

# Considerations for breast reconstructive surgery in South Africa during the COVID-19 pandemic

The coronavirus disease 2019 (COVID-19) pandemic has added a layer of complexity to surgical decision making particularly for complex reconstructive oncological surgery.<sup>1</sup> In the absence of data on which to base validated strategies for breast reconstruction in the South African context, this article discusses the current trends in management and potential approaches which could be employed.

## Breast cancer and COVID-19

Breast cancer is the most common malignancy in women worldwide, with over 2 million new cases diagnosed per year.<sup>2</sup> Surgery remains the foundation of treatment for breast cancer worldwide, and current trends in surgical care include mastectomy, breast conservation surgery, and mastectomy with reconstruction.<sup>3</sup> Breast conservation surgery has gained momentum following the results of large clinical trials which demonstrated equivalent long-term survival compared to mastectomy, despite a higher local recurrence.<sup>4</sup>

Patients with cancer are generally at an elevated risk of contracting COVID-19, having a more severe infection, developing complications during surgery and a higher mortality rate.<sup>5</sup> The exact extrapolation quantification of this risk to breast cancer patients is not known. Breast reconstruction is integral to the holistic management of breast cancer and associated with significantly improved quality of life and mental health after mastectomy.<sup>6</sup> There are four main classes of breast reconstructive surgery: implant- and expander-based, flap-based breast reconstruction, a combination of both, and fat grafting (autologous lipoaspirate).<sup>7</sup> The most common method used is mastectomy with immediate breast reconstruction using implants, which has the advantage of improved body image, improved health-related quality of life and higher patient satisfaction when compared to those who opt for delayed reconstruction.<sup>8</sup> In patients with mastectomy who require radiation therapy post-surgery, delayed autologous microvascular breast reconstruction is a safer option.<sup>9</sup>

## Breast reconstruction considerations

### intra-COVID-19

The onset of the COVID-19 pandemic has changed the paradigm of post-ablative breast reconstruction globally. Outpatient clinic availability and operating lists have been significantly decreased with many healthcare professionals reassigned to the “frontline”.<sup>1,10,11</sup> In addition, all surgical specialties have been advised to undertake emergency surgery or unavoidable procedures only with shortest possible operating times, minimal numbers of staff and

leaving ventilators available for COVID-19 patients.<sup>1,10,11</sup> This has essentially suspended time-intensive and complex autologous tissue reconstruction (free or pedicled flap).<sup>9,12</sup>

During the COVID-19 pandemic, in line with South African government directives, the author’s institution has limited elective surgery to oncologic procedures, and reconstruction is still considered an integral part of the treatment.<sup>13</sup> At our institution, patients are evaluated case by case by a multidisciplinary team composed of a breast surgeon, oncologist, pathologist, radiologist and plastic surgeon to provide treatment that does not compromise oncological safety and offers the best possible aesthetic outcome while minimising the risk of COVID-19 co-infection. In these conditions, it is prudent that when therapy recommendations are made, both the decision process and decision are well documented.<sup>11</sup> As with other disciplines, consideration must be given to minimising operating times and hospital stay for day case surgery.<sup>11,12</sup> In addition, consideration must be given to the current availability of local healthcare system resources. Outpatient visits should be minimised and provision must be made for the designation of COVID-19 “light” areas in the hospital to mitigate the risk of exposure to SARS-CoV-2 for both the patient and healthcare professionals.<sup>1,11</sup>

Given these contingencies, what reconstructive surgery should be delayed until the local healthcare system has capacity for “safe” elective surgery? Risk-reducing prophylactic mastectomies for hereditary breast cancer predispositions should be delayed until after the COVID-19 pandemic. Secondary revision procedures, such as fat grafting and delayed post-ablative reconstruction, are also in this category.

## Recommended procedures for breast reconstruction during COVID-19 pandemic

Simple oncoplastic procedures such as mammoplasty and the integration of perforator flaps for volume replacement can be performed.<sup>12</sup> In fact ‘oncoplastic’ techniques to avoid the need for mastectomy should be encouraged to enhance less invasive surgery. Palliative and salvage mastectomy procedures that expose the thoracic wall should be reconstructed immediately with local pivot flaps.<sup>12,14</sup> Immediate breast reconstruction after mastectomy using pre-pectoral implants or tissue expanders can continue in appropriately selected patients. In those not deemed appropriate for immediate reconstruction, but still candidates for delayed reconstruction, skin preservation, ensuring healthy flaps, mastectomy scar placement and correct drain placement to avoid vascular damage should be part of the planning.<sup>9</sup> Delayed reconstructive breast surgery post COVID-19 pandemic hypothetically offers the safest approach.<sup>9</sup>

