

Knowledge and opinions on oncoplastic surgery among breast and plastic surgeons

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ABSTRACT

INTRODUCTION: More than 4,000 Danish women are diagnosed with operable breast cancer annually, and 70% receive breast conserving surgery. Without the use of oncoplastic surgery (OPS), 20-30% will get an unsatisfactory cosmetic result. The aim of this study was to illustrate the level of implementation of OPS in Denmark.

METHODS: An electronic questionnaire was sent to breast and plastic surgeons performing breast cancer treatment. The questionnaire included demographics, education, experience with operative procedures and opinions on OPS.

RESULTS: The questionnaire was sent to 50 breast surgeons and 22 plastic surgeons; the response rate was 67%. All breast surgery units had an established cooperation with plastic surgeons. Most breast surgeons used unilateral displacement techniques; plastic surgeons also included breast reduction techniques and replacement with local flaps. Almost all symmetrisation procedures were performed by plastic surgeons. Breast surgeons had sought more specific education, both international observerships and specific courses. In both groups of surgeons, the majority expressed that both tumour removal and reconstruction should be performed by doctors of their own specialty.

CONCLUSION: OPS has become integrated in all breast centres, but has not yet been fully implemented. For optimal results in all patients, this study underlines the importance of the inclusion of a dedicated plastic surgeon within the multidisciplinary team for optimal initial evaluation of all breast cancer patients.

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Every year, more than 4,000 Danish women are diagnosed with operable invasive breast cancer, and more than 70% receive breast conserving surgery (BCS) [1]. Breast surgery with simple and conventional techniques will leave up to 30% of these women with an unsatisfactory cosmetic result [2]. Since 1998, when oncoplastic surgery (OPS) was introduced [3], many different surgical techniques to improve the cosmetic result have been developed [4, 5], and OPS is now integrated into most national guidelines [1, 6].

It is difficult to create specific guidelines regarding the selection of patients for plastic surgery since many different factors play an important role in the decision-

making: Tumour size, tumour location, breast size and shape, glandular density, smoking, co-morbidity, contraindication to radiotherapy and patient preference.

The aim of this study was to illustrate the level of implementation of OPS in Denmark by mapping the variation in knowledge, experience and opinions on OPS between breast surgeons and plastic surgeons performing breast cancer treatment.

METHODS

In February 2014, a multiple choice questionnaire developed by the authors was sent to all registered and active breast surgeons and plastic surgeons taking part in OPS. A reminder was sent one month later. The questionnaire included demographic data, specialty, number of years in specialty and questions on knowledge of and use of OPS. All participants were presented with a list of oncoplastic procedures within the following categories: simple displacement techniques, therapeutic mastoplasties and replacement techniques with local flaps from the abdomen or thoracic wall (**Figure 1**).

The interpretation of the term oncoplastic surgery is not strict. "Level 1: closure of the glandular tissue within the defect" is on the list, even if it does not fulfil the Danish criteria for OPS [7]. Participants were asked to rate each surgical procedure with one of the following levels of experience: "Regular use (> 5 procedures/year)", "Have used, but not regularly", "Assistant", "Have read/heard about" and "No knowledge". Finally, participants were asked about their opinion on education and organisation of OPS, level of information given to patients regarding the various possibilities for a surgical solution involving OPS procedures and, finally, thoughts on future education.

Trial registration: not relevant.

RESULTS

Demographics and education

In Denmark, breast cancer surgery is performed in 12 departments, seven of which are located at hospitals with a plastic surgery unit. Four smaller breast departments have visiting consultant plastic surgeons from other hospitals on a weekly basis, and one breast department employs its own plastic surgeon.

