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Case Report

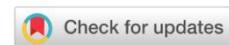
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Management of Breast Reconstruction Salvage in the COVID-19 Pandemic Era: Is there still Room for Plastic Surgery?

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ABSTRACT



Implant infection after breast reconstruction is always disastrous and often leads to the need to remove the prosthesis and delayed reconstruction. In those cases when conservative treatments fail (i.e., oral or i.v. antibiotics), a surgical approach is necessary. Removing the implant and debridement are always required, but which are the following reconstructive steps? In the literature, different solutions chosen based on the severity of the infection are described. In the pandemic Covid-19 era, the healthcare system has to deal with a significant restriction in the delivery of surgical services due to the recruitment of hospital staff members to the “Covid-19 frontline”. Although implant removal for infection represents an urgent deferred procedure, the reconstruction is not considered as such. Here we report on a case of breast reconstruction with Deep Inferior Epigastric Perforator (DIEP) flap in a patient having a severe implant infection during the Italian second wave of the pandemic (February- March 2021). Initially, she was locally treated with the removal of the implant and the simultaneous application of negative wound pressure therapy with irrigation in the pocket site, which led us to an “immediate” reconstruction (10 days after implant removal) with a DIEP flap.

Keywords: Breast, Breast Reconstruction, ADM, Covid-19, Diep Flap.

CASE REPORT

Here we report on managing a severe implant infection after left mastectomy, for triple-negative ductal carcinoma pT1cN (sn)0, in a 50-years-old breast-implant reconstructed patient (P.D.). She already had breast cancer on the same side three years before and was treated with conservative breast surgery and adjuvant radiotherapy. Afterward, she underwent skin-sparing mastectomy and reconstruction with a pre-pectoral implant completely coated with porcine ADM (Braxon®) in July 2020. As reported in the literature by Specht and coll., pre-pectoral implant-based breast reconstruction can be the definitive procedure or a bridge to autologous reconstruction in this pandemic era. It shortened the hospital stay and reduced hospital stays out-patient visits [1]. Moreover, in the daily practice in our Unit, we appropriate this approach. Thus, the patient P.D. received a pre-pectoral direct-to-implant breast reconstruction. In the postoperative, no complications occurred. One month after surgery, she underwent chemotherapy according to the following scheme: 4 cycles of Epirubicin 90mg/mq. + Cyclophosphamide 600mg/mq, followed by weekly Paclitaxel 80mg/mq for 12 doses.

On the 14th day after the last chemotherapy administration (Paclitaxel), the oncologist noticed slight erythema of the left breast, who immediately prescribed amoxiclav (1 gr per 3/day per os). Nonetheless, the patient's clinical situation worsened. She was admitted into the hospital through E.R. She had a temperature over 38.5 °C and lost fluid through the mastectomy scar. Once informed consent had been obtained, she was immediately taken to the operating room (OR) to explain the prosthesis and debridement. Once specimens were taken for microbiological assessment, Cefazolin 2 g i.v. was administered, which was continued with a daily dosage of 2 gr per 3. The pocket flooded with yellowish fluid, and very thin and inflamed mastectomy flaps were found during surgery. To avoid the removal

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Authors' contributions

The participation of each author corresponds to the criteria of authorship and contributorship emphasized in the [Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly work in Medical Journals of the International Committee of Medical Journal Editors](https://www.icmje.org/). Indeed, all the authors have actively participated in the redaction, the revision of the manuscript, and provided approval for this final revised version.

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Conflict of interest

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of the "weak" skin flap, an irrigating negative pressure wound therapy (i-NPWT) was used (Figure 1) to take time and leave the local and systemic situations getting better [2]. Immediately after surgery, the patient got better both locally and systemically. Meantime, in five days, a microbiological response showed the presence of methicillin-sensitive *Staphylococcus aureus* (MSSA), so cefazoline was confirmed and continued for 14 days. On the fifth postoperative day, she underwent a dressing change in the OR under sedation, and local improvement was observed.

Since the patient was hospitalized with a temporary dressing into the breast pocket, a decision had to be made: go for reconstruction or not? Putting an implant/expander was the simplest but not safest solution. Otherwise, performing a microsurgical operation for reconstruction purposes in a COVID Hospital regional referral center was impossible due to the lack of ICU beds: the reconstruction was meant to be delayed. At this point, we asked for availability for OR and post-op ICU beds in one of the few hospitals equipped for microsurgery in the Region, and we obtained a positive response. An abdominal C.T. angiography scan was done during her hospitalization to better study the reliable perforator vessels. In a few days, on the 10th day of hospitalization, the patient's left breast was finally reconstructed with a DIEP flap anastomosed on the internal mammary artery and vein without complications (Figure 2).



Figure 1: postoperative view of the i-NPWT in the breast pocket after the removal of the implant. Skin still appears erythematous.



Figure 2: 11-months follow-up after DIEP flap surgery. Skin doesn't appear erythematous anymore. No recurrence of infection.

