Intrascrotal injection of botulinum toxin A, a male genital aesthetic demand: Technique and limits

Injection intra scrotale de toxine botulique A, une demande esthétique masculine: technique et limites

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Summary

Introduction.—Scrotal rejuvenation is a real male aesthetic demand. Scrotal injection of botulinum toxin makes the testicles smoother, less dangling and subjectively larger.

Methods.—Intrascrotal botulinum toxin injections were performed to a 44-year-old patient for aesthetic purposes. We used the intracremasteric injection protocol. Cremaster muscle injections and dartos muscle injections were performed.

Results.—The patient was satisfied. No adverse reaction to the intrascrotal botulinum toxin injection was observed. The patient wanted to repeat the procedure in the future.

Conclusion.—At the moment, there is no recommendation about the aesthetic use of intrascrotal injections of botulinum toxin A and the risks are unknown. The purpose of this article is to show the feasibility, context and technical modalities of intrascrotal injection. The risk of infertility is real, but marginal for men who no longer have progeny’s desire.

Level of evidence.—Level 3.

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KEYWORDS
Botulinum toxin; Wrinkles; Genital; Scrotum; Testis; Scrotal rejuvenation

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Introduction

Botulinum toxin is produced by the anaerobic bacteria Clostridium botulinum. This neurotoxin prevents the release of acetylcholine contained in the presynaptic neurons’ vesicles of the striated muscles’ neuromuscular junction. This inhibition leads to muscle relaxation. The subtype A was first used in Ophthalmology to treat muscle hyperfunction. In Urology, intramuscular cremasteric injections are performed in diseases such as cremaster spasms [1,2] or chronic scrotal pain [3]. Its utilization was then extended to aesthetic purposes making botulinum toxin facial injections the most common nonsurgical aesthetic procedure [4,5]. Recently, botulinum toxin has gained new uses and is now used in testicular rejuvenation [6–8]. Intracremasteric injection inhibits the cremaster muscle contraction [9], making the scrotum smoother, rounder, lower and more relaxed. Dartos muscle injections can be performed at the same time to reduce scrotal wrinkles. This new scrotum appearance has generated increasing interest among men, exacerbated by the media [10,11].

Legally, in the United States, the use of botulinum toxin for cosmetic purposes was authorized by the Food and Drug Administration (FDA) in 2004. In France, botulinum toxin has received a legal authorization from the health authorities for its cosmetic use. The administration of botulinum toxin must be performed by qualified doctors. Only physicians specializing in plastic, reconstructive and cosmetic surgery, dermatology, neurology, face and neck surgery, maxillofacial surgery, urology and ophthalmology are allowed to use it. In its aesthetic applications, different types of botulinum toxin A products have obtained the Marketing Authorization for a correction of glabellar wrinkles, periorbital wrinkles and frontal ones (Vistabel® (Allergan France, Courbevoie FR), Azzalure® (Galderma, Lausanne CH), Bocouture® (Merz Pharma France, Courbevoie FR) and Xeomin® (Merz Pharma France, Courbevoie FR)). The prescription and use of botulinum toxin A for aesthetic purposes in scrotum is an unusual act governed by Article L5121-12-1 of the Public Health Code. It gives rise to a distribution of responsibilities between health professionals: prescribing doctor, operating doctor and dispensing pharmacist.

Anatomically, scrotum is the skin envelope of both testicles, its external aesthetic aspect is linked to the action of two muscles. The cremaster muscle is a striated muscle made up of 2 muscular bundles. The external bundle starts from the inguinal ligament and the internal oblique muscle, and the internal bundle starts from the pubis and the inguinal aponeurotic falc. Cremaster fibres are oriented downwards until the vaginal tunic of the testicle. Cremaster muscle has two main physiological functions in humans. The main one, in association with thermoregulation by scrotal sweating, is to keep the testicles at a temperature of 35 °C needed for spermatogenesis, to ensure reproductive functions. The second role of cremaster muscle is to protect the testicles with the cremasteric reflex. During physical activities or stress, the cremaster muscle contracts leading to testicles retraction and protection [12].

