Letters

Soft tissues filling: not so minimally invasive

Preenchimento de tecidos moles: nem tão minimamente invasivo

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ABSTRACT

The dermal filling of soft tissue is a common practice. However there are potential serious complications associated. The authors are of the opinion that professionals who perform dermal filling procedures must have solid knowledge of anatomy and complete mastery of fillers injection technique. The behavior in potential cases of complications must be started early and conducted efficiently.

Keywords: Blindness; hyaluronic acid; injections

RESUMO

O preenchimento cutâneo de tecidos moles é uma prática frequente. No entanto há potenciais sérias complicações associadas. A opiniao dos autores é de que os profissionais que realizam procedimentos de preenchimento cutâneo devem possuir sólido conhecimento de anatomia e completo domínio da técnica de injeção de preenchedores. A conduta em potenciais casos de complicações deve ser iniciada precocemente e conduzida de maneira eficiente.

Palavras-chave: *cegueira; ácido hialurônico; injeções*

The cutaneous injection of filling substances in soft tissues is a common practice. In 2014, 2.3 million injections were performed in the United States of America, corresponding to an increase of 253% when compared to 2000.[1]

This procedure has become a routine in the dermatologic and plastic surgery practice, with injections being described as minimally invasive. However, serious and irreversible, and potentially fatal complications can occur. Concomitantly, there is no formal or well-established training during the medical residence years and physicians depend on workshops and video-based self-learning to begin to perform the procedure. In addition, the injection of cutaneous fillers is sometimes carried out by general practitioners, who usually do not have any knowledge of anatomy. The increasing number of reports of serious complications in the literature is an alarming fact.

The cutaneous filler injection technique should be implemented in light of solid anatomical knowledge of the body part in question, for not only minor complications, but also severe and irreversible damage have already been reported.

In a recent literature review, 10 cases of blindness were found after filling injections in the face.[2] Two patients developed transient blindness and 8 developed permanent blindness in the affected eye. The injected substances were: bovine collagen, polymethylmethacrylate, hyaluronic acid and calcium hydroxyapatite. The nose was the most frequently injected area (root -1 patient, dorsum - 2 patients, tip - 2 patients). The remaining 5 cases included the following areas: forehead - 1 patient, glabella - 2 patients and glabella and malar region - 2 patients.

In another important study by The Korean Retina Society, 3 a nationwide survey found that 22 patients developed serious complications after undergoing filling injections in soft tissues. Considering hyaluronic acid injections, 5 patients had diffuse occlusions and 7 had localized occlusions. Long-term vision loss occurred in 43% of patients and 1 patient suffered brain lesion. Anterior segment ischemia has arisen as corneal edemas in 5 patients (39%), while the inflammation of the anterior chamber occurred in 7 patients (54%). The injected areas were as follows: glabella, nasolabial folds and nose (rhinoplasty for nasal increase).

These severe neurological and ocular complications result from the specific configuration of the facial vasculature, in which internal and external arterial branches connect. Embolization is linked to the arterial retrograde movement of the injected product (originating in the peripheral vessels and progressing into the ophthalmic artery system, close to the origin of the retinal artery). After the injection, the systolic pressure drives the filling material column into the ophthalmic artery and its branches. The same emboli might move further distally, reaching the internal carotid artery, causing cerebrovascular embolism and stroke.

Such incidents can be avoided by using a proper technique for the injection of the cutaneous filler. 4 Aspirating before injecting, injecting slowly at minimum pressure, performing additional injections, and employing blunt tip microcannulas are some of the techniques that help prevent intravascular injections. In case of development of ocular symptoms, the following procedures are recommended: urgently refer the patient to an ophthalmologist, inject from 300 to 600 UI (2 to 4 ml) hyaluronidase in the retrobulbar region, inject hyaluronidase in the area where the filler was applied. Such emergency management should be carried out within 90 minutes after application of the filler.[5]

Likewise, and with a higher frequency of cases reported in the literature, skin necrosis might also occur as a result of cutaneous filler injections.

Unfortunately, cases of blindness and skin necrosis resulting from the injection of cutaneous fillers are not always published – and when they are published, there is no explanation about the injection technique. In the context of the lack of a formal database aimed at recording serious complications, it is possible to conclude that such events are actually more frequent than professional applicators suppose. Thus, professionals who apply cutaneous fillers should be extremely cautious and use minimally invasive techniques, taking advantage of a robust knowledge of the vascular anatomy and safe injection techniques.

Plastic Surgery and Dermatological Societies should direct efforts to alert the relevant public about the alarmingly increasing number of serious complications resulting from the injection of cutaneous fillers in soft tissues.

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