

Isn't it Time for Dentists to Take Part in Facial Cosmetic Therapy with Botox and Dermal Filler?

Mohamed Yaser Kharma*, Baydaa Koussa and Madeha Sadki

Department of Oral Maxillofacial Surgery, Al-Farabi Private Colleges, Jeddah, Saudi Arabia

***Corresponding Author:** Mohamed Yaser Kharma, Professor in Department of Oral Maxillofacial Surgery, Al-Farabi Private Colleges, Jeddah, Saudi Arabia.

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Abstract

Purpose: The use of Botox and dermal fillers has been popularly accepted in esthetic procedures in maxillofacial region. The interest among dental practitioners to practice cosmetic facial therapy is growing, mostly for esthetic dental reason. It is time to understand the necessity to integrating the facial cosmetic therapy into main students' curriculum in dentistry and start learning dentists about how Botox and dermal fillers can help in cosmetic dentistry.

Methods: An internet research was done for botulinum toxin used and dermal filler in dentistry and we summarized some of its basic uses in dentistry. Dental Botox Regulations were detailed in different countries to understand the legislative aspect of using Botox and dermal filler therapy in dentistry.

Results: Facial cosmetic procedures are delivered by dermatologists and plastic surgeons. This article shows that there's a precise place within the dental exercise for both Botox and dermal fillers therapy and dentists need to be becoming a member of health care provider for facial cosmetic therapy.

Conclusion: Dentists should be prepared about the cosmetic Botox and filler therapy, by integrating the facial cosmetic therapy into main students' curriculum in dentistry.

Keywords: *Botox; Botulinum Toxin; Cosmetics Dentistry; Facial Wrinkles; Dermal Fillers*

Introduction

Botox and dermal fillers have made a large impact within the elective esthetic field. Using of botulinum toxin (BT) is helpful in many of medical conditions of dentistry. However, the utilization of BT has been popularly accepted in esthetic procedures in maxillofacial region.

Dental surgeons by their knowledge the anatomy of maxillofacial region is a potential user of BT. The interest among dental practitioners to practice botulinum is growing, mostly for esthetic dental motive. Furthermore, additional skills enhancement and appropriate environmental are required.

Botulinum toxin overview

Botox is a trade name for botulinum toxin (BTX) which is purified exotoxin of the anaerobic bacteria (Gram +), clostridium botulinum [1]. At present time only types, A and B are used in clinical practice and commercially available [2].

Mechanism of action

BT produces a transient dose-dependent weakening of muscle activity. It's a neurotoxin and produces temporary chemical denervation of skeletal muscle by inhibiting the release of acetylcholine from nerve endings, which ends up in nervous disorder and paralysis. However, the neuromuscular transmission is re-established by sprouting of new axonal terminals and, therefore, the blockade is temporary. When Botox injected into the facial muscles affects and blocks the transmitters between the motor nerves that innervate the muscle, without any loss of sensory feeling in the muscles. Once the motor nerve endings are interrupted, the muscle cannot contract and, the dynamic motion that causes wrinkles in the skin will stop. The effects of Botox last for roughly three to four months, at which time the patient needs retreatment [3].

Applications of botulinum toxin in maxillofacial region [2]

The areas that Botox usually used are the forehead, between the eyes (glabellar region), and around the corners of the eyes (crow's feet) and around the lips. Botox has important clinical uses as an adjunct in TMJ and bruxism cases, and for patients with chronic TMJ and facial pain. Botox is additionally accustomed to complement esthetic dentistry cases, as a minimally invasive procedure such as lip augmentation in a number of orthodontic cases.

We summarize the most therapeutic and cosmetic application in table 1.

