabe D, Scozzafave GA, Bianco RM, Pinho DBM, Ferreira DL, Miranda FBS. Tratamento da lipoatrophic glutea secundária à terapia antiretroviral com inclusão de implantes de silicone. Rev Bras Cir Plást. 2010;25(3):96.

15. Martins MA, Martins WH, Nogueira ACA, Pessoa KVO, Silva MH. Envelhecimento facial e lipodistrofia: como diferenciar em pacientes que vivem com AIDS. Rev Bras Cir Plást. 2011;26(3):31.

16. Gomes I, Barreira G, Zanella FA, Rosa KGD, Pereira Neto AH, Cavazzola LT, Martins PAM. Impacto na qualidade de vida em pacientes usuários de medicação retroviral e submetidos à gluteoplastia: estudo de coorte histórico. Rev Bras Cir Plást. 2017;32(3):388-401.

17. scozzafave GA, Martins CS, Kunisawa CM, Meyer MMC, Pastro DAV, Bianco RM, et al. Treatment cirúrgico de 510 pacientes portadores de lipodistrofias secundárias ao uso de antirretrovirais. Rev Bras Cir Plást. 2015;30(1):24-32.

18. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Boletim Epidemiológico DST/AIDS. Brasília (DF): Ministério da Saúde; 2010; [acesso em 2020 Jul 30]. Disponível em: https://documentos.com/embed/v1/ministerio-da-saude-secretaria-de-vigilancia-em-saude-dst-aids-boletim-epidemiologico

19. Barreiro G, Zanella FA, Rosa KGD, Pereira Neto AH, Cavazzola LT, Martins PAM. Impacto na qualidade de vida em pacientes usuários de medicação retroviral e submetidos à gluteoplastia: estudo de coorte histórico. Rev Bras Cir Plást. 2017;32(3):388-401.

20. Andrade GA, Coltro PS, Barros ME, Müller Neto BF, Lima RV, Farina Junior JA. Glutéal augmentation with intramuscular implants in patients with human immunodeficiency virus with lipodystrophy related to the use of antiretroviral therapy. Ann Plast Surg. 2017 Nov;79(5):426-9.

21. Silva PV, Cruz PHR, Pedrosa NV, Vieira DR, Alfonso GB, Costa AMD. Relato de caso: retenção urinária persistente após abdominoplastia em paciente HIV-positivo. Rev Bras Cir Plást. 2019;34:87-9.

22. Pinto ACS, Pinheiro PNC, Vieira NFC, Alves MDS. Compreensão da pandemia da AIDS nos últimos 25 anos. DST J Bras Doenças Gastrointestinais. 2015;18(3):249-55.

23. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Boletim Epidemiológico DST/AIDS. Brasília (DF): Ministério da Saúde; 2019; [acesso em 2020 Jul 30]. Disponível em: https://documentos.com/embed/v1/ministerio-da-saude-secretaria-de-vigilancia-em-saude-dst-aids-boletim-epidemiologico

24. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Lipodistrofia: definição e cenário atual. Brasília (DF): Ministério da Saúde; 2019; [acesso em 2020 Jul 30]. Disponível em: https://documentos.com/embed/v1/ministerio-da-saude-secretaria-de-vigilancia-em-saude-lipodistrofia-definicao.html

25. Guaraldi G, Murri R, Orlando G, Squillace N, Stentarelli C, Zona S, et al. Lipodystrophy and quality of life of HIV-infected persons. AIDS Rev. 2008 Jul;10(3):152-61.

26. Nelson L, Stewart KJ. Plastic surgical options for HIV-associated lipodystrophy. J Plast Reconstr Aesthet Surg. 2008;61(4):359-65.

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