Case Report

Botulinum Toxin for the Correction of Asymmetric Crying Facies

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The clinical hallmark of asymmetric crying facies (ACF) is a symmetric appearance of the oral aperture and lips at rest, but significant depression of one side of the lower lip with animation (crying or smiling). ACF can resolve spontaneously in the first year of life, but surgical intervention may be required at some point to ensure a good cosmetic outcome. The authors report on the successful use of botulinum toxin type A to achieve temporary facial symmetry in two children with ACF with results lasting up to six months and suggest that such treatments may be helpful in providing more time to consider and/or plan surgical intervention. (*Aesthet Surg J; 29:524-527.*)

Asymmetric crying facies (ACF) is caused by agenesis or hypoplasia of the depressor anguli oris muscle on one side of the mouth, with an incidence of approximately one per 160 live births.[1] Also known as congenital unilateral lower lip palsy or congenital hypoplasia of the depressor anguli oris muscle, ACF is characterized by deformity of the lower lip. Aplasia or hypoplasia of the facial muscles is probably of primary origin, but may be secondary, with degeneration resulting from denervation.

The clinical hallmark of ACF is a symmetric appearance of the oral aperture and lips at rest, but significant depression of one side of the lower lip with crying or smiling. The diagnosis of ACF can easily be established clinically. The differential diagnosis of ACF must be made from paralysis of cranial nerve VII with electrophysiologic techniques. ACF is an isolated finding in most cases; however, it is well known that this anomaly is frequently associated with cardiovascular, head and neck, musculoskeletal, respiratory, gastrointestinal, central nervous system, or genitourinary pathology. ACF can present as a single aesthetic defect or as a hallmark of several congenital malformations. If the etiology is determined to be developmental, a search for any associated malformations and close follow-up are indicated.

ACF can resolve spontaneously in the first year of life if it is caused by facial nerve compression. However, surgical intervention may be required at some point to assure an aesthetic outcome. Passive treatments, such as weakening the unaffected side by selective marginal mandibular neurectomy or cessation of the depressor anguli oris muscle, are possible options. Surgical intervention for ACF has been reported only rarely,[2] but other procedures for lower lip correction in unilateral facial paralysis can be applicable for treating this condition.[3,4]

Botulinum toxin type A (BTX-A) is a presynaptic neuromuscular blocking agent that can produce selective muscle weakness when injected intramuscularly in minute quantities. BTX-A is currently used for cosmetic and therapeutic purposes and has been employed in the management of various disorders, including dystonias, facial and generalized muscle spasms, autonomic disorders, migraine headaches, and involuntary movement disorders. BTX-A can also be used for aesthetic purposes to achieve symmetry in congenital and acquired unilateral facial paralysis by weakening the contralateral side.[5-9] We report two case studies documenting the successful use of BTX-A to correct ACF.

PATIENTS

A four-year-old boy was referred from the pediatric neurology department for facial asymmetry. A physical examination revealed that his face had no noticeable asymmetry at rest, but the patient showed characteristic asymmetry when smiling or crying. Other facial movements were normal and there was no other congenital malformation. The diagnosis of left-side ACF was determined clinically. Eight units of

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Figure 1. A, Pretreatment view of a four-year-old boy. When smiling, his upper facial muscles are symmetric, but the right lower lip (normal side) is markedly depressed. **B**, Seven days after injection with botulinum toxin A. The white arrow (i) shows the normal (unaffected) side. Injection was made on the normal side. The *black arrow* (*p*) shows the pathologic side.

