

# Facial Esthetics and Patient Selection

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**Abstract.** Preventing patient dissatisfaction is a primary goal when performing botulinum toxin-A injections. By taking the correct approach with careful patient selection, ensuring safety and minimizing the risk of complications and side effects, the practitioner can largely eliminate patient dissatisfaction with this therapy. Basic understanding of facial esthetics and concepts of beauty are helpful to optimize patient satisfaction.

**P**reventing patient dissatisfaction is a primary goal when performing botulinum toxin-A (BTX-A) injections. By taking the correct approach, ensuring safety, and minimizing the risk of serious complications and side effects, the practitioner can largely eliminate patient dissatisfaction with this therapy.

## Patient Selection

### *Information to the Patient*

There is the imminent danger that persons may be too quickly coerced into undergoing BTX-A injection without receiving sufficient explanation of the likely outcome, as well as possible adverse effects and the risk of complications. The fact that their expectations have not been well examined makes them unsuitable clients, who are more likely to not return for further treatment and to publicly voice their dissatisfaction with the procedure and the practitioner.

Notorious these days are so-called "botox parties." Characteristically at these get-togethers, only a general explanation is given to a group, and individual situations are not discussed. Because as a rule the intent is that the treatment be given on the spot, many persons opt for the procedure without giving the matter sufficient consideration. Unfortunately, this may result in a relatively high percentage of dissatisfied clients, with the attendant negative consequences.

Doing an extensive informative consultation, thoroughly checking and clarifying the patient's expectations, and gauging the patient's appropriateness for the treatment can prevent this. Each patient who comes in for a consultation for BTX-A therapy, be it for wrinkles or facial lines, should be made aware of the full range of treatment options; resurfacing procedures, filler materials and lifting procedures all require extensive expla-

nation that should be repeated when a combination of treatments is chosen.

A concentrated effort must be made to explain to the patient that the primary goal of BTX-A therapy is not to eradicate wrinkles, but rather to decrease muscle activity, thereby decreasing facial folds and wrinkles. The fact that the extent of this decrease cannot be predicted before the treatment should be emphasized.

It also should be pointed out that in some cases a combination of treatments is needed to achieve the desired results. If the patient's expectations seem unrealistic, this issue must be addressed.

Admittedly, a patient may express satisfaction with the treatment even if wrinkle reduction is minimal. This patient will probably consider additional supplementary treatment.

Younger patients who have yet to develop permanent facial wrinkles may desire BTX-A therapy to reduce expression wrinkles. They might consider it an important bonus that long-term use of BTX-A slows wrinkle formation. This group reports much less dissatisfaction regarding wrinkle eradication, because they had few or no wrinkles before the therapy.

### *Symmetry*

Absolute symmetry does not exist in the human body. However, some individuals have the idea that achieving facial symmetry is the goal of their cosmetic surgery. This subject requires special attention in cosmetic surgery.<sup>1</sup> After a cosmetic procedure, patients look more critically at themselves and may become aware of their asymmetry at that moment. Although the asymmetry was present before the procedure, this had not been perceived then. This is one reason why it is absolutely essential that preoperative photographs be taken of all patients. During the pretreatment consultation, the subject of asymmetry should be discussed. If the patient desires symmetry after the procedure, this can be seen as a contraindication against the BTX-A therapy. However, in the case of obvious asymmetry of, say, eyebrow position or hyperactivity of the frontal

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muscle, an improvement with regard to symmetry can be reached.

A discussion of using BTX-A therapy to correct asymmetries resulting from nerve damage is beyond the scope of this article.

### *Medical Selection*

The presence of myasthenia gravis or amyotrophic lateral sclerosis is a definite contraindication to BTX-A therapy. The effect of BTX-A on these persons is unpredictable. Also a history of Bell's palsy might influence the effect of BTX-A.

Many drugs interact with the neuromuscular junction; aminoglycoside antibiotics, cyclosporin, chloroquine and d-penicillinamine are some examples. Concomitant use of these drugs can alter the effect of BTX-A in some persons. Because we have no information on the effects of BTX-A therapy during pregnancy and breast-feeding, these are also contraindications to the therapy.

