Is there a paradigm shift in reconstructive breast surgery?

Gibt es einen Paradigmenwechsel in der rekonstruktiven Brustchirurgie?

Abstract

In the present article the question of an increase in implant based breast reconstruction, as recently reported for the United States of America, is analyzed and the pertinent literature concerning a putative shift of paradigms in implant versus autologous breast reconstruction is discussed.

Zusammenfassung

Im vorliegenden Artikel wird die Frage einer möglichen Zunahme an Prothesen-basierter Brustrekonstruktion, wie sie kürzlich für die USA beschrieben wurde, analysiert und die aktuelle Literatur bzgl. eines postulierten Paradigmenwechsels in der Prothesen- versus Eigengewebsrekonstruktion der weiblichen Brust diskutiert.

Introduction

There is no doubt that over the past three decades significant advances have been made in the treatment of breast cancer [1] as well in refinements to reconstruct the breast mold following mastectomy [2], [3] (Figure 1). Whereas in general a trend towards autologous breast reconstruction with various methods, including advanced microsurgical techniques with perforator based flaps [4], [5], [6], [7], [8], [9], [10], [11] has been described [12], on the other hand authors recently claimed an increase in alloplastic reconstructions [13], [14] and even postulated a “shift of paradigms”. Nevertheless, despite the growing evidence for autologous breast reconstruction and the decrease in overall implant use, currently the use of textured silicone saline-filled expander and implant reconstruction remains the most frequently used method for breast reconstruction. It provides a safe and predictable method to accomplish both immediate and delayed postmastectomy reconstruction in a vast number of patients [12], [15].

Problem

Since both positions are deduced from various data bases from the United States [16], [17] and European countries [18], [19], [20], [21], [22], [23] that may reflect their different origin, we would like to comment on recently published material concerning the preferred choice of breast reconstruction.

In a recent publication Albornoz and co-authors claim that they found a shift towards alloplastic reconstruction and contributed this effect to the direct consequence of a significant rise of the rate of immediate reconstructions in the United States. This rate correlates closely to a 203 percent increase in implant reconstruction. Although the reason for the increase in implant use is discussed to be multifactorial, changes in mastectomy patterns, such as increased use of bilateral mastectomies, were believed to be one important contributor [13].

Discussion

The word “paradigm” has been used for centuries as an epistemological term to describe scientific ways of thinking. Today the most common use of this word goes back to the American philosopher Thomas Kuhn (1922–1996), who translated paradigm as “doctrine” in this context. He defined the term as something that is referring to a generally accepted, coherent body of scientific ideas in order to explain the validity of phenomena. According to Kuhn, a paradigm is recognized as long as phenomena occur, which are no longer associated with and are incompatible with the previously valid school of thoughts. When this occurs, new theories are set up, which will be mostly controversially fought between the supporters of different schools of thought, more or less objectively. If in this discussion process a new school of thought is prevailing, one will call this a shift of paradigm. Given the fact that there is no really clear change in the conceptual evolution of breast reconstruction it seems clear that proclaiming paradigm shifts towards alloplastic reconstructions is not supported by all authors. One of the arguments in favor of alloplastic reconstructions has been the ease of the operative procedure itself [12], [13], [24] with a short operative time, usually under...
Figure 1: 43-year-old patient post-mastectomy on the left side due to multicentric DCIS
a) prior to secondary autologous breast reconstruction
b) intra-operative view showing DIEP flap (single-medial row perforator) raised on right deep inferior epigastric vessels with preserved (see micro vessel clamps at caudal border of flap) superficial inferior epigastric veins (+ 2 smaller accessory subcutaneous veins more medially) bilaterally as well as exposed recipient vessels (left mammary artery and vein)
c) post-operative view 6 months after autologous reconstruction of left breast and reduction mammoplasty of right breast (inverted T-type with cranio-medial pedicle)
d) 6 weeks after reconstruction of nipple-areola-complex using full-thickness skin graft from abdominal dogears (areola) in combination with fish-tail flap (nipple)
of the procedure is not equivalently reimbursed and is in reported that in the US the complexity and the duration of this one of the higher and tolerable DRG rates it has been pointed the reimbursement of the latter is considered to be tolerated in Europe and especially in Germany under the DRG sys-

The free microsurgical breast reconstruction is a far more in the decision-making processes. Autologous and especially strong predictors of implant-based reconstruction. As one would expected economic reasons could play a role in their discussion of numerous factors that may count for the one or the other decision procedures on considerations such as a shorter recovery time and no need for an additional donor site and related additional scars. However, in their discussion of numerous factors that may count for the one or the other decision in reconstructive choices they bring up the interesting notion that it was actually Medicare coverage, which applies predominantly to elderly patients, as one of the strongest predictors of implant-based reconstruction. Thus, they conclude that age alone would be unlikely to be predictive of implant-based reconstruction [14].