Therapeutic dental Botox	Cosmetic applications
Prophylaxis of headaches in adult patients with chronic migraine	Facial wrinkles: <ul style="list-style-type: none"> • Hyperfunctional facial lines • Forehead rhytids • Glabellar lines (frown lines) • Area of the procerus (between the eyebrows above the nasal bridge)
Cervical dystonia in adult patients (severe neck muscle spasm)	
Severe axillary hyperhidrosis (excessive axillary sweating)	
Blepharospasm (spasm of the eyelids)	Perioral lines: <ul style="list-style-type: none"> • Wrinkles around the lips commonly called the "smokers wrinkles" • Drooping of corners of mouth
Strabismus (squint)	Cosmetic mentalis dimpling
Controlling Sialorrhea (excessive salivation/drooling)	Dentofacial esthetics and gummy smile
Treating chronic facial pain (hypertrophy in Temporalis and Masseter muscle)	
Temporomandibular joint disorders: disturbances associated with the function of masticatory system	
Bruxism associated with generalized attrition	
Managing gustatory sweating (Frey's syndrome).	
Cervical dystonia and chronic facial pain associated with masticatory hyperactivity	
Facial pain and trigeminal neuralgia	

Table 1: The most therapeutic and cosmetic application of BTX.

Dermal fillers [4,5]

The second material used for aesthetic treatment is dermal fillers (DFs). Dermal fillers will volumize creases and folds in the face in areas that have lost fat and collagen. Dermal fillers, sometimes called soft tissue fillers, are substances designed to be injected beneath the surface of the skin to add volume and fullness.

Several kinds of materials are available such as autologous fat, human-based collagen, bovine-based collagen, calcium hydroxylapatite and hyaluronic acid (HA).

Substances used in dermal fillers include:

- Calcium hydroxylapatite, which is a mineral-like compound found in bones.
- Hyaluronic acid, which is discovered in a few fluids and tissues within the body that add plumpness to the skin.
- Polyalkylimide, a transparent gel that is compatible with the body.
- Polylactic acid, which stimulates the skin to make more collagen.
- Polymethyl-methacrylate microspheres (PMMA), a semi-permanent filler.

The currently used DFs are divided into three main categories based on their longevity. They're as follows:

- Temporary biodegradable fillers which stay in the tissue for fewer than one year and their side effects are rare.
- Semi-permanent biodegradable fillers which stay in the tissue from 1 to 2 years, in addition, they have longer lasting and more common side effects.
- Permanent non-biodegradable fillers which stay in the tissues for quite two years and they have more permanent side effects [6].

Currently the material is used for lip augmentation [7,8], rejuvenation of hollow temples [9], treatment of periorbital hyperpigmentation [10], non-surgical rhinoplasties [11] and correction of post-rhinoplasty deformities [12].

The most indications of DFs uses [7-12] is summarize in the table 2.

Improve dark circles
Enhance volume of check
Correct shape of the nose
Minimize nasolabial folds
Restore volume and shape to lip
Smooth chin wrinkles
Smooth under the eyes, tears troughs

Table 2: Uses of dermal fillers in the maxillofacial region.

Complications and side effects of BTX and DFs therapy

Side effects of botox therapy [13]

- The muscles injected can be sore for a few days after the injections.
- Botox can cause temporary partial weakening of the muscles injected.
- When Botox is used for a long time, it may cause atrophy of the muscles injected. This atrophy is reversible if the therapy is discontinued.

- There were reports of transient side effects which includes flu-like symptoms, palpitations, tingling sensations, or nausea. These side effects are rare and typically disappear within 1 - 2 days.

Complications from injections are usually a result of patient, doctor or product elements:

- Patient factors include the patient’s medical history and pre-existing conditions so it’s critical to take a good history and exclude contraindications. Patient factors additionally include allergic reaction, active infections at the site, inflammatory skin conditions, neuromuscular conditions, pregnancy and lactation, and use of antiplatelet and anticoagulant medication.
- Doctor factors include technique and dilution. Exact lights and the use of magnifications loupes can help the practitioner perform the manner more efficiently and safely.
- Product factors refer to the choice of botulinum toxin or filler used. Toxins haven’t any sequelae, so management would refer to immediate and short-term measures only.

Summary of the most complication of filler and BTX [14,15] summarized in table 3.

Common complications of Botox treatment	Common complications of DFs treatment
Redness-swelling-bruising	Hypersensitivity: Anaphylaxis-Urticaria
Hypersensitivity	Erythema-odema
Under or over correction	Skin necrosis-ulcer
Asymmetric result	Under or over correction
Upper eyelid ptosis	Infection and biofilms
Perioral droop	Reactivation of herpes
Infection	Granuloma
Diplopia (lateral rectus)	Hypertrophic scar
Psychosomatic problems	Skin defect

Table 3: Most complication of filler and Botox therapy.