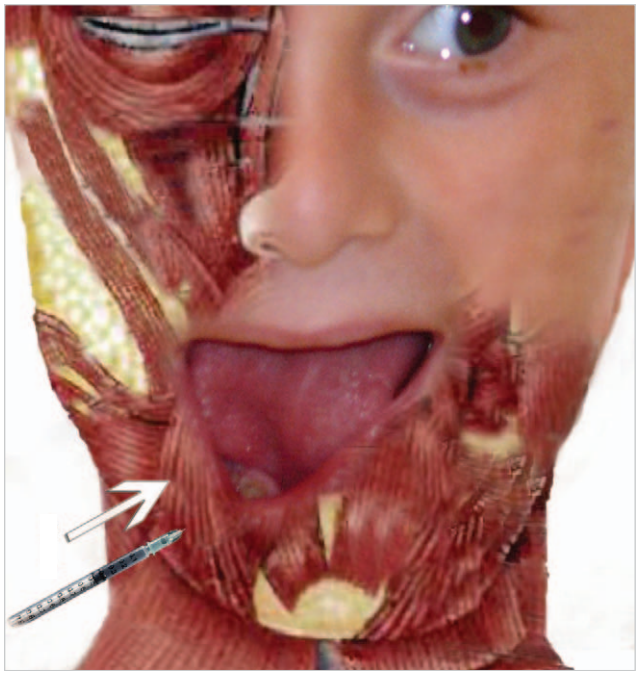


Figure 2. Schematic view of the depressor anguli oris. The *white arrow* and injector show the normal (unaffected) side and the injection side.

BTX-A (Botox; Allergan, Irvine, CA) diluted with 2 mL of saline solution without preservatives per 100 U of the active product were injected intramuscularly using 30-gauge 0.5-in needles (13.3 mm) in the right-side depressor anguli oris muscle. The procedure was performed after alcohol asepsis of the area to be treated. One week after BTX-A injection, facial symmetry was achieved (Figure 1). A schematic view of the depressor anguli oris and injection site is shown in Figure 2. Note that the paralyzed side is the side that does not contract before the injection.

A 16-month-old girl was referred from the pediatric neurology department with right-side ACF. All signs were similar to the first patient, except that the opposite (left) side was affected. A mild sedative was administered and a topical anesthetic cream was applied to the side to be injected two hours before treatment. Six units of BTX-A were injected into the opposite side. Facial symmetry was noted 10 days later (Figure 3; Video 1; video can be found online at www.aestheticsurgeryjournal.com).

DISCUSSION

There are eight different serotypes of botulinum toxin; type A is the most potent and the most commonly used clinically. Many studies confirm the safety and efficacy of BTX-A in a variety of clinical indications. BTX-A is contraindicated in cases of allergy to the drug or its components, infection at the site of injec-

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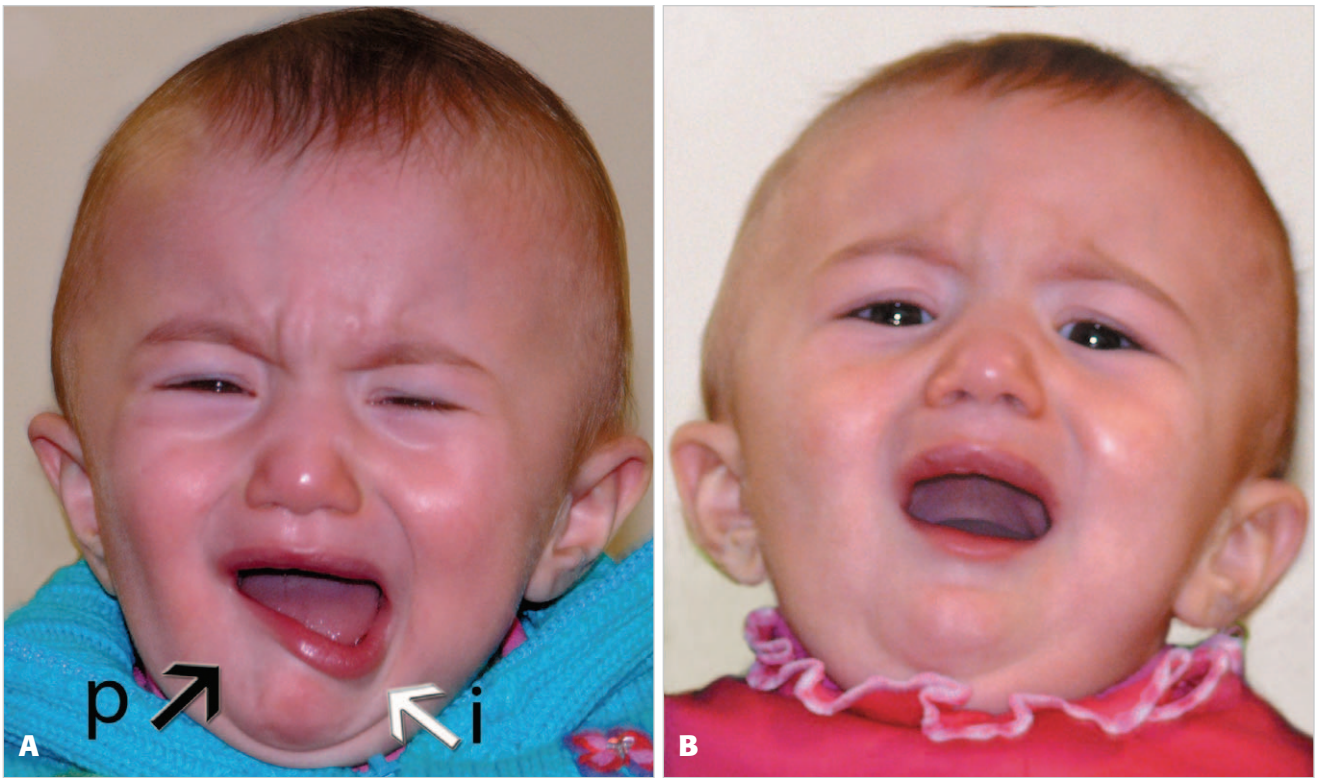