BTX-A therapy is not recommended in persons with skin disorders, especially infections around the injection site. Persons who are sensitive to BTX-A or human albumin also should not receive this therapy.

Persons who extensively use their facial muscles in their jobs (eg, actors, judges) should be adequately informed so they can make a deliberate decision. Also, persons who play wind instruments or singers should be sufficiently warned before they undergo treatment. BTX-A treatments in the lower third of the face might weaken the perioral muscles, impeding their optimal use, as needed to practise the above-mentioned profession.

### **Facial Esthetics**

Basic knowledge of facial esthetics is essential to understand patient wishes. It also helps to understand the limitations of treatment possibilities in the individual patient. The framework, as defined by the bony structures, is a fixed datum from which the outer hallmarks are dependent.

Balance, harmony, and unity are pillars in the concept of facial beauty. Although "beauty is in the eye of the beholder," certain mathematical proportions apparently play a major role in beauty. Interestingly, intercultural differences in perception of beauty are minimal. The significance of facial attractiveness is obvious; throughout history, all cultures have had artists who produced works showing attractive faces. The perception of beauty is linked to the instinct for survival, because a variety of positive features are ascribed to a person with an attractive face. Facial attractiveness leads to more attention from parents in childhood and contributes to a higher socioeconomic status later in life. Concepts of facial esthetics have changed throughout

history. Also in one community the interpretation of beauty, which is part of facial esthetics, is interpreted differently in different professional groups. So there is no one unequivocal definition of beauty. The phenomenon of "fashion" also plays an important role in our society. Initiated by the huge cosmetic industry, perception and ideas about facial fashion are changing continuously and vary for different age groups. The application of cosmetics is used to create temporary accentuations, which can be changed on a daily basis or even during the course of a day. The urge to create permanent changes through a cosmetic surgical procedure, decided on at the spur of the moment influenced by temporary fads and trends, should be avoided. Because of its temporary cosmetic effects, BTX-A therapy avoids this problem.

