CORRESPONDENCE

Breast Reconstruction Following Cancer Treatment

by Prof. Dr. med. Bernd Gerber, Dr. med. Mario Marx, Prof. Dr. med. Michael Untch, and Prof. Dr. med. Andree Faridi in issue 35–36/2015

Recommendation Difficult to Understand

Gerber and colleagues first emphasize that autologous and heterologous breast reconstruction are procedures that "complement rather than oppose each other ", only to later recommend implant-based reconstruction (1). In this form, it is difficult to understand this recommendation. Implants are not superior to autologous reconstruction, they only find more widespread use.

Gerber et al. document acute complication rates following reconstruction involving implants of up to 15.3% (1). Over the long term, revision surgery, such as implant removal and/or implant replacement or switching to autologous tissue, may be required to treat painful and aesthetically unacceptable capsular fibrosis. In a registry-based study, an overall complication rate of 76.4% and a revision surgery rate of 40.6% was found 8 years after implant-based breast reconstruction (2).

The database of the German Society of Plastic, Reconstructive and Aesthetic Surgeons (DGPRÄC, *Deutschen Gesellschaft der Plastischen, Rekonstruktiven und Ästhetischen Chirurgen*; www.mammarekonstruktion.de) found for 1600 DIEP flap breast reconstructions a loss rate of 1.41%; this complication rate is significantly lower than that of implant-based reconstruction. Operating times are longer for autologous tissue-based reconstruction, but the long-term outcome is generally more favorable.

Anaplastic large-cell lymphoma is another complication of implant-based reconstruction (3). While its clinical significance remains uncertain, it already has to be addressed in the informed consent discussion.

The authors suggest to postpone reconstruction in patients scheduled for radiotherapy. However, this is not necessary. In Table 3, they report the same evidence level for autologous reconstruction before and after radiotherapy (2a); consequently, the procedure can be performed before radiotherapy, too. All more recent studies show that microsurgical flap breast reconstruction is not associated with an increased rate of radiotherapy-related complications (4).

The Clinical Practice Guideline on Breast Cancer (S3) requires that at the beginning of treatment patients must be informed about all available treatment options, including microsurgical procedures. Non-directive advice should be given in cooperation with the plastic surgeon. In many Centers for Breast Diseases, this collaboration has already been practiced successfully (as demonstrated by the authors) to achieve the best oncological and aesthetic results for our patients.

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Subsequent Surgery to Be Expected

We would like to thank Gerber et al. for their clear overview of breast reconstruction following cancer treatment (1). We agree with their conclusion that secondary autologous breast reconstruction is the procedure of choice after post-mastectomy radiotherapy.

We think that the profunda artery perforator (PAP) flap, which has been promoted by Robert J. Allen since 2010, is superior to the DIEP flap. Therefore, we prefer it in situations where free tissue transfer is indicated for breast reconstruction.

As mentioned by Gerber et al., subsequent surgeries can be expected in breast cancer patients after mastectomy, radiotherapy and then breast reconstruction. Regrettably, the authors did not mention the lymphedema of the upper extremity, even though it occurs in up to 49% of patients (2, 3). Using advanced microsurgical and supermicrosurgical techniques, such as free lymph node transfer, lymphaticovenous anastomosis (LVA) and lymphatic vessel transfer, lymphedema can be greatly improved, as we have observed in our own breast cancer patients for many years now (4).

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The authors declare that no conflict of interest exists.

In Reply:

We did not address the issue of lymphedema as this problem is significantly in decline today and typically develops with some delay. The downward trend started with the introduction of less radical axillary surgery—sentinel lymph node biopsy, no minimum number of removed lymph nodes (1). Nevertheless, pointing out that surgical techniques to treat lymphedema are available appears helpful. Whether breast reconstruction in the presence of lymphedema is of benefit to the patient has to be evaluated on a case-by-case basis.

Implant-based reconstruction can be performed with good cosmetic results over the long term. Many women do not want autologous reconstruction, no additional scars or do not have enough autologous tissue available because of their habitus. The overall complication rate of 76.4% and the rate of subsequent surgeries after implant-based reconstruction of 40.6% appear extremely high to us and cannot be applied to the situation in Germany. In the "Autologous versus Heterologous Reconstruction" section of our article, comparing implant-based reconstruction with autologous reconstruction, we highlighted that the costs of autologous reconstruction are 2.5 times higher and further increase as the result of complications and the high rate of subsequent surgeries–100% second, 53% third and 12% fourth operations (nipple reconstruction, late complications, adjustments).

Autologous reconstruction before radiotherapy—only very limited long-term data are available—is, of course, possible in individual cases (Table 3, level of evidence [LOE] 2a; grade of recommendation +/-). Under "Post-mastectomy Radiotherapy", we reported fibrosis rates (meta-analysis of 13 studies) for autologous reconstruction before and after radiotherapy of 36.5% versus 2.7%, respectively. Given the conflicting local recurrence rate (LRR) and overall survival data, it should be contemplated to markedly restrict the indication for radiotherapy (Harris J. San Antonio, 2015).

Thankfully, the very rare implant-associated cutaneous anaplastic large-cell lymphoma (ALCL) has been highlighted in the correspondence; here, we can make reference to our case report on ACLC (2). It is a very rare adverse event—1 : 500 000 to 1 : 3 000 000 patients with breast implants per year. Of the 71 reported cases, the majority was preceded by cosmetic breast surgery with implants (3). After implant-based breast reconstruction—and this is what our article is about—only three cases of ALCL have been reported worldwide plus one "unusual" case where ALCL occurred after breast reconstruction with saline-filled implants.

With regard to the comment about the requirement to provide comprehensive information to the patient, we stated under "Background" that "each and every patient must be given timely, detailed, […] information on all breast reconstruction procedures, expected outcomes, risks, and alternatives […] offer of a second opinion and information on surgical procedures that are not offered in the physician's own hospital." This wording by far exceeds the information requirements indicated by Prof. Fansa and Prof. Heitmann.

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