Interview with Prof. Geoffrey G. Hallock: perforator flaps—the past and the future

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Editor's note

As an emerging journal, *Journal of Xiangya Medicine* (*JXYM*) has published a number of special series in recent years, receiving overwhelming responses from academic readers around the world. Our success could not have been achieved without the contribution of our distinguished guest editors. Taking this opportunity, this year *JXYM* launched a new series, "Interviews with Outstanding Guest Editors", to highlight our active contributors. We hope to express our heartfelt gratitude for their tremendous effort and further uncover the stories behind the special series.

The special series "Perforator Flap" (1) led by Prof. Geoffrey Hallock (*Figure 1*) from Sacred Heart Campus at St. Luke's Hospital and Prof. Juyu Tang from Xiangya Hospital has attracted numerous readers since its release. This special series aimed to provide the evolution of perforator flap technique and its application in reconstructive surgery. At this moment, we are honored to have an interview with Prof. Hallock to share his scientific career experience and insights on this special series.

Figure 1 Prof. Geoffrey G. Hallock.

Expert introduction

In medical school as a very young man, Prof. Geoffrey Hallock chose to become a general surgeon. But it was not to be. As an intern in just his second month, he was assigned to the plastic surgery service. He saw his first tissue transfer. Life could be saved, but so too function to make life worth saving. By serendipity, he changed his course. Following a plastic surgery fellowship at the University of North Carolina, he got a real job and entered private practice in Lehigh Valley, Pennsylvania. There he has remained as a country doctor now for 4 decades, still taking care of the same families and their offspring as he did in the beginning. Truly, healing doctor-patient relationships, which is what it should be all about.

At first he did everything from burns and trauma to cosmetic surgery. His long-term assistant ran a rat lab, where they taught themselves how to do microvascular tissue transfers. Then to real patients. A long path until secured that they knew what they were doing. And so reconstructive surgery alone became their passion, from random to muscle to fasciocutaneous to today's perforator flaps. From head to toe, indeed they were the last of the "true" general surgeons. They learned, and then taught; and in so teaching they have learned so much.

Interview

JXYM*: *As a reputable expert in plastic surgery, what originally led you to the study of the perforator flap?

Prof. Hallock: Tissue transfer is the essence of plastic surgery, whether it be as a cosmetic surgeon or reconstructive surgeon, the goal for both is an aesthetic outcome. So flaps have always been on my mind. Relentlessly pursuing microsurgery, I knew this would be the future of reconstructive surgery. As a neophyte, the muscle flap was king. But muscle flaps were always the same, which became boring. Pontén's (2) reintroduction of the fasciocutaneous flap in 1982 made more sense, as every muscle has a function that will be lost if used as a flap. By chance, I saw an advertisement for Blondeel's (3) meeting in Gent, Belgium in 2001 about perforator flaps, so I just had to go and see what this really was about. And I was hooked. No two perforator flaps are ever the same, as the anatomy no matter how consistent was always anomalous in some way. Every case became an intellectual challenge, a fine line between adversity and success requiring skill and focus. My short attention span was again captured as it continues today.

JXYM: Would you like to give us a general picture of publications on perforator flap? Any topics or papers that impressed you most in the past few years?

Prof. Hallock: At first perforator flaps were not accepted, especially in the U.S.A., as they appeared too difficult and time consuming; but today they are indeed mainstream (4). The evolution continues. Witness the superficial circumflex iliac perforator [SCIP] (5) flap that will soon surpass the anterolateral thigh (ALT) flap (6) as the most versatile soft tissue flap donor site with numerous chimeric variations. An unparalleled advantage of the SCIP flap is the least donor site residue of any flap, and donor site morbidity has become a major issue that cannot be overlooked. Although supermicrosurgery may be needed (7), soon even that will not be just for the most skilled, as the improved image and steadiness provided by robotic microsurgery (8) will some day allow even an old microsurgeon like myself to be so capable.

JXYM: Could you share with us the advances in perforator flap treatment in recent years?

Prof. Hallock: Initially, perforator flaps were most often selected as a preferable free flap donor site. A revolution, nay stampede, is occurring in that local perforator flaps, especially propeller and keystone island advancement flap subtypes, have been found to be just as efficacious anywhere in the body without the risks of microsurgery (9). To some that is understandably appealing. However, my advice is to not forget that even these will require microsurgical technique, although indeed without a microanastomosis (10).

JXYM: How do you see the future development and directions of perforator flap in the coming years?

Prof. Hallock: Constant change is an essential attribute of the innovative plastic surgeon (11). For those not willing to change, there will be no future. And the future of perforator flaps appears bright as in this short list:

(I) Sensate flaps for autogenous tissue breast reconstruction (12);
(II) Perforators as recipient vessels (13);
(III) The thinnest flap contour possible will be the skin perforator flap, even replacing the non-vascularized skin graft where necessary (14);
(IV) Lymphatic flow-through (LyFT) perforator flaps (15) will thwart the risk of post-operative lymphedema.

JXYM: What kind of projects are you recently working on? How is the topic of this special series associated with some of them?

Prof. Hallock: May I admit that my day has passed, as I have become just a cog in the history of perforator flaps, where my interest has been excessively focused over the past 2 decades. Yet while still breathing, some minor details still need to be worked out. Soon the third edition of our book (16) will be completed, which hopefully brings perforator flaps up-to-date. Thermography has captured my attention since inexpensive and readily available for at least pre-operative perforator identification (17), instead of expensive and complex technologies that are not always available throughout the world. Finally, just as Koshima has his capillary perforator flaps (18), why not nano-perforator flaps? Why not? Is not "nano" today's buzzword just like "perforator" was these past 2 decades?

JXYM: If there is a chance to update this special series, what would you like to moderate, add or emphasize more?

Prof. Hallock: None of us is invincible, so may I plead

that some young energetic souls out there replace me and my geriatric colleagues in solving some of the dilemmas we have not so far. Could a color duplex ultrasound probe be connected to a smartphone as the ideal monitoring system for our perforator free flaps? How can we spur lymphangiogenesis (19)? Can someone map out the anatomical course throughout the body of the lymphatic system so we minimize donor as well as recipient site morbidity? So much to know, and so much help is needed.

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