Dartos muscle is a scrotal cutaneous muscle, covering the external testis fascia. It provides the testicles’ superficial thermal regulation, and causes scrotum skin wrinkling.

The main objective of this case report was to expose the outcome of these injections and to assess the injection technique used. A literature review was conduct on the risks and adverse effects of this type of injections.

Material and methods

Case report

A 44-year-old man presented a buried penis associated with a retracted and high positioned testicular appearance. He did not have any medical or surgical history. Any contraindication was eliminated: pathologies conferring an innate or acquired haemorrhagic tendency (anticoagulant and platelet aggregation treatments), allergy to botulinum toxin, infection or scarring of the scrotal area. The patient already had 2 children and did not want to have more. The patient found his testicles too small and motionless.
He mainly had an aesthetic demand and wanted lower and more mobile testicles. He did not have any request about the aesthetic aspect of his penis. Clinically, the patient had painless testicles very close to the penis. He did not have genital symptoms such as orchitis or urethral discharge. There was no testicular mass on palpation. The preoperative patient’s IMGI score (Index of Male Genital Image) was 67/98 [13] (Table 1). His scrotal raphe measured 10 cm. The patient was informed of the non-specific risks of intramuscular botulinum toxin injection procedures: hematoma, edema, erythema at the injection site, non-specific inflammation. The patient signed an informed consent form before the injection procedure. There was no recommendation on dilution nor on intrascrotal injection technique of botulinum toxin. As a result, we chose an intracremasteric injection protocol based on the one used in therapeutic indications with an effect on cremasteric relaxation.

**Technique**

The patient was placed in supine position. The treated area was disinfected. Bilateral local anaesthesia by spermatic cord block [14] was performed to ensure a painless and more comfortable procedure (Fig. 1) with a pure lidocaine injection (10 ml/1%). We used a 5 ml syringe and injected lidocaine with a 4 cm 25G needle at 1 cm below and inside the pubic spine. In contact with the pubic bone, the needle was slightly removed and lidocaine injected after an aspiration test. Complete anaesthesia was obtained by injecting boluses of 3 to 4 ml in various orientations around the spermatic cord. The procedure was repeated on the other side. 10 to 15 ml each side were needed to obtain a complete anaesthesia.

A dilution of 100 Allergan International Unit (AIU) of botulinum toxin in 10 ml of injectable saline solution [1] was made. We performed an intramuscular injection at the proximal third of the cremaster muscle where it is superficial and palpable. Two to three 3 ml intra-cremasteric injections (30 AIU) were carried out in the proximal third of the muscle in different axes to obtain a complete muscular fibres relaxation (Fig. 2). Punctual injections of 1 ml (10 AIU) or less were made into the dartos muscle [7] in the

Intrascrotal injection of botulinum toxin A: Technique and limits

Figure 3. 10 UI injection of botulinium toxin in the dartos muscle. The most pronounced scrotal furrows (Fig. 3). The procedure was repeated contralaterally. Overall, 75 to 200 AIU of botulinum toxin were required to achieve complete relaxation of the cremaster and dartos muscles [1] (Fig. 4).

Results

The result of botulinum toxin injection is generally observed in 3 to 15 days [1]. We saw the patient 10 days after the procedure. The cremaster muscle was relaxed and the scrotum had deployed. The patient described a softer and smoother scrotum (Fig. 5). The testicles seemed larger. The patient was very satisfied with the aesthetic result. The postoperative IMGI score was 75/98. In detail, the criterion “size of the testicles” went from 1 (extremely dissatisfied) before the procedure to 5 (satisfied) after the procedure. No immediate complication secondary to intramuscular injection was observed, such as hematoma or bleeding. The scrotal median raphe measured 15 cm in the same consultation conditions (heat, schedule, stress). As intrascrotal injections have an inhibitory effect on the inguinal sweat glands, the reduction of perspiration had a comfortable effect on patients’ quality of life. The duration of action of intrascrotal botulinum toxin injections is usually from 3 to 6 months. A lasting effect requires repetition of injections. The patient declared that he was ready to undergo a new injection session when the effect would wear off. At 3 months follow-up, the effects were still observed. The same procedure was

Figure 4. Injection procedure schema.
repeated 6 months later, after the decline of the botulinum toxin’s effect. The scrotal median raphe measurement was then 11 cm.

