Editorial

The importance of perioperative team familiarity and its contribution to surgical efficiency and outcomes in microsurgical breast reconstruction

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A surgical operation involves the effective interaction and collaboration of many different specialized personnel. A typical operating room may contain nurses, technicians, anaesthetists, surgeons, and surgical assistants. These individuals together form the surgical team that must function cohesively to ensure not only optimal efficiency of the surgical procedure but also to achieve ideal outcomes for patients and avoid complications. This is particularly important in microsurgical breast reconstruction. Given the often-greater complexity and specialization of procedures performed during microsurgical breast reconstruction, greater familiarity is required from all members of the surgical team to achieve optimal results.

In the modern day, the demand of medicine is increasing. With an aging and increasing population, the operative process must progress and become more efficient whilst, simultaneously, complications must be minimised. Surgeons have thus been required to refine their surgical technique and develop adjuvant technological adjuncts to assist them. Additionally, in recent times, surgeons have broadened their attention to all aspects of the operation including optimisation of the perioperative team.

It is a common experience among surgeons that a greater familiarity and expertise of each perioperative team member facilitates a smoother and less complicated operation. In support of this, it has been previously shown that surgical teams whose members have a greater familiarity with each other display shorter operating times and fewer surgical complications (1-7). Hence, optimisation of the operative environment by increasing familiarity amongst team members is warranted given the potential improvement in patient outcomes and cost-benefits to the public healthcare system.

On this note, a recent study by Speck *et al.* outlines a novel study designed to assess the impact that a perioperative team may have on operative outcomes in microsurgical breast reconstruction (8). A retrospective review of cases conducted at two different institutions was performed. One institution was a smaller, private clinic, the other was a larger conventional hospital. These two institutions differed most significantly in the size of the pool of perioperative staff that could be involved in each procedure, the conventional hospital having a pool of staff almost four times larger than the small clinic.

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The author's found that there were lower rates of flap loss and flap revision among the reconstructive procedures performed at the smaller clinic when compared to the larger hospital. The author's hypothesized that this outcome may be because the pool of staff at the smaller clinic was smaller, meaning each individual member of the surgical team would work together more often and be exposed to the surgical procedures more frequently increasing the familiarity of each individual and thereby improving the performance of the team as a whole.

This study offers novel quantitative evidence to support the importance of experienced perioperative teams in microsurgical breast reconstruction (8). Yet, while this study assessed the variation in outcomes among various perioperative teams, a potentially interesting finding that was unfortunately omitted from the study by Speck *et al.* is the impact that the perioperative team may have on the operative duration in microsurgical breast reconstruction. However, it was discussed in the article that greater familiarity and experience amongst surgical team members would be likely to increase efficiency and reduce operation durations. Given the known association between operation duration and complication rates in breast reconstructive surgery, improved operative efficiency would also likely play a role in improving surgical outcomes (9).

On a broader level, the study written by Speck *et al.* contributes to the growing development of surgical efficiency and optimisation. Along with improvements in understanding of the importance of cohesive perioperative teamwork, including the use of two microsurgeons in microsurgical cases, throughout history, surgeons have made significant advancements in numerous other areas of the operative process to improve surgical efficiency and outcomes in microsurgical breast reconstruction (10). Many improvements in efficiency have stemmed from implementation of a technique known as process mapping.

Process mapping is a technique that involves deconstructing a process and identifying its key individual components. When considering a microsurgical breast reconstruction procedure, improving the rate of an operation involves more than simply operating faster but rather it involves elimination of wasted effort and time (11-13). In the context of breast reconstruction, the process includes the entirety of the pre-operative, intra-operative and post-operative events (11-13). Once the key components in each of these events are identified, one can then implement strategies to optimise each step such that the entire process becomes more efficient. Through the use of process mapping, the rate of microsurgical breast reconstruction has increased drastically, such that now up to three microsurgical operations can be performed in a day in a single theatre (14,15).

Despite the importance of optimising perioperative teams and process mapping to identify areas of inefficiency, it is undeniable that technological advancements have similarly had a major impact on the improved efficiency seen in microsurgical breast reconstruction. Two technological advancements that have undoubtedly had such an impact are the use of computed tomography angiographic (CTA) imaging pre-operatively and the use of venous coupler devices intraoperatively.

The use of CTA pre-operatively, particularly for deep inferior epigastric perforators (DIEP) flaps, has had marked implications for breast reconstructive surgery. Pre-operative imaging with CTA allows surgeons to survey the vascular anatomy, identify perforators and plan flap design prior to the operation. Given more effective pre-operative planning, operative efficiency has improved, and operation durations decreased (16-20). More specifically, perforator identification and selection time intraoperatively is significantly shorter if CTA is used pre-operatively to assess the vasculature (21).

During microsurgical breast reconstruction, effective and careful anastomosis of the vessels of the flap and the recipient site is crucial for flap success. Inadequate anastomosis of these vessels can predispose to thrombosis and subsequent flap failure. Traditionally, anastomosis is performed using very fine 8-0 or 9-0 sutures to meticulously connect the two ends of the vessels together. Yet, after introduction of intraoperative venous anastomotic coupler devices, the speed of anastomosis of veins has significantly increased while maintaining adequate patency and perfusion (22-25).

Ultimately, the process of microsurgical breast reconstruction has developed significantly since its conception. Throughout its development, surgeons have continually refined the art of breast reconstruction to reduce unnecessary steps, optimise efficiency and avoid complications. On one hand, these advancements have stemmed from extraordinary progress in technology and surgical expertise, yet, additionally, surgeons have recently realised the importance of an effective perioperative team and the role this plays in operative success. As a consequence of these advances, countless more patients have received treatment than they would have otherwise. It is without doubt that as surgeons strive for excellence in the operating room, the art of microsurgical breast reconstruction will continue to evolve and improve the outcomes experienced

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