Contraindications of BTX uses [16]:

- Recognized hypersensitive reaction or allergic reaction to any of the components of btx-a or btx-b.
- Presence of active infection at the injection site.
- Pregnancy and lactation.
- Patients receiving treatment with aminoglycosides, anticholinergic drugs or other agents interfering with neuromuscular transmission or muscle relaxants should be observed closely because the effect of Botox® may be potentiated.
- Patients suffering from peripheral motor neuropathic diseases, sclerosis, or any neuromuscular junction disorders like myasthenia gravis are at increased risk for clinically significant adverse reactions and should be closely monitored.
- Psychologically unstable patients.

So, what has botox and dermal filler got to do with dentistry? Why should dentists be involved in providing it?

Recent studies indicate there’s a powerful relationship between stress, depression and periodontal disease. Stress and depression can reduce the immune system and facilitate chronic inflammation. Through its influence on depression, Botox treatment may affect the health of the periodontium [17].

Dentists as general practitioners have taken in-intensity training to offer many techniques including sinus lifts, implant placement, complicated endodontic therapy and different surgical strategies. Dentists are not any more surely drill teeth and treat gums. After they properly trained, there's an area to dentists to provide facial cosmetic therapy (training is the key).

We hope through this article to show that there's area in the dental exercise for each Botox and dermal fillers therapy and dentists need to be becoming a member of different health care practitioners who deliver these offerings. Dentists should be prepared about the cosmetic Botox and filler therapy, what these therapies even are, how they're delivered, what the science is behind them, and what they are able to accomplish for our patients.

Maxillofacial surgery includes the mandatory knowledge background and extensive training for performing facial cosmetics, including invasive and non-invasive procedures.

Botox has now been increasingly applied in dentistry moreover because of its therapeutic uses in the treatment of certain oral and maxillofacial conditions (See table 1).

At the present time, facial cosmetic procedures are delivered to patients by the dermatologists and plastic surgeons were the first healthcare providers integrate in these therapies. But these procedures are also delivered to patients by other physicians including ophthalmologists, internists, and medical estheticians.

The question that we ask in this article is: "Why?" An ophthalmologist, general plastic surgeon, dermatologist, most other MD's physician is allowed to practice cosmetic facial therapy even they do no longer come near understanding the facial, oral and perioral areas compared to a general dentist.

Dentists regularly perform processes plenty extra invasive than Botox injections. They also are skilled with injections for the reason that many pain control techniques require localized injections. Most dentists inject in the same regions where Botox and dermal fillers are injected for cosmetic purpose. The only difference is the dentists inject intraorally into these facial structures at the same time as Botox and dermal fillers injections are extraoral injections. Another reason that dentists are the best professionals to deliver these injections, dentists know the way to form these injections comfortable, quick, and relatively painless for the patients.

Dentists are worried about adverse reactions and complications to Botox and dermal fillers injection [18]. Although dentists can find much more adverse reactions with employment of common local anesthetics which will have significant effects on the cardiovascular system, nervous system and muscular system. Dentists are relaxed when they use injections each single day, this is due to the fact they are informed about the utilization of local anesthetic, they've studied what it can and cannot do and they are skilled the way to deal with any complications. The identical are going to be true as soon as dentists are properly trained with Botox and dermal fillers (Again Training is the key).

Dentists are, in general, realistic and conservative when it involves to injection administration, as well as confident and well-qualified to assess and address any complications that may arise during an injection into parts of the head and neck.

It is actually time to acknowledge that dentists are talented in injections like several of healthcare providers. Dentists and the "specialists" in the oral and maxillofacial areas are much more knowledgeable than most other healthcare providers in the muscles of mastication and the muscles of facial expression, which routinely receive these treatments.

Training the dentist is significantly different than training the other healthcare professionals, dentist already know the facial anatomy and already understand the physiology, skeletal structures, vascular and nervous system of the face.