Discussion

Interest for male genital aesthetics is on the rise [10,11], with the onset of augmentation phalloplasty and penile enlargement surgery [15–17]. Genital rejuvenation has become a real part of aesthetic medicine and surgery for women and most recently for men. Nowadays, men are more and more concerned about age-related physiological changes or pathological changes. Various physiological or pathological symptoms can be observed, regarding hairiness (alopecia and hypertrichosis), appearance (laxity and wrinkles), morphology (testicular atrophy) or vascularization (angiookeratoma) of the scrotum. All these elements can now be treated after an analysis of the patient’s request combined with a general and targeted clinical examination [18–20].

Intrascrotal injection of botulinum toxin A paves the way to a new demand in genital aesthetics. The aim of the procedure is to obtain lower and apparently larger testicles. To our knowledge, there is no other medical or surgical technique to get such a result. In the literature, only functional studies can be found, where the toxin is used for cremasteric spasms’ treatment [1,2]. The functional results of these studies are safe and satisfying, that’s why we used the same technique and dilution of botulinum toxin for aesthetic purposes.

In the literature, no study assesses the associated-risks of intrascrotal injection of botulinum toxin in humans. However, rat studies show a decrease in sperm production and an alteration of the histological structure of the seminiferous tubules [21,22]. Suppression of the physiological function of the cremaster and dartos muscles in thermoregulation may be responsible for spermatogenesis’ alteration. This concept must be known by the practitioner who must inform his patient before any intrascrotal injection of botulinum toxin A for aesthetic purposes.

Our patient was very satisfied with the aesthetic result and he declared himself ready to repeat the injection session. It should be noted that the characteristics of the IMGI score mainly concern the overall appearance of the male genitals. Only 2 questions out of 14 (genitals’ color and testicles’ size) deal with testicular aspect. These two questions led to an improvement in the post-procedure score in the case of our patient. IMGI score is a measure of male genital image and it has demonstrated good psychometric abilities. Its weakness is the lack of a demonstrated threshold beyond which the patient’s quality of life is better, by improving his own vision of his genitals. The MGIS (Male Genital Image Scale) score is another validated score in the male genital aesthetic evaluation [23,24]. It was initially developed to assess the genital image of men undergoing hypospadias surgery. This score includes 31 items. As only 3 items out of 31 deal with the testicular aspect, it is less appropriate than the IMGI score in the testicular aesthetic evaluation.

Objectively, the distance from the apex to the base of the scrotal median raphe was increased. Although this measurement depends on environmental variations, we have tried to limit the confounding factors: same consultation time, same context and same temperature in the consultation room.

It is important for our team to highlight the risk-benefit ratio of the intrascrotal botulinum toxin injection procedure. Indeed, the long-term side effects are not known. In the name of the precautionary principle, especially concerning the potential adverse effect on fertility and the risk of infertility, we do not recommend this type of aesthetic procedure for men of reproductive age. In all cases, the performance of the intrascrotal botulinum toxin A...
Intrascrotal injection of botulinum toxin A: Technique and limits

Injection procedure requires informed consent, particularly on the potential risks for fertility.

Conclusion

The injection of intrascrotal botulinum toxin for aesthetic purposes is not approved by health authorities and it is carried out under the physician's responsibility. Its use in this indication requires more documentation on potential side effects, including infertility. Botulinum toxin A injections were effective and very satisfying in this case. However, as it stands, we cannot recommend its use in men of reproductive age, because of the lack of hindsight. This article exposes the injection technique in selected and informed patients.

Ethical approval

This article respects ethical approval with human participants.

Informed consent

For this type of study, informed consent was required and applied.

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Disclosure of interest

The authors declare that they have no competing interest.

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