

## The Evolution of Aesthetic Concepts in Surgery

a report by

**Dr Thomas M Biggs**

*President, International Society of Aesthetic Plastic Surgery*

Dr Thomas M Biggs is President of the International Society of Aesthetic Plastic Surgery. He is Clinical Professor in the Division of Plastic Surgery at Baylor College of Medicine and is in private practice for Biggs & Collins, a professional association. Dr Biggs is a member of several societies and associations, for example the American Association of Plastic Surgery, American Society for Aesthetic Plastic Surgery, American Society of Plastic Surgeons and International Society of Aesthetic Plastic Surgery and he is Editor of *Aesthetic Plastic Surgery Journal*. Dr Biggs graduated from Yale University and Rice University and he obtained his MD from Baylor College of Medicine.

The evolution of aesthetic enhancement of the face or body has, like the story of the evolution of humans in general, existed since recorded time. The desire for people to adorn themselves to enhance their attractions is evident in the ornate jewellery produced in Ancient Egypt and Mesopotamia, and early Chinese artifacts verify that this desire for improvement in physical beauty was not confined to the Middle East but was extant in these other advanced civilisations.

The use of surgery to amplify one's beauty coexists with the history of surgery itself. It was not until concepts of antisepsis and anaesthesia had evolved that people became able to alter successfully and routinely parts of the face or body for aesthetic purposes alone. As we enter the 21st century, the alteration of the face and body for aesthetic purposes has kept pace with the other advances in technology. These advances can be considered in four separate categories: materials, instrumentation, techniques and aesthetic concepts. In this article, we shall explore all four and see how they come together to create an improved form of artistic surgical expression.

### Materials

The most commonly used, and certainly most talked about, material is silicone. Prior to its introduction to the medical world as the principal component of the breast implant, it was rarely used as an implantable item in humans. We learned through the breast implant process that silicone is readily accepted by the body with little negative sequelae. The breast implant/autoimmune scare of the early 1990s served to stimulate independent research, which has given silicone a clean bill of health as the intensity of investigation into its safety has been more stringent than many other devices or drugs otherwise acceptable by the national regulatory agencies.

The breast implant, a silicone bag filled with an acceptable material (silicone gel before the scare, now saline), is being used worldwide with increasing enthusiasm and social acceptance. The implant bag is unchanged in formula construction, but the manufacturing standards themselves have been

narrowed so the final product is of higher quality. In most of the world, silicone gel has been accepted, replacing saline, whereas, in the US, silicone gel is allowed only in breast reconstruction or special circumstances where saline has been found undesirable. Reports from Washington have indicated that the Federal Drug Administration is on the threshold of releasing the moratorium altogether and allowing silicone gel to be used in all cases. Whereas some surgeons have preferred saline over gel, most will welcome the opportunity to choose the more natural-feeling gel.

The gel itself has undergone change. Already popular in Europe and South America is a more cohesive form of the gel, one that maintains more shape and one that, if the integrity of the bag is damaged, does not flow, but retains its place. Whether this will replace the less cohesive form of gel in routine surgery is unclear, but many colleagues from Europe and South America favour it.

Silicone, because of its benign nature in the tissues and its capacity to be shaped or moulded, has been found to be increasingly useful in parts of the body other than the breast. The nose, chin, cheekbones and even the buttocks have been found to be suitable sites for its implantation. Other products, such as hydroxyapatite, are being used for bone augmentation and may ultimately come into popular usage.

The most popular and commonly used soft tissue filler has been autogenous fat. Its major desirability, after the absence of any immune phenomena, lies in its ease of attainment (from the patient him/herself) and the ease of insertion (injected through a needle). The problem has been consistency of permanence. In some cases, at the end of one year, we may see nearly 100% retention; in others, none. Surgeons with extensive experience with fat injection allege the incidence of retention is wholly technical, whereas others feel otherwise.

For those who feel fat is not the answer, there are a variety of injectable items soon becoming available. Collagen, a bovine construct, has been used for many years and, despite its rare promotion of an allergic



response, avoided for the most part by a skin test several weeks before its use, it continues to be popular. The principal negative is that it rarely lasts more than three months, thus necessitating reinjection if the patient wishes to maintain the full appearance created by its implantation.

