



The Voice in Transsexual Women

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Abstract

Transsexuality is a complex and permanent transposition in which the physical gender of birth is not recognized to be the right one by some individuals. For Trans women, voice function remains the main obstacle for them to find a new sexual identity, as, in contrast to trans men, hormone therapy does not significantly and lastingly alter the voice of these individuals. In this regard, there are options for those who do not feel their original voice as representative of who they really are. Phonosurgical treatment enters the scene to try to soften the distance between the voice and the psychic individual. Some techniques developed by Isshiki, Wendler, Gross and Le Jeune allow raising the fundamental frequency by reducing the mass of the oscillating vocal folds, shortening the vocal folds or increasing the tension in the vocal folds. The options includes glottoplasty, type IV Thyroplasty and laryngoplasty and may be an excellent option that helps the integration into society and facilitate daily life of this group.

Keywords: Transsexualism; Transgender women; Thyroplasty; Voice feminization; Glottoplasty

Introduction

Individuals who identify that their being and psychological gender is the opposite of their anatomical gender are described as transsexuals [1-6]. The term “transsexualism” was first used in the mid-20th century, falling into disuse over the years because the condition is not described as a disease, but a gender disorder [2]. According to Eicher, transsexuality is a complex and permanent transposition, whose causes are not yet known. In the vast majority of cases, paradoxical feelings may be traced back to childhood, and at one time or another they cause so much pain and anguish that the patient begins to consider undergoing the sex change process that involves hormonal, behavioral, and surgical therapies [1].

The prevalence of the gender disorder is still uncertain and varies according to geographic characteristics, but it can be estimated at 1:100,000 to 1:2900 in Asian and European countries, and in 1:35,000 to 1:50,000 in a Brazilian study [4].

Currently, due to new legislation, this group of people is being socially better accepted and receiving more medical support than in the past. It is important that before a sex change process begins, a psychiatrist evaluates the patient to exclude any possible sexual identity disorders such as psychosis, transvestism, homosexuality and adolescent conflicts [1].

The voice can be considered a secondary sexual character and influences how the individual is seen and recognized by the environment that surrounds them [1,4]. The fundamental frequency and timbre are the basic gender-specific characteristics of the voice. For trans women, voice function remains the main obstacle for them to find a new sexual identity, as, in contrast to trans men, hormone therapy does not significantly and lastingly alter the voice of these individuals [1,4-6].

The fundamental frequency or pitch in cisgender women is around 220 Hz and in cisgender men it is 120 Hz [2].

Speech therapy for voice alone does not usually produce satisfactory results, not only because of the effort of trying to keep a “falsetto”, but also because the original voice tends to emerge when the woman is frightened or awakened [1,3,5].

In many cases, this result instructs pathological vocalization, which gives the impression of hyper functional dysphonia and gives rise to subjective complaints such as hoarseness, globus sensation, or even may result in a voice unable to withstand an effort.

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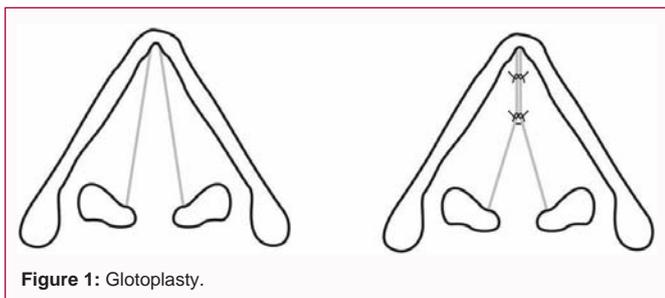


Figure 1: Glotoplasty.