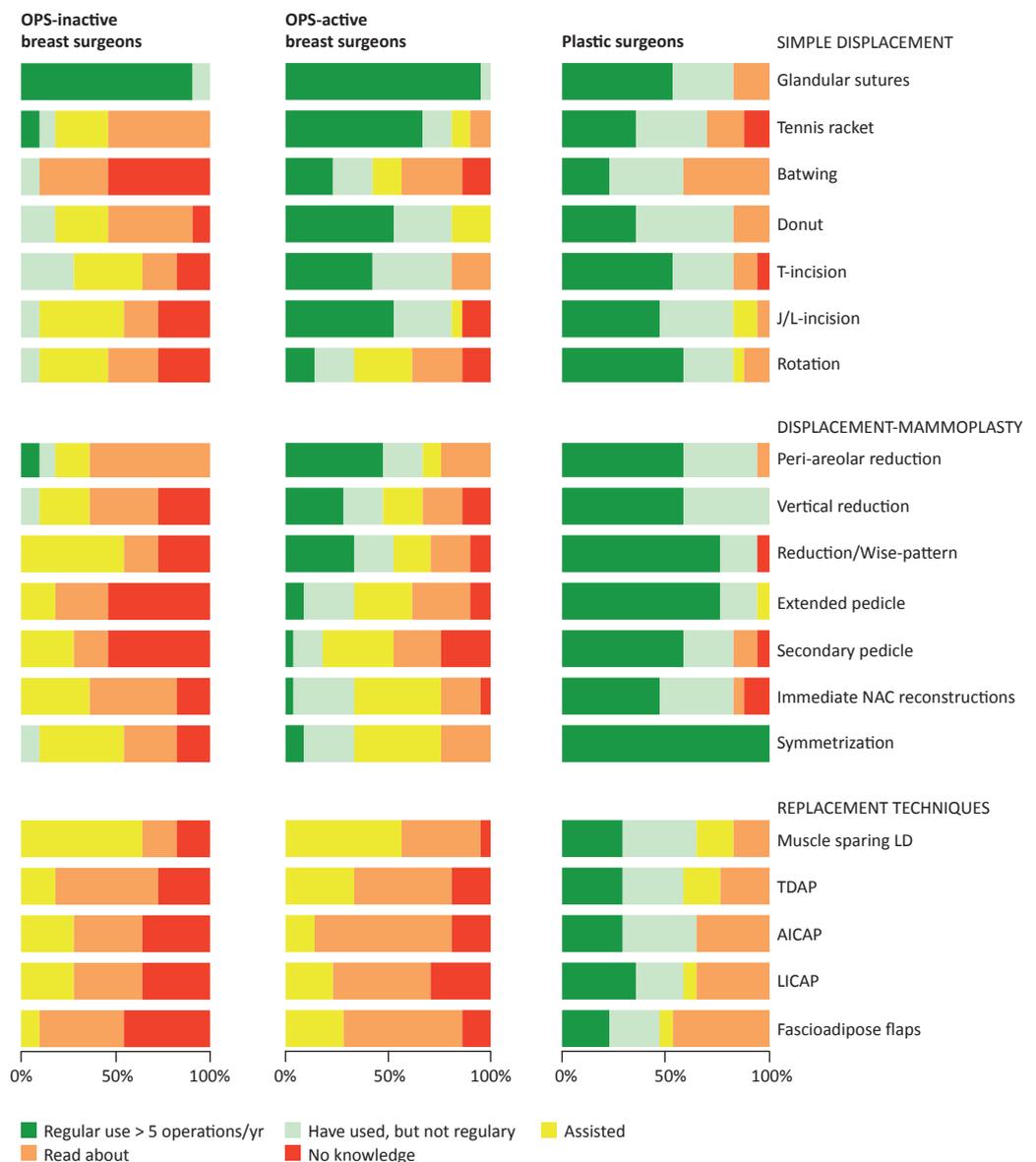
ORIGINAL ARTICLE

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FIGURE 1

Level of experience with surgical techniques in different groups of surgeons. AICAP = anterior intercostal artery perforator; LD = latissimus dorsi; LICAP = lateral intercostal artery perforator; NAC = nipple-areolar complex; OPS = oncoplastic surgery; TDAP = thoracodorsal artery perforator.



A total of 50 specialist breast surgeons and 22 specialist plastic surgeons were identified. The total response rate was 71%; 33 (66%) breast surgeons and 18 (82%) plastic surgeons responded. One of the responding breast surgeons no longer performs surgery and was therefore excluded from the study. The median number of years in the specialty was 14 (2-36) for breast surgeons and 9 (2-30) for plastic surgeons. Out of 32 breast surgeons, 21 (66%) performed OPS independently ("OPS-active" breast surgeons). One plastic surgeon was in OPS training, and the rest (94%) performed OPS. The median number of reported OPS procedures per year was 22 (5-300) and 9 (1-80), respectively.