As one would expect economic reasons could play a role in the decision-making process. Autologous and especially free microsurgical breast reconstruction is a far more complex procedure that requires prolonged operating room time when compared to implant surgery [42]. While in Europe and especially in Germany under the DRG system the reimbursement of the latter is considered to be one of the higher and tolerable DRG rates it has been reported that in the US the complexity and the duration of the procedure is not equivalently reimbursed and is in general proportionately less than that for implant-based reconstruction [14].

In Germany the S3 guide line for the treatment of breast cancer includes the hint that women should be offered the various possibilities of treatment and the opportunity of different reconstruction techniques. Similarly the US Women’s Health and Cancer Rights Act is believed to be responsible in part for an increase in reconstruction rates overall. In the paper of Albornoz et al. a significant change with a 203 percent increase in the rate of implant-based reconstruction as compared with an unchanged autologous reconstruction rate has been reported [13]. It seems logical that database limitations of such statements have to be considered. The authors did group combined implant and autologous reconstructions into the “autologous group”. This could possibly underestimate the widening gap between immediate implant-based versus purely autologous reconstruction [14]. As many authors have reported, improved techniques and outcomes with autologous reconstruction over implant-based reconstruction have been suggested [7], [9], [43], [44]. Although these patient related outcomes and satisfaction scores are debatable, Nuyen and Chang ask rightly, if such a dramatic paradigm shift would be noted if patients were routinely presented with this information [14]. In addition it has to be discussed that there is a huge variety within different levels of health care provider’s knowledge and perception. That means that patients will not evenly be confronted with uniform opinions regarding all reconstructive options. The results of different reconstructions can be as variable as the spectrum of techniques itself, not at last depending on the specialization of the performing surgeon, the use of pedicled, microsurgical or perforator techniques etc. Since a new generation of Plastic Surgeons is going to be trained with microsurgical skills that would be willing and able to perform complex breast reconstructions this may also become a factor for decision making in the future.

Given the actual situation there is no doubt that specific factors of the professional environment and personal scopes of surgeons will influence the decision as to which procedure will be discussed with a patient and is likely to be performed. Nuyen and Chang have suggested that private practitioners, even those who are accomplished and well-trained in performing totally autologous reconstruction, may opt in favor of implant-based techniques to minimize use of time and resources, and to reduce the risk of emergent complications and maximize productivity [14]. The speculate that this drive for productivity, particularly with regard to surgeon compensation, would be likely to affect practice patterns and was already briefly mentioned by Albornoz et al. [14]. In Germany and Europe there is a high rate of breast conserving therapies that precludes reconstruction in the first place.

In summary we would also challenge the scientific community to discuss further to what extend the physician’s decision making is responsible for the individual choice and hence the statistical implications. Such investigation may well reveal that differential reimbursement within
countries and continents could be one essential factor affecting the proclaimed paradigm shift for a large majority of plastic surgeons who favor implant-based over autologous reconstruction.

Conclusions

It is of no doubt that by mere statistics a large number of female patients with breast cancer worldwide will continue to undergo breast conserving therapy and those with mastectomy will continue to receive alloplastic reconstructions and that many of them achieve suitable results. Various factors contribute to this epidemiologic phenomenon including limited availability of microsurgically specialized surgeons and centers and potentially economic reasons in various health systems of different countries [45]. To better understand the process of physician’s decision making and the motivation of patients and health care providers to opt for either one procedure in breast reconstruction studies should be conducted to investigate the true reasons for either one option. Plastic Surgeons should actively participate in the patient’s education about breast cancer reconstructive options and should be an integrative part within the first line informational process in breast cancer centers. Despite the inevitably and ever changing trends towards different autologous or alloplastic breast reconstruction techniques, the free DIEP flap or muscle sparing TRAM flap remains a safe and predictable method of choice to accomplish both immediate and delayed postmastectomy reconstruction.

Notes

Competing interests

The authors declare that they have no competing interests.

References


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