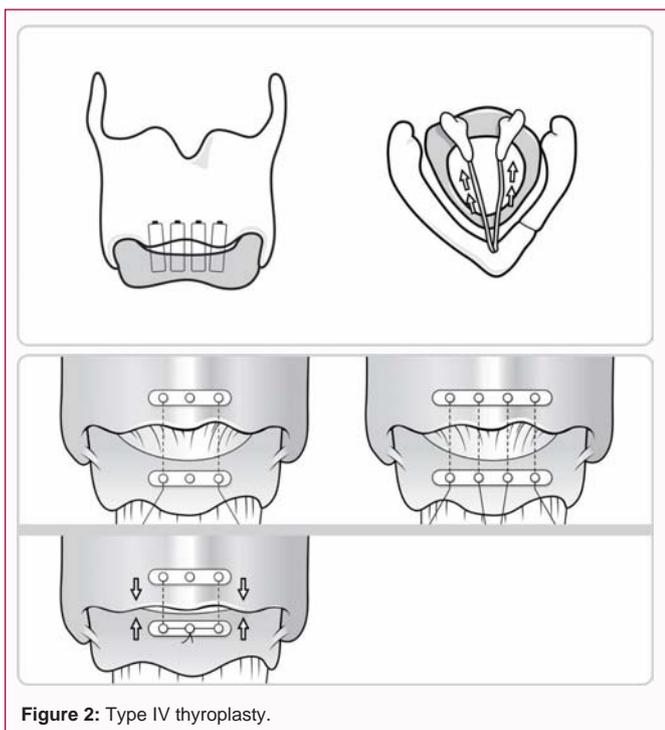


Figure 2: Type IV thyroplasty.

Aspects of non-verbal communication are also of great relevance in the therapy of these individuals, as the voice accompanied by other behavioral traits such as speech speed, variation in the tone of the voice, voice volume (women tend to speak lower), gestures and use of facial expressions complement the feminization process of these women [1-4].

Phonosurgical treatment helps patients who are recognized as transsexuals to be integrated into society and facilitate daily life. For the patients in question, adapting to their new voice strengthens their sexual identity, the way they relate to their bodies, their self-esteem and, consequently, improves their general well-being.

For the reasons mentioned above, after the phase of surgical transformation of the primary sexual characteristics, phonosurgery must be integrated into the therapeutic program and the secondary sexual characteristics must be transformed. So far, authors such as Isshiki, Wendler, Gross, Le Jeune, Tucker, Donald, Mahieu and Sataloff have described different operational techniques for raising the tone of voice [1].

In principle, it is possible to raise the fundamental frequency by reducing the mass of the oscillating vocal folds, shortening the vocal folds or increasing the tension in the vocal folds [1]. For a long time, it has been accepted that the three fundamental principles cited are essential preconditions for increasing tone. However, pitch

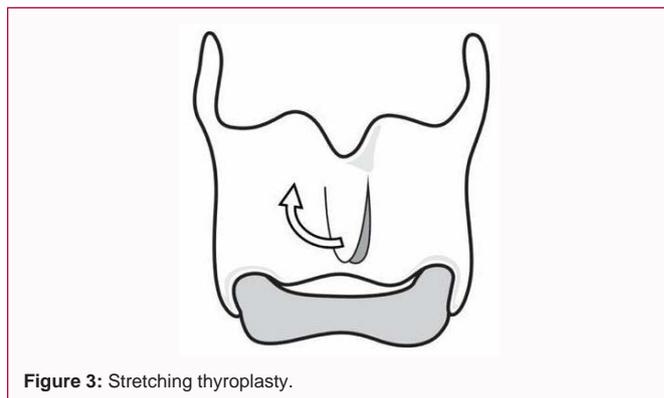


Figure 3: Stretching thyroplasty.

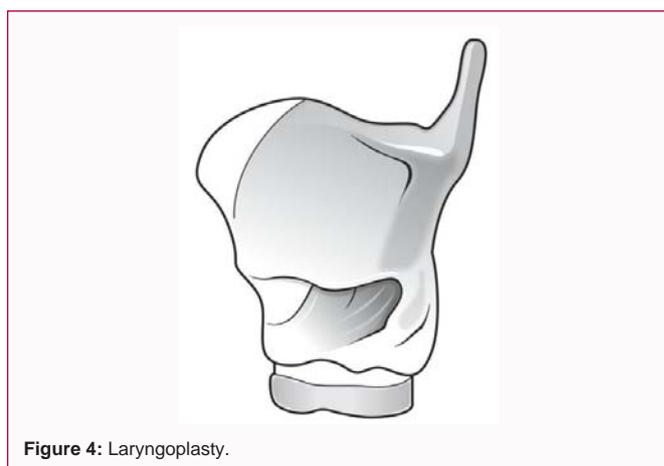


Figure 4: Laryngoplasty.

is a functional acoustic result from not only the tension, mass and length of the vocal folds, but also from the subglottic pressure and the resulting change in pharyngeal dimensions, forming a modifying resonance. The feminization of the voice must consider these three fundamental principles, as well as changing the phonatory pattern for women [1].