The OPS-active breast surgeons had sought more OPS-specific education than the plastic surgeons (**Table 1**). Thus, 81% of breast surgeons had attended specific OPS courses and one out of three had visited a specialist breast centre abroad. Four (19%) breast surgeons had neither attended courses nor clinical observerships; two of these had been taught by colleagues and two mentioned "self studies" as their only source of OPS education. In comparison, 47% of the plastic surgeons had attended courses, and 42% had visited a breast centre abroad. Six (35%) had done neither, and one stated "self studies" as the only source of education.

Surgical practice

Assessment of the responders' perception of their knowledge and surgical practice showed clear differences in the three groups of surgeons (Figure 1). All breast surgeons used mobilisation and suturing of glandular tissue as a simple oncoplastic technique. For the displacement techniques, the "Tennis racket", "Round-block", "T-incision" or "J/L-incision" were used by 81% of OPS-active breast surgeons, whereas "Batwing" and "Rotation flaps" were used by 43% and 33%, respectively. For the plastic surgeon group, the use of these techniques was similar, except for "Rotation flaps" with 82%.

For displacement with therapeutic mammoplasties, the OPS-active breast surgeons used the periareolar approach (67%) more often than the vertical pattern or the Wise-pattern (50%). Advanced mammoplasties with extended or secondary pedicles, or immediate reconstruction of the nipple-areolar complex (NAC) were used regularly by one OPS-active breast surgeon (4.8%). The plastic surgeons had practical experience with all types of simple therapeutic mammoplasties, and 82% had used extended or secondary pedicles and immediate NAC reconstructions.

No Danish breast surgeons performed any type of replacement, and only 30% of plastic surgeons performed this on a regular basis. Less than 50% of breast surgeons had assisted a plastic surgeon operating with a replacement technique; the most commonly used being muscle sparing latissimus dorsi-flap. Six out of ten plastic surgeons had experience with flaps based on the intercostal perforators. Between 25-30% of OPS-active and 40-50% of OPS-inactive breast surgeons had no knowledge of the listed replacement techniques. No differences on the parameters mentioned above could be identified between different breast units, doctors of different age groups, sex or years in specialty.

Opinions on oncoplastic surgery

All breast surgeons stated that OPS should be performed by breast surgeons alone within the scope of their practice, and almost four out of five believed that plastic surgeons should not perform tumour ablation (Table 1). Oppositely, 41% of plastic surgeons found that breast surgeons should not perform OPS, and 47% felt that they themselves should perform both tumour ablation and reconstruction. The opinion that the level of patient information and the availability of OPS is too low seemed predominant in both groups, but accentuated among plastic surgeons.

Questions on the opinions on future breast surgery education revealed that most doctors are in favour of their own specialty – but also that less than 15% preferred the current organisation in which breast surgery forms part of general surgery (Figure 2).

TABLE 1

Opinions on oncoplastic surgery: % of answers from breast surgeons in each category (plastic surgeons).

	Yes	Yes, selected procedures	No	Not sure
Do you think oncoplastic surgery should be performed by breast surgeons?	30 (6)	70 (53)	0 (41)	–
Do you think oncoplastic surgery should be performed by breast and plastic surgeons together?	30 (47)	63 (41)	0 (12)	–
Do you think oncoplastic surgery should be performed by plastic surgeons (including tumour ablation)?	4 (47)	–	78 (35)	19 (18)
Would you like to have more oncoplastic training?	89 (53)	–	4 (41)	7 (6)
Do you think oncoplastic surgery should be part of the curriculum for breast surgeons in the future?	96 (65)	–	0 (29)	4 (6)
Do you think patients are given enough information about oncoplastic surgery?	33 (24)	–	26 (47)	41 (29)

DISCUSSION

OPS aims at providing the best possible functional and cosmetic result after BCS to every individual woman and at reducing the need for mastectomy. To achieve this goal, correct patient selection and correct choice of surgical procedure are essential.

All Danish breast centres work in well-defined cooperation with dedicated plastic surgeons, and the use of oncoplastic procedures has been implemented nationwide. However, we found major differences with regard to knowledge and choice of surgical technique between surgeons of different specialties. Almost two thirds of all breast surgeons use oncoplastic techniques; mostly unilateral, simple operations, and to some extent therapeutic mastopexies, but most breast surgeons are not aware of other, more advanced reconstructive procedures (Figure 3). Plastic surgeons are not involved in the

FIGURE 2

What is your opinion on future breast surgery training?