Figure 3. **A**, Pretreatment view of a 16-month-old girl. When the patient is crying, the upper facial muscles are symmetric, but the left lower lip (normal side) is markedly depressed. The *white arrow* and *i* show the normal and injection side. The *black arrow* and *p* show the pathologic side. **B**, Ten days after botulinum toxin A injection.

tion, pregnancy or breastfeeding (US Food and Drug Administration category C), and in patients with unrealistic expectations or emotional distress.

In the 20 years since the clinical use of BTX-A began, there have been only rare reports of major systemic hypersensitivity reactions after treatment for any indication. Local complications such as pain, edema, erythema, ecchymosis, headache, and short-term hyperesthesia can be associated with the injection site. Unwanted side effects can be minimized—and the beneficial effects maximized—with a thorough understanding of facial soft tissue anatomy, proper patient selection, and administration of the lowest effective dosages with minimal volume.[10,11] In our patients, BTX-A injection achieved facial symmetry that lasted for a period of six months.

The most important issue for us was whether or not the child's age was a restrictive factor. BTX-A is used extensively to treat children for many indications.[12-18] Moreover, there are no confirmed serious side effects for the fetus when treating pregnant patients.[19-22] However, it must be stated that this does not mean that BTX-A can be injected during pregnancy.

Psychosocial difficulties, social inhibition, and introversion in children with craniofacial conditions are common and well defined in the literature. Social introversion or inhibition is often associated with other emotional and behavioral problems, and the shunning of social activities may lead children to be aggressive, defensive, or shy.[23,24] For reconstructive procedures, such as cleft lip and palate repair or infant skull surgery, the benefits of early treatment are usually quite clear. However, in elective procedures such as treatment of ACF, the choices may be less obvious. If the child is being teased or feels that he or she does not belong, parents should probably consider surgery to improve the emotional health and self-esteem of the child. Some institutions offer initial surgery to correct ACF at two years of age or older, which is considered to be the age at which potential for recovery without intervention is no longer realistic. It is well recognized that feelings about self-image tend to change with maturity and that elective cosmetic procedures or cosmetic surgery should never be forced on a child or adolescent. BTX-A can be helpful in providing additional time to consider or plan possible surgery. Pretreatment sedation, the use of a topical anesthetic, and very thin needles can render the procedure more tolerable for children.

CONCLUSIONS

In two cases, ACF was successfully treated with BTX-A injection. Treatment with BTX-A can offer temporary correction of ACF, with results lasting up to six months. ◗

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DISCLOSURES

The authors have no financial interest in and received no compensation from manufacturers of products mentioned in this article.

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