DISCUSSION

Implant infection after breast reconstruction is always disastrous. In literature, different solutions, chosen based on the severity of the infection, are described [3], but they often lead to implant removal and delayed reconstruction. The use of negative pressure wound therapy with instillation (NPWTi) for implant-based breast reconstruction is relatively new, and in the last years, it is gaining popularity among breast and plastic surgeons [4-6]. This new procedure allows early reinsertion of new implants as an alternative to delayed

reconstruction [7]. Its peculiarity is to irrigate at regular intervals and maintain the wound clean while the foam dressing remains in place. Regular soaking with instilled solution improves the microenvironment of the wound, allowing early reinsertion of a new breast implant [8]. Several studies have reported successful reinsertion of a new implant within 7 to 12 days following an infected implant removal [4,5,9,10].

Although several studies reported a remarkable rate of success in implants replacement, none highlight the use of i-NPWT as a temporary dressing for an immediate breast replacement with a DIEP flap, though some authors report it [2]. The rationale of our intervention was to take the proper time to treat the acute infection from the systemic point of view and to preserve as much as possible the mastectomy flaps, which were very compromised. Due to the thinness of the mastectomy flaps, implant insertion would have led to poor cosmetic results and have made the patient vulnerable to future implant exposure again. Hence, we opted for autologous reconstruction with DIEP flap, which was partially burden: thanks to the I-NPWT application, we saved the skin of the upper pole, not disfiguring the décolleté (Figure 2).

CONCLUSION

In conclusion, we consider i-NPWT a valuable possibility in breast reconstruction salvage, especially in those cases where acute inflammation and infection need to downgrade in addition to the unavailability of the OR. Moreover, immediate implant-based breast reconstruction is a valid option for a large number of patients during this pandemic but not for all: it's not free from complications, which, however, requires urgent hospitalization.

REFERENCES

- [1] Specht M, Sobti N, Rosado N, Tomczyk E, Abbate O, Ellis D, et al. High-Efficiency Same-Day Approach to Breast Reconstruction During the COVID-19 Crisis. *Breast Cancer Res Treat.* 2020;182(3):679–88. DOI: [10.1007/s10549-020-05739-7](https://doi.org/10.1007/s10549-020-05739-7)
- [2] Knackstedt R, Scomacao I, Djohan R. Utilization of irrigating negative pressure wound therapy for breast implant salvage: Long-term results and success. *J Plast Reconstr Aesthet Surg.* 2020;74(2):407–47. DOI: [10.1016/j.bjps.2020.08.058](https://doi.org/10.1016/j.bjps.2020.08.058)
- [3] Spear SL, Seruya M. Management of the Infected or Exposed Breast Prosthesis: A Single Surgeon's 15-Year Experience with 69 Patients. *Plast Reconstr Surg.* 2010;125(4):1074–84. DOI: [10.1097/prs.0b013e3181d17fff](https://doi.org/10.1097/prs.0b013e3181d17fff)
- [4] Meybodi F, Sedaghat N, French J, Keighley C, Mitchell D, Elder E. Implant salvage in breast reconstruction with severe peri-prosthetic infection. *ANZ J Surg.* 2015;87(12):E293–9. DOI: [10.1111/ans.13379](https://doi.org/10.1111/ans.13379)
- [5] Meybodi F, Sedaghat N, Elder E, French J, Adams K, Hsu J, et al. Salvaging the Unsalvageable: Negative Pressure Wound Therapy for Severe Infection of Prosthetic Breast Reconstruction. *Plast Reconstr Surg- Global Open.* 2021;9(3):e3456. DOI: [10.1097/gox.0000000000003456](https://doi.org/10.1097/gox.0000000000003456)
- [6] Constantine T. Use of Negative-Pressure Wound Therapy With Instillation and Dwell in Breast Reconstruction. *Plast Reconstr Surg.* 2020;147(1S-1):34S42S. DOI: [10.1097/prs.0000000000007612](https://doi.org/10.1097/prs.0000000000007612)
- [7] Cheong JY, Goltsman D, Warriar S. A New Method of Salvaging Breast Reconstruction After Breast Implant Using Negative Pressure Wound Therapy and Instillation. *Aesthetic Plast Surg.* 2016;40(5):745–8. DOI: [10.1007/s00266-016-0668-z](https://doi.org/10.1007/s00266-016-0668-z)
- [8] Brinkert D, Ali M, Naud M, Maire N, Trial C, Téot L. Negative pressure wound therapy with saline instillation: 131 patient case series. *Int Wound J.* 2013;10(s1):56–60. DOI: [10.1111/iwj.12176](https://doi.org/10.1111/iwj.12176)
- [9] Chicco M, Huang TC-T, Cheng H-T. Negative-Pressure Wound Therapy in the Prevention and Management of Complications From Prosthetic Breast Reconstruction. *Ann Plast Surg.* 2021;87(4):478–83. DOI: [10.1097/sap.0000000000002722](https://doi.org/10.1097/sap.0000000000002722)
- [10] Haque S, Kanapathy M, Bollen E, Mosahebi A, Younis I. Patient-reported outcome and cost implication of acute salvage of infected implant-based breast reconstruction with negative pressure wound therapy with Instillation (NPWTi) compared to standard care. *J Plast Reconstr Aesthet Surg.* 2021;74(12):3300–6. DOI: [10.1016/j.bjps.2021.05.014](https://doi.org/10.1016/j.bjps.2021.05.014)