surgical tips and skills

Felix Behan
Foreword

The skills of a plastic surgeon are acquired in many ways. Most surgeons learn their craft from an experienced surgeon and then modify their practice in the light of their own experiences. It is not surprising that changes in operative technique usually occur slowly and only rapidly when a new technology is introduced. This has been most obvious in plastic surgery during the emergence of microsurgery, which has provided a method for the reconstruction of many major defects. Unfortunately, simpler more traditional classical methods of tissue transfer involving less operating time and hospitalisation are sometimes forgotten. Almost 100 years ago, a Melbourne plastic surgeon, Jerry Moore, wrote a seminal book on plastic surgery based purely on his personal experience and innovation. It is pleasing to be asked to write a foreword to an equally important book, Surgical Tips and Skills by Felix Behan, which may also change the face of plastic surgery. Like Moore, Professor Behan is an original thinker, and some 40 years ago he realised it is possible to raise composite flaps using embryological dermatomes, as these include skin, neurovascular tissue and fascia. He gradually developed his own ideas of local tissue rearrangement based on this principle, enabling him to close defects that were previously irreparable. My late brother Robert Marshall, surgeon and anatomist, grasped this principle of the vertical orientation of the circulation of the skin and underlying tissue, and was sufficiently impressed to include it in his book, Living Anatomy, Structure as a Mirror of Function, in 2001.

Professor Behan has continued his innovative approach for more than 40 years, and shares with us in his new book numerous examples of remarkable reconstructions using local fascio-cutaneous keystone flaps, as well as including many relatively simple, but neat surgical tips to improve surgical outcomes. This book is divided into three sections, Basic, Intermediate and Advanced, and there is something in the book for aspiring surgeons, as well as for the most experienced. The basic and intermediate sections contain many surgical tips, including suturing techniques, harvesting of skin grafts and their applications, simple means of immobilisation and innovative methods of establishing drainage to improve the results of many plastic surgery procedures. The advanced section has beautifully illustrated examples of keystone fascio-cutaneous flap reconstructions, which many experienced surgeons would be pleased to claim as their own.

The nature of plastic surgery has changed over the last 50 years and is dominated by cosmetic surgery and microsurgery with a decline in the art of local tissue repair, which is the fundamental basis of plastic surgery. It is to be hoped this book may stimulate a resurgence of the more classical aspects of the specialty. With the passage of time and the tightening of resources, there will inevitably be more scrutiny by health administrators of the cost of plastic surgery procedures. It will become increasingly difficult to justify operations that require expensive resources, multiple surgeons and prolonged operating times when there are simple less expensive alternatives readily available to produce results often superior in terms of function and appearance. Professor Behan has shown the way – plastic surgeons need to sit up, take notice and embrace local fascio-cutaneous reconstruction as an alternative to microsurgery or risk losing a large part of our specialty.

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Surgical Tips and Skills is a compilation covering aspects of surgical development with ongoing refinements in surgical technique based on experience. The fact that one keeps seeking higher standards of surgical outcome leads one to question one’s own ability. Eventually, the accumulation of this experience bears fruit. One has only to compare the techniques and achievements of one’s earlier years to see the advantage of this maturation process.

This text is essentially a summary of 40 years of experience practising surgery in both the public and the private domains. The advent of digital photography with video back-up supersedes reams of text, which are sometimes hard to comprehend. The alphabetical sequence, common to modern surgical textbooks for ready reference, is an attempt to cover the gamut of reconstructive cases that present in any surgical domain, based on one central tenet: the simplest way is usually the best. With the advantage of external reviewers, the levels of expertise were factored in to create three sections of the book covering Basic, Intermediate and Advanced stages of this technical development.

As a consequence, the principles of evidence-based medicine – initiatives to improve health management and health outcomes while reducing health costs – are reflected in all these cases, with Level 5 (expert evidence and opinions) and Level 4 (retrospective case series). All the singular cases illustrated are just examples of the many that have been compiled and have either been presented internationally at meetings or are in the process of separate publication, or both.

This compilation, drawn from approximately 3000 keystone flap reconstructions over the past 20 years in all regions of the body, has created a ‘How To Do’ guide on some reconstructive facets that others find difficult. It is interesting that the Annals of the Royal College of Surgeons of England is now in the 10th year of ‘Technical Tips’ – meaning people like to read pearls of wisdom. The science of the keystone has many elements, with recent publications looking at the evidence – the flaps are closed under tension and the vascular dynamics characteristically displayed contradict established principles of plastic surgery, requiring further elucidation. The anatomical construction of skin, fat and fascia, a prerequisite to any successful keystone flap, is indispensible and the mark-outs within the dermatomes echo the embryological development of the human.

Speaking in Paris recently, a senior plastic surgeon, Dr Arnoldo Fournier, said to me: ‘Felix, you have captured the art of reconstruction by these principles’. He was referring to the fact that every keystone aligned along the dermatomes has both somatic and autonomic support to supplement the arterial and venous connections while not negating any lymphatic and humeral input. Microsurgery is based on an artery, a vein and possibly a nerve and thus has a different structural arrangement. Historically I must publicly recognise the contribution of Professor Gordon Clunie in relation to the publication of scientific material as editor of the ANZ Journal of Surgery. He told me that with any new scientific principle “launch it locally, and you will get full recognition”. His other famous recommendation was “if you have anything to say in print, find the time to publish”. Professor Bob Thomas also gave me sound advice in 2003, when the first article on the Keystone was submitted to the ANZ Journal of Surgery with multiple authors. He said, “This is a
good idea. It’s yours and have it as a single author.”

This ‘technical tips’-style of publication is a means of illustrating how to employ these techniques. I hope this straightforward, comprehensively illustrated presentation will encourage many more of my colleagues, at whatever stage of their careers, to re-explore loco-regional reconstruction in conjunction with microsurgical expertise.
Carpal tunnel open technique

**Introduction**
The advantage of an open carpal tunnel technique is that it allows one to visualise the dimensions, neural compression and any aberrant branches in the vicinity, which are often seen where there is a large palmaris brevis.

**Problems**
Visualising the aberrant branches of the median nerve.

**Solution**
Refer to Figures 1 and 2 for an open carpal tunnel technique showing the aberrant branch of the median nerve and Figures 3 and 4 for a transverse ligament reconstruction.

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**Figure 1:** Following the release of the transverse palmar ligament distal to the wrist crease, any tightness proximal to this site can be released. The use of a Howarth elevator prevents damage to the epidermal lining when the fibres are released.

**Figure 2:** The aberrant branch of the recurrent median nerve piercing the palmaris brevis muscle. An enlarged palmaris brevis is an indicator of this possible anatomical variation and should serve as a warning.
**Carpal tunnel open technique**

**Figure 3:** This transverse triangulate ligament reconstruction, based distally (opposite to the Netscher principle), is fashioned in a triangulate manner from the remnants of the palmar fascia. It is turned at right angles and repairs loosely the carpal ligament to prevent any perineural communications to the subdermal plexus during the healing process. It makes an important contribution to minimising pillar pain.

**Notes**

**Figure 4:** The Penrose drain, pre-washed and sections in half, is installed before definitive closure. It is removed between 24 and 48 h (when it ceases to function).

**Notes**

**Outcome**

The procedure takes 25 minutes. Full recovery of hand function and intact sensation. No recorded complications.

**Bibliography**