Glotoplasty

Wendler and Gross described glotoplasty or the creation of a front “web” (synechia). This procedure requires general anesthesia and suspension laryngoscopy. After positioning the patient in the supine position and placing the suspension laryngoscope, a microscope or rigid scope is used to visualize the surgical area. This technique involves de-epithelialization of the anterior portion of the free edge of the vocal folds close to the anterior commissure and suturing this portion with 1 or 2 non-absorbable sutures (PDS, for example). In this way, reducing both the undulatory portion of the vocal fold and its length. This procedure has the advantage of being performed via the endolarynx, without the need for incisions in the cervical region, and some studies have stated that this procedure more effectively increases the fundamental frequency compared to type IV thyroplasty. As a disadvantage, it presents a higher incidence of dysphonia in the postoperative period and an irreversible irregular edge of the vocal fold [1-3,5,6].

Type IV Thyroplasty

Isshiki explores a type IV thyroplasty or cricothyroid approach, this surgery increases vocal fold tension mimicking the action of the cricothyroid muscle. This procedure can be performed using local anesthesia and sedation, even to help adjust the voice. The patient

is placed in the supine position, with the head hyper extended by placing a sling under the shoulders. After positioning the patient, a thyroid cartilage is palpated so that it can be made available to the incision site. The midline on the chin, neck and sternal notch is also marked. An incision should be horizontal about 3 cm to 4 cm. After performing dissection by planes, the thyroid cartilage must be widely exposed. The lower edge of the thyroid cartilage is then approximated to the upper edge of the cricoid cartilage, obtained through 2 sutures with non-absorbable thread (PDS or nylon), but it is currently also performed using titanium miniplates fixed as cartilages [1,3,8]. As a disadvantage, this approach is performed with an anterior cervical incision, that is, the patient will have a visible scar in the postoperative period [1,2,5,6].

The surgery is not for those patients who already have a higher pitched voice and for those who practice singing. It can also be more difficult in older patients [2].

Stretching Thyroplasty

Stretching thyroplasty is a less-used option, but it consists of exposing the thyroid cartilage in the same way as in type IV thyroplasty. With a section in the anterior portion of the thyroid cartilage at the time of insertion of the vocal folds (starting at the end of the upper third of its length and without exceeding the lower edge of the cartilage) and the advancement of this addition a few millimeters (2 mm to 4 mm) aiming at increasing the tension of the vocal folds [2,8].

Reduction of Vocal Fold Mass

It can be performed through laser scarification or steroid injection, resulting in tissue atrophy [2-4]. In both technical options, the patient is positioned in dorsal decubitus and the suspension laryngoscope is placed for the procedure to be performed. As it is performed endolaryngeally using a microscope or rigid optics, it does not result in a visible scar for the patient.

It is not uncommon to need more than one surgical procedure or a combination of procedures in the laryngeal framework and in the structure of the vocal fold so that the result is a higher voice [2].

Laryngoplasty

The ultimate goal of this procedure is to reduce the Adam's apple or thyroid prominence mainly through scraping it with the use of

drills. This procedure can be performed in the same surgical time as type IV Thyroplasty, using the same cervical incision [1].

During the postoperative period, multidisciplinary therapy and monitoring are extremely important, involving the various medical teams (Otorhinolaryngology, Endocrinology, Plastic Surgery, Urology and Psychiatry), as well as the psychology and speech therapy team so that the feminization of the voice occurs as completely as possible. Because both the voice itself and the articulation and resonance are factors of great relevance in this entire process.

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