## Conclusion

Surgical decision making, an important aspect of care, will take on an added layer of complexity in the face of the COVID-19 pandemic.<sup>1,11</sup> Post-ablative breast reconstruction is best kept straightforward and trouble-free during the COVID-19 pandemic. The pandemic is at different stages of the curve worldwide and recommendations from local, national and international authorities should be both fluid and prudent according to specific situations with regard to post-resection breast reconstruction.<sup>1,11</sup>


During the COVID-19 pandemic reconstructive breast options will be limited. Reconstructive breast surgeons should consider addressing only the cancer side with immediate breast reconstruction confined to pre-pectoral implants or simple oncoplastic procedures that will only slightly extend surgical times. Breast conserving surgery should be considered when possible. Autologous microvascular breast reconstruction, complex oncoplastic procedures and all revisional breast reconstruction procedures should be postponed until it is considered safe to perform. The recommendations considered in this article remain to be validated in future studies.

### S Al-Benna, A Gohritz

*Division of Plastic and Reconstructive Surgery, Faculty of Medicine and Health Sciences, Stellenbosch University and Tygerberg Academic Hospital, South Africa*

### ORCID

S Al-Benna  <https://orcid.org/0000-0003-4079-9286>

A Gohritz  <https://orcid.org/0000-0001-7607-1655>

### REFERENCES

1. Al-Benna S. Concepts of management of plastic surgery services during the Coronavirus Disease 2019 pandemic. *Eur J Plast Surg.* 2020;1-2. <https://doi.org/10.1007/s00238-020-01704-1>.
2. Bray F, Ferlay J, Soerjomataram I, et al. Global Cancer Statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries *CA Cancer J Clin.* 2018;68:394-424.
3. Panchal H, Matros E. Current trends in postmastectomy breast reconstruction. *Plast Reconstr Surg.* 2017;140:S7-13.
4. Onitilo AA, Engel JM, Stankowski RV, Doi SA. Survival comparisons for breast conserving surgery and mastectomy revisited: community experience and the role of radiation therapy. *Clin Med Res.* 2015;13:65-73.
5. ElGohary GM, Hashmi S, Styczynski J, et al. The risk and prognosis of COVID-19 infection in cancer patients: a systematic review and meta-analysis. *Hematol Oncol Stem Cell Ther.* 2020:S1658-3876(20)30122-9.
6. Siqueira HF, Teixeira JLA, Lessa Filho RD, et al. Patient satisfaction and quality of life in breast reconstruction: assessment of outcomes of immediate, delayed, and non-reconstruction. *BMC Res Notes.* 2020;13:223.
7. Al-Benna S. Female plastic and reconstructive surgeons' personal decision making for breast cancer treatment and reconstruction. *Arch Gynecol Obstet.* 2011;284:737-41.
8. Beugels J, Kool M, Hoekstra LT, et al. Quality of life of patients after immediate or delayed autologous breast reconstruction: a multicentre study. *Ann Plast Surg.* 2018;81:523-7.
9. Andree C, Langer S, Seidenstuecker K, et al. A single centre prospective study of bilateral breast reconstruction with free abdominal flaps: a critical analyses of 144 patients. *Med Sci Monit.* 2013;19:467-74.
10. Al-Benna S. Impact of COVID-19 on surgical registrars' education and training. *S Afr J Surg.* 2020;58;10-3.
11. Al-Benna S. Management of hand surgery services during the Coronavirus Disease 2019 pandemic. *J Hand Microsurg.* 2020 Jul. <https://doi.org/10.1055/s-0040-1714440>.
- Al-Benna S. Outcomes of volume replacement oncoplastic breast-conserving surgery using pedicled flaps. *Plast Reconstr Surg.* 2020. In press.
- Al-Benna S. Sword of Damocles: application of the ethical principles of resource allocation to essential cancer surgery patients requiring beds in limited supply during the COVID-19 pandemic [published online ahead of print, 2020 Aug 7]. *Eur Surg.* 2020;1-2. <https://doi.org/10.1007/s10353-020-00655-y>.
14. Al-Benna S, Steinstraesser L. Postablative reconstruction is better terminology than oncoplastic surgery. *Plast Reconstr Surg.* 2009;124:463e-4e.