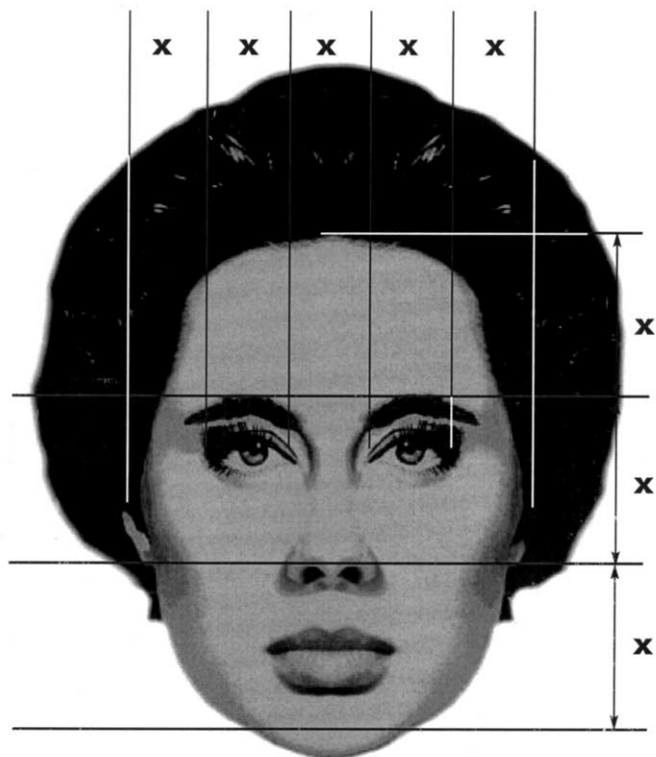
### *Historical Perspective*

The definition of beauty goes back in history at least to the Egyptians. In Greek literature, Euclides en Pythagoras attempted to develop mathematical concepts to define beauty. A Roman architect, Vitruvius, constructed a person with stretched arms and legs, caught in a circle and a square. Later, Leonardo da Vinci continued this work. During the Renaissance, many mathematical systems for defining beauty were developed. Nowadays, we work with simple mathematical concepts. The best known of these is the three equal parts concept, in which three measurements of facial structures—from the trichion to the eyebrow, from the eyebrow to the base of the nose, and from the nose to the chin—are ideally equal (Fig 1). Another classical concept is five equal parts, in which ideally the face is five eye widths wide, the eyes are one eye width apart, and the distance from each outer canthus to the lateral margin of the face is one eye width (Fig 1).

The lay press defines beauty as dependent on certain trends. Therefore the definition of beauty may change at least once a year, probably more often. The possibilities offered by computers provide opportunities for research and imaging. Editing the anatomical data might help to determine the perfect face in terms of beauty.

### *The "Golden Proportion"*

For many centuries, the so-called "golden proportion" has been considered the most esthetically pleasing proportion. This concept is defined as follows: a line is considered divided in golden section if the ratio of the whole line to the larger part is equal to the ratio of the larger part to the smaller part. This ratio is 1.618 (Fig 2). The golden proportion is reflected in the ideal face in different lines (Fig 3). This ratio (represented by the Greek letter phi, as an honor to the sculptor Phidias) is seen in many places in nature, including the petals of a flower, the shell of the snail, and the tooth of the beaver.

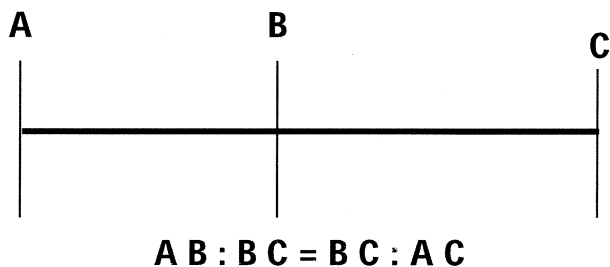


**Figure 1.** This figure represents two classical proportion systems. The system of three equal parts involves three measurements: from the trichion to the eyebrow, from the eyebrow to the base of the nose, and from the base of the nose to the chin. In the system of five equal parts, the eyes are one eye width apart and the distance from each outer canthus to the lateral margin of the face is one eye width.

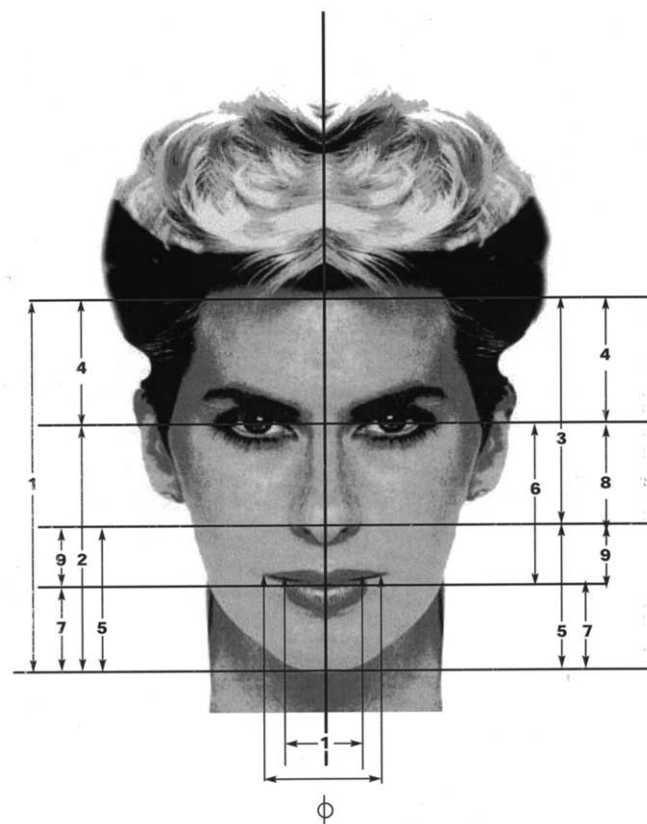
Robert Ricketts has done much work on the golden proportion in modern orthodontics, and has brought it to bear on current concepts of beauty.<sup>2</sup>