Dento-legal aspects of non-surgical facial aesthetic procedures

In the USA laws regarding who can administer Botox and dermal fillers vary so much from one state to the next. In many states general dentists are completely allowed to perform both Botox and dermal fillers in the oral and maxillofacial areas from chin to top of the forehead (Arizona, Florida, Idaho, Iowa, Maryland) [19]. While oral maxillofacial surgeon are allowed to practice cosmetic therapy in (Massachusetts, Mississippi) [19]. The security and welfare of patients should be the major consideration. The majority of states of the USA are permitting dentists to exercise the management of Botox if they have obtained formal schooling from esthetic clinical organization [20]. For dentists, an knowledge of what Botox does and the way it works is vital. Dentists are professional at assessing the balance and usual esthetics of the face. Dentists have had extensive training in the anatomy of the head and neck and branches of cranial nerves in sensitive areas of the head.

Right now, near half the states within the USA and a few provinces in Canada allow dentists to perform BOTOX procedures in all of the oral and maxillofacial areas. December 2015 in Australia, the board issued the permission to use botulinum toxin and dermal fillers by dentists [21].

It seems likely that the utilization of dermal fillers and botulinum toxin by dental practitioners will increase in the years ahead. An intensive understanding of the techniques, appropriate training from a reputable and authoritative source, and an awareness of the risks and how to manage them effectively is no less important than conventional dentistry.

It is necessary to emphasize the actual fact that the utilization of botulinum toxin is not always for cosmetic/aesthetic purposes. There are many well-recognized therapeutic uses for this material delivered by the specialist in dentistry (See table 1).

A little bit of expertise furnished through this article will go an extended way in assisting the dentists to understand approximately the medical and exercise management benefits to integrating this course in cosmetic dentistry.

Injections for cosmetic purposes with the aid of dentists are developing particularly with the advent of cosmetic dentistry. There are many training programs available to dentists that wish to learn Botox which include information taught on precautions, protocols, treatments. These training centers are well known for making sure that their trainers (doctors) learn get hands-on training for both fundamental and advanced Botox injections.

According to Ronald Goldstein (Clinical Professor of Oral Rehabilitation), what is the motivation for the dentists to compete with medical colleagues to injecting Botox or fillers? The foremost frequent answer was that injecting are often a new income source [22]. Failure is not only necrosis, paralysis, or other nerve damage, however also esthetic failure when the affected person is not pleased with the esthetic effects. Are the dentists capable of going through these issues?

In opposite site for Constantinos Laskarides (professor in oral maxillofacial surgery) dentists have to reveal and to obtained adequate education before administering botulinum toxin and dermal fillers. Right education and training need to be supplied by educational establishments, not business corporations Introduce this course, for the primary time, inside the college students' curriculum is an initiative in the proper path that we hope to create upon [22].

Most dental schools have embraced the evolution of cosmetic dentistry and implantology, it might be prudent to contemplate that training standards around non-surgical facial aesthetics (NSFA) are reflected in both undergraduate curricula and appropriate post-graduate clinical training for dentistry. (many dental schools cover related subjects including: facial anatomy/material science/neuromuscular junction physiology (100%), anatomy of the aging face (66%), pharmacology of botulinum toxin (25%) and ethical-legal implications of aesthetic dentistry/NSFA (50%/42% respectively) [23].

A major part in dentistry is esthetic dentistry provide a better look for the patient smile and there is no doubt that the overall appearance should be taken in consideration with the proportions of the lip, nose, so cosmetic therapy is a conjunctive part along with esthetic dentistry to deliver the best result can be achieved for the seek of the patient appearance.

Conclusion

Dentists mission are not taking care of teeth and deal with gums. In the beginning of the science of implantology the dentists were not allowed to practice the dental implant which is reserved for the specialist. Now a day dentist after including the implantology science in their students' curriculum and with their skill in surgical techniques they're an exceedingly perfectly suited for implant placement.

We hope this article will go a protracted way in helping to understand the requirement to integrate the facial cosmetic therapy into main students' curriculum in dentistry. We, as dentists, in reality have to begin status up for ourselves. It is time to truly begin getting to know how Botox and dermal fillers can help us in dentistry.

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