throughout the body. These cysts on the face and neck are frequently found in children. New and Erich classified dermoid cysts on the basis of their location. The most frequently involved area is the periorbital area, followed by the nasal dorsum, submental area, and the suprasternal area [1]. Periorbital dermoid cysts are congenital tumors that appear along the naso-optic groove between the maxillary and the mandibular processes during embryonic closure (i.e., the frontonasal and frontozygomatic suture line). Dermoid cysts contain cells of a dermal or an epidermal origin. When a cyst ruptures because of trauma or infection, keratin can cause inflammation and a granulomatous reaction.

Further, periorbital dermoid cysts often have intracranial or intraorbital effects. These effects progress slowly, and when presented later in life, they may cause proptosis, strabismus, globe dystopia, visual field defects, dehiscence of the frontozygomatic suture, and swelling of the temporalis fossa. Such an extension of lateral brow dermoid cysts is a rare but distinct possibility. Therefore, imaging studies such as CT and magnetic resonance imaging are necessary before surgical excision.

The treatment for a periorbital dermoid cyst is surgical excision. There is no consensus on the appropriate timing of the excision. Because dermoid cysts grow with the child and there is a chance of rupture, excision should be performed [2]. In order to decide on the timing of the excision, the size of a dermoid cyst, presence of symptoms, and parents' needs should be considered. Thus far, superficial dermoid cysts on the lateral orbit, as in our case, have been excised through direct incision, upper eyelid crease incision, and an endoscope-assisted approach. If we consider only aesthetics, the endoscopic technique is preferable. However, c onsidering cost effectiveness and hair loss, upper eyelid crease incision is a better approach. To remove a cyst completely and to avoid rupture, a meticulous dissection technique is required as it prevents postoperative complications such as inflammation caused by dermoid components. However, there is always a shallow depression on the bone. Sometimes, this depression is sufficiently large to cause a depressive contour deformity. To prevent such a postoperative depression, Lee and Persing proposed a method of reconstruction using preaponeurotic orbital fat flaps as fillers [3].

Bilateral facial masses are not commonly encountered. If there are symmetrically bilateral masses on someone's face, people may consider them natural and not abnormal and clinicians may also ignore them. Further, the lateral end of an eyebrow has a slight natural protrusion, and bilateral dermoid cysts on the lateral ends of eyebrows may be more prone to misdiagnosis. Therefore, a patient with bilateral masses on his face should be examined carefully, with consideration of a potentially unusual diagnosis.

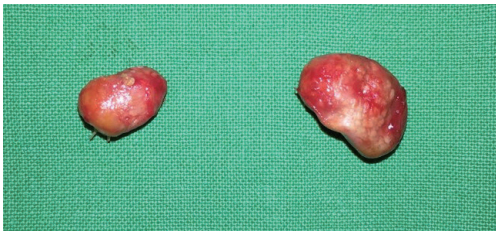

Fig. 3.
The masses were excised without rupture, and the right mass was slightly larger than the left one.

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Images

Botulinum Toxin and Burn Induces Contracture

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Scar formation is one of the physiological processes of wound healing in the deepest part of the damaged

dermis [1]. Hypertrophic scars and keloids are formed as the muscles pull the edges of a wound while the collagen fibers of the skin are still immature [2]. Temporarily paralyzing the muscles around the wound with botulinum toxin is one of the newer methods used during the process of reconstructive surgery [2]. Botulinum toxin directly inhibits fibroblast-to-myofibroblast differentiation *in vitro*, and it is indicated for its potential use in the treatment of wounds after trauma, burn, or surgery [3]. However, based on the available information, it is difficult to predict the therapeutic response of scars to botulinum, and more studies are needed before this method can become a standard therapy. We studied the effectiveness of a botulinum toxin injection in the recovery rate of contractures, which was burn induced and did not recovery acceptably by the surgical reconstruction of scars.

This was a randomized, controlled clinical trial. Patients aged 2 to 50 years with a chronic burn scar with contracture in certain areas of the body include joints, palms , eyelids, lip and cheek, were enrolled in the study. The burn must have occurred at least three months before the intervention and it must have produced a red scar (an immature scar).

Exclusion criteria were the previous treatment of spasticity, known sensitivity to botulinum toxin, isease that affects muscles, or use of aminoglycoside antibiotics such as spectinomycin within a period 30 days before or during the study.

The participants were divided into two groups. One group received an injection of botulinum toxin and the second group was followed without any intervention.

In the adults we injected botulinum toxin as 100 Units of Botox into the center, around the periphery, and at the two ends of the lesion. The method of injection was meso injection, in which botulinum toxin was injected subdermally, intradermally and into the scar, diffusely.

Table 1. Active extension in botulinum toxin and placebo groups (before, after, and change in degrees)

Groups	Mean	Standard deviation	95% Confidence interval		P-value
			Lower	Upper	
Range of motion					
Before					NS[a]
Botox	58.9	17.6	51.7	66.1	
Control	73.9	32.7	57.7	88.8	
After					NS
Botox	89.8	21.5	80.5	98.4	
Control	81	43.5	60.1	99	
Change					S[b]
Botox	30.9	19.5	22	37.8	
Control	7.1	47	–13	28.8	
Eyelid contracture change					NS
Botox	33.3	12.8	25.1	50.8	
Control	8.3	12.9	0	25.9	

[a]Non significant; [b]Significant at level 0.05.