*Cosmetic Procedures Throughout History*

Cosmetic procedures have been very popular in certain cultures and periods throughout history. In the ancient Egyptian and Greek civilizations, for instance, surgical procedures and skin care treatments were widespread. Numerous archeological findings of cosmetic jars and tools in Egypt bear witness to the importance that the



**Figure 2.** The golden proportion is represented by the line ABC and the ratio  $AB:BC=BC:AC=1:1.618$ .



**Figure 3.** Examples of golden proportions. The lines reach from the trichion to the menton. The ala nasi is in the golden position:  $5:3=3:1$ ,  $8:5=5:2$ , and  $9:8=8:6$ . The mouth is in the golden position:  $9:7=7:5$

ancient Egyptians placed on appearance. Today there is a tremendous demand for cosmetic procedures. Looking and feeling youthful brings obvious advantages to individuals in their private and professional lives. Supply and demand has brought enormous development in available treatments and a clear trend toward minor procedures. BTX-A therapy fits in perfectly with this trend. Increased safety and decreased recovery time are main aspects of minor procedures. These days, fewer people accept the aging process and seek ways to slow it down, although activities that accelerate ageing, such as smoking and sun exposure, are still widespread. These conflicting practices should be discussed during consultations.

*Facial Expression and BTX-A Therapy*

The complex muscle structure of the face makes facial expressions possible. The fear, created by the lay press, of BTX-A therapy producing a completely expressionless face is unrealistic. It is a sign of overtreatment, or a misinterpretation—not the BTX-A, but rather a face-lift, probably in a contraindicated patient and perhaps not performed following state-of-the-art practice, could result in a static, expressionless face. However, the limi-

tations of creating specific expressions should be realized. Seldom is the face judged in a static position, although it is in pictures. During normal conversation, continuous change in expression is more the rule than the exception. This nonverbal expression is essential in human communication.

BTX-A therapy fits into the therapeutic category of small procedures, which do not alter function in any dramatic way. The patient's appearance and expressions will remain natural and will not change to any immediately obvious extent. This concept of minimal invasiveness and minimal-change treatment is the trend in cosmetic surgery today. Nonpermanent filler materials, nonablative resurfacing procedures, and subtle redistribution of fat belong to this approach.

Nowadays, esthetic standards in the Western world demand eradication of negative facial expressions. Expressions of sadness, caused by overactivity of the depressor labial muscle; drooping of the eyebrows, caused by overactivity or uncontrolled activity of the glabellar muscular complex and suggesting anger; and an unwanted "surprised" look, caused by continuous overactivity of the frontalis muscles, are examples of expressions that can be partially corrected by BTX-A therapy.

BTX-A therapy can also help reduce signs of aging, such as "crow's feet," the result of overactivity of the orbicular muscle. Each individual has his or her own perspective on this issue. Imperfections of the body can be covered and camouflaged by clothes, whereas facial expressions cannot be readily hidden. An individual may be told that he or she looks angry or sad and not be aware that this is the impression being given by his or her facial expressions. This can be a basis for seeking BTX-A therapy, and may be initiated by input from social or professional contacts. Although a golden rule in cosmetic surgery of the body is not to accept a patient for surgery who expects positive reactions from his or her peers after the treatment, the situation is different when a patient is seeking BTX-A therapy. The likelihood of hearing fewer comments about unintended facial expressions is a realistic hope and might even provide an indication for BTX-A therapy.

## References

1. Enquist M, Arak A. Symmetry, beauty, and evolution. *Nature* 1994;372:169–72.
2. Ricketts RM. Divine proportion in facial esthetics. *Clin Plast Surg* 1982;9:401–22.