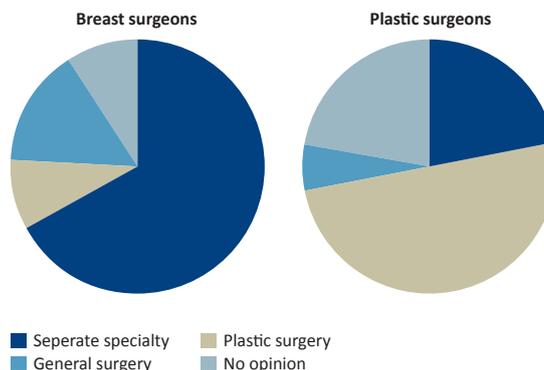
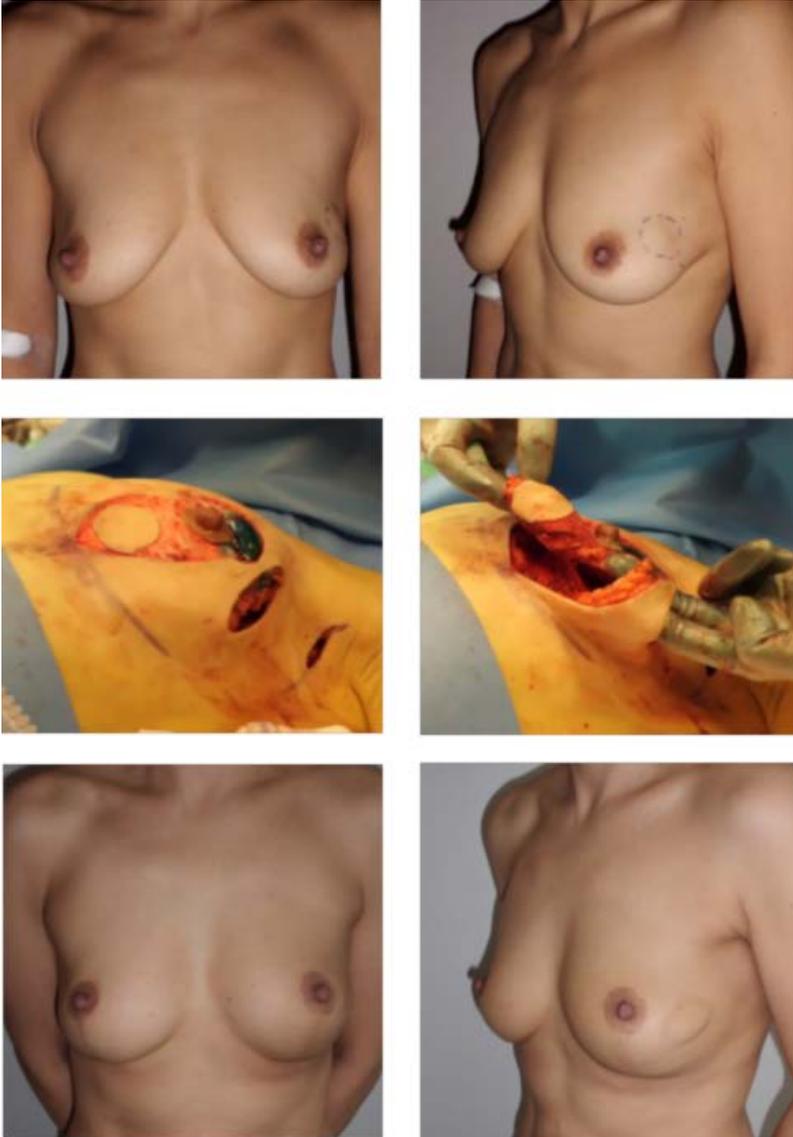