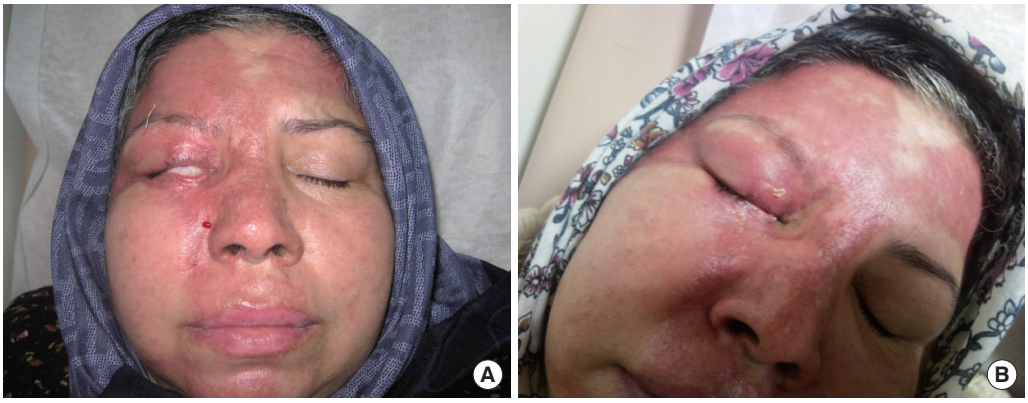

Fig. 1.
Eyelid scar changes in a case of botulinum toxin injection. (A) First injection, 3 months after burn. (B) 3 months after injection, 6 months after burn.

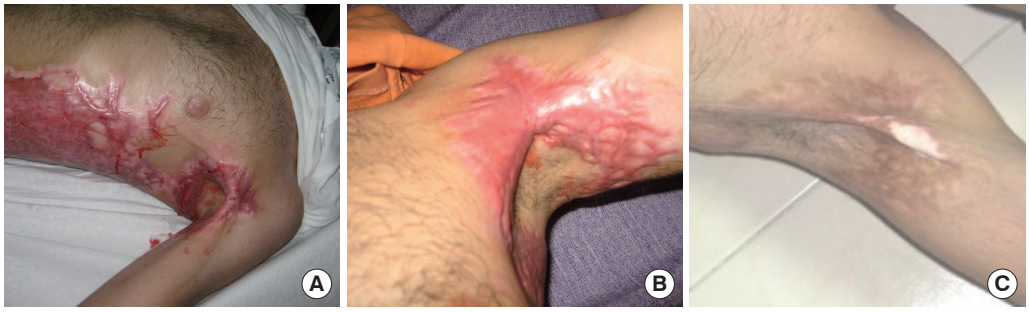

Fig. 2.
Scar changes in a case of botulinum toxin injection. (A) First injection, 3 months after burn. (B) 3 months after injection, 6 months after burn. (C) 5 months after injection, 8 months after burn.

In children under 15 years old, the dose was 50 Units of Botox and in the children under five, 25 units.

In palms, upper eyelid and the small joints such as fingers, the maximum dose was 10 units.

In the lower eyelid, lower lip, and cheek, 10–15, 15–20, and 10 units were injected, respectively.

All patients were followed for six months with the same schedule.

In the major joints, we used a plastic manual goniometer (Phoenix Healthcare Products, Nottingham, UK) to a precision of 1°. Range of motion was defined between 0° and 100°.

For eyelid contracture, scoring was defined as follows [4]: complete closing, 4; pupils not visible, 3; pupils visible, 2; and complete opening, 1.

Of the 50 subjects, eight were lost during the follow-up. The baseline characteristics of the lost subjects were same in the intervention and control groups.

We analyzed the data of the 42 remaining patients. Among them, 51% were male and 49% female.

The total mean ± standard deviation of age was 20.5 ± 10.8.

The sex and age distribution was similar in both groups ($P > 0.05$).

The range of motion of contracted parts of the body before and after intervention is shown in Table 1. Before injection, the range of motion in the intervention group was 58 ± 17.6, and in the control was 73.9 ± 32.9 ($P > 0.05$). After injection, it changed to 89.8 ± 21.5 and 81 ± 43.5, respectively. This means that the improvement was 43% greater in the botulinum toxin group. Although the intervention group had more contracture than the control group, the difference was not statistically significant. Although the range of motion improved in both groups, the change in the range of motion was significantly greater in the intervention group (30.9° vs. 7.1°, respectively).

The severity of eyelid contracture in the control group did not change, while in the intervention group, it improved but not significantly (Table 1) (Fig. 1).

Fig. 2 shows scar changes before and 3 months and 5 months after injection of botulinum toxin.

Generally, botulinum toxin injections relaxed the scar tissue, then established blood flow; this mechanism enabled the process of remodeling [5].

This study showed that for the endpoint, there was no statistically significant difference between treatment groups. This seems to be due to the small sample size. Although burn-induced contracture decreased during the healing period even without any intervention, the study detected a change of 30.9° versus 7°, which was considered to be of clinical relevance and to represent a clinically meaningful improvement in functional gain.

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