Implantable items such as thin tubes, or cords, have been, and still are, in use, but their palpability has left them in an unfavourable light.

Injectable products employing hyaluronic acid have been used successfully in Europe for several years. They have little immune sequelae and therefore require no skin testing and are popular as soft tissue fillers for lips and other parts of the face.

Perhaps the most exciting, and certainly the most popular, new material has been Botox<sup>®</sup>. This concentration of botulinum toxin (perhaps one of the most powerful and noxious paralytic agents ever known) into an injectable form is being used to paralyse singular muscles for the purpose of alleviating undesirable folds of skin. The most common areas are the frown lines above the nose and between the brows, the wrinkles of the forehead and the 'crow's feet' wrinkles around the eyes. Some investigators feel they can minimise unattractive muscle lines successfully in the mid portion of the neck.

Investigators believe Botox to be effective. If used improperly, however, unfortunate sequelae can occur (ptosis of the eyelid after injecting the brow or forehead). The favourable effects are short-lived – three to four months at best – and must be repeated to maintain the positive effect.

### Instrumentation

A major leap forward in the past decade has been the introduction of the endoscope to aesthetic surgery. The opportunity to gain access to a space through a small incision with excellent visibility through fibre optics and visual monitors has enabled aesthetic surgeons to perform a variety of operations through smaller incisions with a resultant faster healing time and more rapid recovery. The most popular sites for this have been in breast augmentation and facial rejuvenation. In the latter, the forehead lift and rejuvenation of the middle third of the face have been revolutionised by use of the endoscope.

In the field of body contouring, liposuction has become routine and is perhaps the most commonly performed procedure in all aesthetic surgery. Common use of suction attached to a canula with holes at its distal end has allowed the surgeon to remove fat selectively through very small incisions. Modification of the instrumentation has included the

use of ultrasonic technology and laser and power-assisted devices to aid in the aspiration process. Various surgeons prefer various devices, but all have displayed advantages of one sort or another.

The laser itself has taken its place as significant new instrumentation. The capacity to destroy cells to a highly specific depth has enabled surgeons to rejuvenate skin, dissect bloodlessly, obliterate skin blood vessel tumours, eradicate tattoos and remove unwanted hair. This instrumentation is highly technical and requires a special level of expertise.

Other instrumentation being used commonly includes skin staplers, tissue adhesives, fibre optic lights and stronger and less reactive suture materials.

### Techniques

Surgery is that branch of medicine that pursues the healing process by physically altering the body's tissues. This involves excision or incision with shifting, rotating or adding to the selected part.

Great progress has been made during the last decade in techniques. In the face, vertical rotation of the deeper tissues has resulted in rejuvenation of a more natural nature than simply relying on skin stretching. This process of shaping the facial tissues then rotating the skin with removal of excess has been aptly described as 'shape and drape'.

The same concept of shaping the underlying tissues has been adopted in the breast, which has allowed for better results in both breast reduction and reshaping a drooping breast. Whereas older techniques relied on skin tensions for shape, which ultimately failed because skin stretches with time, the newer methods of shaping the breast and then draping the skin have resulted in better long-term results in breast surgery.

Newer techniques in contouring the abdomen, hips and thighs, in conjunction with the newer materials and instruments, have allowed aesthetic surgeons to achieve a higher level of expertise in total body contouring.

### Aesthetic Concepts

Perhaps as exciting as progress in materials, instrumentation and techniques has been the evolution of aesthetic concepts. The use of modern photographic methods comparing patients at different ages has allowed us to understand better the steps involved in ageing, for example the realisation that an ageing face is less about skin relaxation than it is loss of subcutaneous volume with underlying facial muscle drooping with the

excess skin taking its overlying position. By understanding this, we can alter our approach and achieve more satisfactory results.

More sophisticated concepts of aesthetics in the nose, breasts and body, in general, have allowed us to focus on the true problem and thus achieve more positive outcomes.

Justification of aesthetic surgery lies in the fact that we have come to know that a person with improved self-esteem is better able to cope with life's constant but changing demands. People who look approvingly on themselves are more productive, better able to relate to families and friends and generally better able to reap the benefits of the joys that life has to offer. ■

---