 FIGURE 3

A 41-year-old woman with a large (31 mm) superficial tumour in a small breast, treated by oncoplastic surgery with removal of approx. 30% of her breast tissue and therapeutic mastopexy (extended superomedial pedicle with skin island). Upper row: The palpable tumour is outlined on the skin on the pre-operative photos. Middle row: Peroperative photos of skin island (left) and pedicle and tunnel (right). Lower row: One year post-operatively after chemotherapy and radiotherapy. Decision-making is difficult: The tumour location required skin removal, and the amount of breast tissue was small and made most simple oncoplastic surgery techniques insufficient. Therapeutic mammoplasties which require removal of additional tissue could not be performed. A replacement flap from the thoracic wall could have been an alternative, but would have resulted in extensive scarring on the back.



decision-making and referral to OPS, which is done by the primary breast surgeon. More than 80% of OPS procedures are performed with the use of displacement techniques, a little more than 10% include volume reduction and replacement techniques are used in 6% [8]. This is hardly surprising, given the basic principle of the reconstructive ladder that one should use the simplest technique to solve a reconstructive problem. However,

in OPS there are many small steps on the reconstructive ladder, and the added risk of a slightly more complex procedure is negligible. It is mandatory that the primary surgeon or team has a minimum of knowledge of all available operative techniques in order to make the best choice for the patient. Our survey shows that this is not yet the case. Therefore, one may assume that many patients undergo an insufficient evaluation and may thus be treated with a suboptimal technique.

We found that breast surgeons had more OPS-specific courses and more supervision from colleagues. Plastic surgeons, on the other hand, performed the more advanced procedures. In Denmark, there is no official specialisation in breast surgery, but since 2010 the Danish Society of Breast Surgery awards a certification to surgeons after two years of employment at a specialist breast centre if the EUSOMA criteria are fulfilled [9]. There is no official training in OPS. As of 2014, four surgeons have completed the Danish certification, and two are currently in training. Two out of these six surgeons have been recruited from plastic surgery. The plastic surgeons, on the contrary, have no training in primary breast cancer treatment, but many years of training in reconstructive surgery.

Internationally, there is a demand for formalised education, better guidelines and the establishment of multidisciplinary teams with a common goal of patient education, patient satisfaction and improvement of oncologic and aesthetic outcomes [10]. Breast surgery suffers a "recruitment crisis" [11], and the idea of developing the field into a specialty of its own has been debated [12]. In Britain, fellowships with comprehensive oncological and reconstructive focus points started in 2002 [13], and in other countries fellowships [14] and oncoplastic training centres [15] have emerged. A study on the learning goals after American breast surgery fellowships shows that 98% of newly educated breast surgeons felt well prepared for treating breast cancer, but only 53% felt confident performing OPS [14]. This indicates that OPS takes a long time to learn. Our study shows that more than 75% of Danish surgeons involved in OPS would prefer that breast surgery were a specialty of its own or formed part of the plastic surgery specialty. In several other European countries, doctors with double specialty mark a paradigm shift [16].

In most countries, OPS is performed in collaboration between breast and plastic surgeons [16, 17]. No previous studies have compared the experience and knowledge of doctors in these two groups. Our survey shows that in both groups, the majority of surgeons thought that they were capable of performing the entire procedure, but they did not think that the other group of surgeons could do the same.

OPS is generally accepted as being as oncologically

safe as traditional BCS [18, 19]. Along with the higher information level of the general public, the demand for OPS will most probably increase. OPS is an attractive option for all parts involved: patients, doctors and health economics, in that it only takes one surgical procedure, one recovery period and presumably leads to a better quality of life.

This study has a number of limitations; Most importantly, when looking at self-reported skills, one should expect substantial over-reporting [20], and this phenomenon was confirmed by comparing the sum of reported procedures with national data [1] – we found a more than three-fold exaggeration. In addition to this, 50% of responders overestimated their number of regularly used procedures (> 5/year) compared with the self-reported total number of procedures.

In conclusion, we found that the OPS has become integrated in all breast centres, but not yet fully implemented. The present study underlines the importance of the inclusion of a dedicated plastic surgeon within the multidisciplinary team for optimal initial evaluation of all breast cancer patients and to achieve optimal results in all patients. The Danish Society of Breast Surgery is presently working through the proper authorities towards establishing fewer and larger breast centres allowing all patients to be thoroughly evaluated at multidisciplinary meetings and with plastic surgeons easily accessible at all institutions, thereby offering all patients in the country an optimised, more dedicated, and more uniform surgical treatment for breast cancer.

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