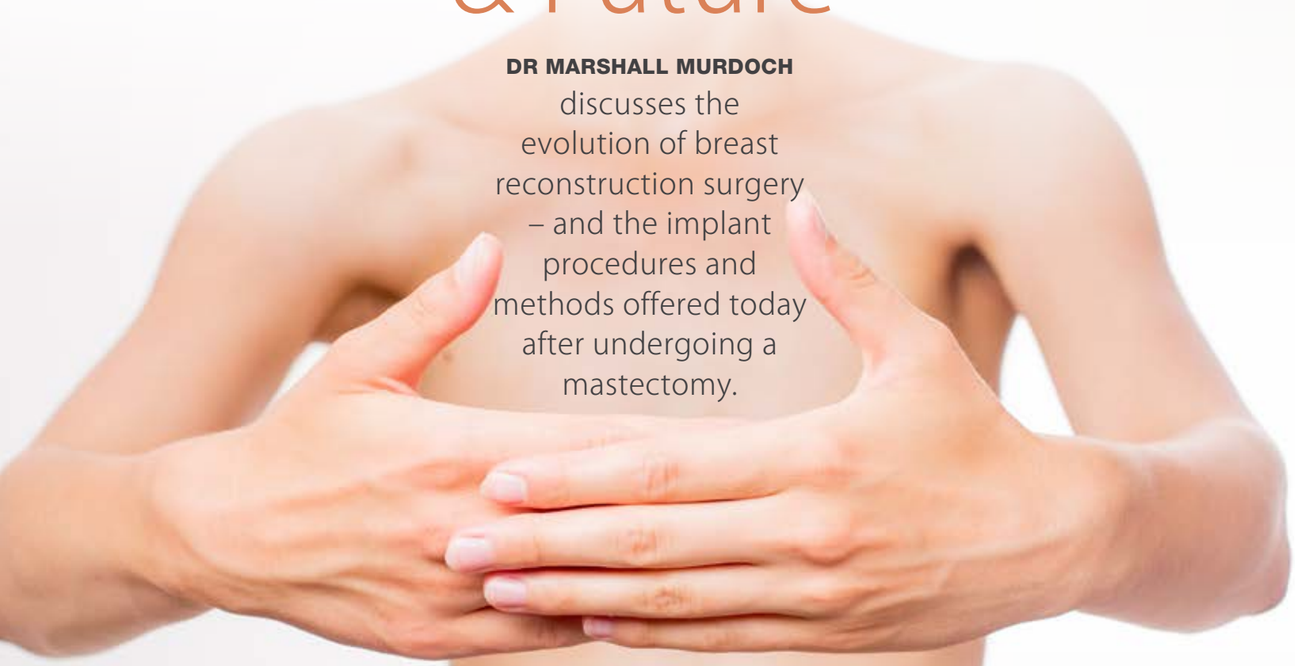
COSMETIC SURGERY UPDATE

Breast Reconstruction

Past, Present & Future

DR MARSHALL MURDOCH

discusses the evolution of breast reconstruction surgery – and the implant procedures and methods offered today after undergoing a mastectomy.



Breasts of Surgery PAST

Breast cancer was first documented by the Egyptians in 1600 B.C, but the first mastectomy was only performed by Halstead in 1889. Interestingly, Halstead counselled against reconstruction – setting the stage for a tug-of-war between oncological and reconstructive surgeons that persists to this day. Despite this, the first breast reconstruction (BR) was performed six years later by Czerny, who transplanted a lipoma to the breast. The first flap reconstructions were performed in 1905 by Ombredanne, and then by Tanzini in 1906 (who described the latissimus flap).

Introduction of Silicone

Silicone implants for BR were first used in 1971, and the first tissue expander was developed in 1982 - lighting the way for modern alloplastic reconstruction. The first microsurgical reconstruction was performed in 1979 by Holmstrom. The term "oncoplastic breast reconstruction" was then coined by Audrescht in 1996 to describe the "marriage" of oncological and plastic techniques in breast conserving surgery - and can be considered an ideological closing of the circle that began with Halstead. The techniques described by these (and many other giants of the field) have paved the way for the widespread adoption of breast reconstruction.

PRESENT

What women want

Lumpectomy or mastectomy? Or bilateral mastectomy?

The treatment of early breast cancer has evolved from simple lumpectomy, to a more holistic approach of breast conserving surgery (BCS) and oncoplastic reconstruction. This is where the focus is on optimal aesthetic outcome by re-distribution of the remaining breast tissue. It is critical to remember that all BCS will require post-surgical radiation treatment, regardless of stage or tumour size. The rate of BCS varies widely (10-70%) and is clearly influenced by surgeon preferences. Despite early enthusiasm for BCS, recent reports suggest that up to 30% of BCS patients are dissatisfied with their outcome, and this has led to increased rates of mastectomy. Interestingly, the rate of bilateral mastectomy has increased significantly over the last 15 years (from 3% to nearly 30% of women requesting this procedure), even for early stage cancers. Overall, mastectomy remains the most popular choice, irrespective of the stage.

Tissue or silicone?

Over 80% of plastic surgeons prefer to offer immediate reconstruction, unless radiation is planned when this ratio is reversed. Silicone-based reconstructions have increased in popularity, with more than 75% of reconstructions being done with prosthetic material. A concomitant decrease in tissue-based reconstruction has been noted. Worldwide, the most popular tissue based reconstruction is the pedicle TRAM flap, although the latissimus flap remains popular in South Africa, most likely because of surgeon preference.

Microsurgery

Even in developed countries, the majority of plastic surgeons do not offer microsurgical BR - and the rates in South Africa remain very low (estimated at less than 5%). While there are a few plastic surgeons with the technical expertise, there are numerous other factors which play a role, including operative time, hospital stay and associated costs, which may be patient deterrents. Several scientific articles have examined the cost implications, and have earned microsurgical BR the moniker of "the platinum standard". Generally, the muscle-sparing TRAM and DIEP flaps are the most common, while other perforator flaps (with amusing acronyms) such as T-DAP, PAP, S-GAP, I-GAP and TUG are rarities.

Fat grafting remains an area of intense research, and many predict that it will be the plastic surgery revolution of the 21st century.

FUTURE

Emerging techniques – ADM and Fat Grafting

Acellular dermal matrix (ADM) is a biological product which consists of the collagen framework of the dermis of humans or other animals. It acts like a fully bio-integratable mesh to provide additional cover and support for an implant, where the patient's own tissue is poor. It is most often used for immediate one-stage BR in the setting of a skin-sparing mastectomy. In America, ADMs are used in almost half of such reconstructions, while in South Africa ADM use is in its infancy. The author is part of a research group examining the costs and benefits of ADM reconstructions.

Fat grafting for BR has undergone a complete U-turn in the last five years. Previously, a moratorium on the use of fat grafts in the setting of breast cancer was in place, but the work of Dr Gino Rigotti led to its worldwide upsurge in popularity since 2011. Fat grafting remains an area of intense research, and many predict that it will be the plastic surgery revolution of the 21st century. It is presently used as an adjunctive procedure for the correction of contour defects.

Conclusion

There are no "right" or "wrong" decisions when considering BR. There is a place and a patient for every option. It is important to bear in mind the inherent conflict between patient expectations and surgical limitations. Research shows that 11% of BR patients will have a significant complication, which may lead to an adverse outcome. The role of the reconstructive surgeon is to understand the patient's needs and desires - and guide her choices, while eliminating clearly unsuitable options so that the best possible outcome may be achieved. A2

A 1cc syringe of processed fat, ready for injection

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