

Transgender man voice therapy: a case report

Terapia de voz de um homem transgênero: um relato de caso

Terapia de voz de un hombre transgénero: informe de caso

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Abstract

Introduction: Hormone therapy reduces the vocal fundamental frequency of transgender men, but the evidence suggests that it does not modify other female communication characteristics, what may result in insufficient male communication patterns. Objective: To describe the voice therapy and its results on the voice of a 35-year-old transgender man. Methods: His main complaints were voice incompatible with his gender and vocal oscillation after hormonal treatment, started eight months prior to the study. Based on the speech evaluation, a therapeutic planning was elaborated aiming at developing: descending pitch at the end of sentences; decreasing vowel prolongation; "chest resonance"; decreasing pitch variation; costodiaphragmatic breathing; vocal projection and quality; maximum phonation time and pauses; decrease and stabilize fundamental frequency; adjust the resonance; decrease pitch and increase loudness; decrease the tension on the labial commissures; and develop male aspects of speech and language. Ten voice therapy sessions were held once a week, lasting 45 minutes each. Results: After voice therapy, there was decreased pitch variation during speech, increased pauses, focusing on the interlocutor, and "chest resonance"; this developed descending pitch at the end of sentences, decreasing vowel prolongation, and pitch variation, as an exercise to stimulate male voice markers and vocal stability. Even after the hormone-induced vocal changes, he still had complaints about his voice, which improved with the aid of voice therapy. Conclusion: Speech therapy provided the development of male vocal

markers in his voice. It became compatible with his gender and allowed him to be recognized as a man by his voice, and to be pleased with it.

Keywords: Gender dysphoria; Speech, Language and hearing sciences; Speech therapy; Transgender person and Voice.

Resumo

Introdução: Em homens transgênero, a terapia hormonal reduz a frequência fundamental da voz, mas as evidências sugerem que outras características femininas de comunicação não são modificadas pela terapia hormonal, podendo resultar em padrões de comunicação masculinos insuficientes para o indivíduo. **Objetivo:** Descrevemos a terapia vocal e seus resultados na voz de um homem transgênero com 35 anos de idade. **Métodos:** Suas principais queixas eram de voz incompatível com seu sexo e oscilação vocal após o tratamento hormonal, iniciado oito meses antes do estudo. Com base na avaliação da voz, foi elaborado um planejamento terapêutico com o objetivo de desenvolver: pitch descendente ao final das frases; diminuição do prolongamento das vogais; ressonância "de peito"; diminuição da variação do pitch; respiração costodiafragmática; projeção e qualidade vocal; tempo máximo de fonação e pausas; diminuir e estabilizar a frequência fundamental; ajustar a ressonância; diminuir o pitch e aumentar a loudness; diminuir a tensão nas comissuras labiais; e desenvolver aspectos masculinos de fala e linguagem. Foram realizadas dez sessões de terapia vocal uma vez por semana, com duração de 45 minutos cada. **Resultados:** Após a terapia vocal, houve diminuição da variação do pitch durante a fala, aumento de pausas, foco no interlocutor, e ressonância "de peito"; desenvolveu-se o pitch descendente no final das frases e diminuiu-se o prolongamento das vogais e a variação do pitch, como um exercício para estimular os marcadores de voz masculina e a estabilidade vocal. Mesmo após as alterações vocais induzidas por hormônios, ele ainda tinha queixas sobre sua voz, que melhoraram com o auxílio da fonoterapia. **Conclusão:** A terapia vocal proporcionou o desenvolvimento de marcadores vocais masculinos em sua voz. A voz tornou-se compatível com seu gênero e permitiu que ele fosse reconhecido como homem por meio da voz, e ficou satisfeito com isso.

Palavras-chave: Disforia de gênero, Fonoaudiologia; Pessoas transgênero; Terapia vocal e voz.

Resumen

Introducción: En los hombres transgénero, la terapia hormonal reduce la frecuencia fundamental de la voz, pero la evidencia sugiere que otras características de comunicación

femenina no se modifican por la terapia hormonal, lo que puede resultar en patrones de comunicación masculinos insuficientes para el individuo. Objetivo: Describimos la terapia vocal y sus resultados en la voz de un hombre transgénero de 35 años. Métodos: Sus principales quejas fueron que su voz era incompatible con su sexo y que tenía oscilaciones vocales después del tratamiento hormonal, que comenzó ocho meses antes del estudio. Basado en la evaluación de la voz, se desarrolló una planificación terapéutica con el objetivo de desarrollar: pitch descendente al final de las oraciones; extensión disminuida de vocales; resonancia “de pecho”; disminución de la variación del pitch; respiración costodiafragmática; proyección y calidad vocal; tiempo máximo de fonación y pausas; disminuir y estabilizar la frecuencia fundamental; ajustar resonancia; disminuir el pitch y aumentar el loudness; disminuir la tensión en las comisuras labiales; y desarrollar aspectos masculinos del habla y el lenguaje. Se realizaron diez sesiones de terapia vocal una vez a la semana, con una duración de 45 minutos cada una. Resultados: Después de la terapia vocal, hubo una disminución en la variación del pitch durante el habla, un aumento en las pausas, con un enfoque en el interlocutor y la resonancia “de pecho”; el pitch descendente al final de las oraciones fue desarrollado, disminuyó la longitud de las vocales y la variación del pitch, como un ejercicio para estimular los marcadores de voz masculinos y la estabilidad vocal. Incluso después de los cambios vocales inducidos por las hormonas, todavía tenía quejas sobre su voz, que mejoró con la ayuda de la terapia de voz. Conclusión: La terapia vocal proporcionó el desarrollo de marcadores vocales masculinos en su voz. Se volvió compatible con su género y le permitió ser reconocido como hombre por su voz, y estar satisfecho con él.

Palabras clave: Disforia de género; Fonoaudiología; Personas transgénero; Logoterapia y voz.

1. Introduction

Gender is understood according to the cultural interpretation of sex and the behavior of the individual in society. Gender incongruity refers to the desire to be of the opposite sex, often accompanied by discomfort with anatomical sex. Transgender men feel like men, but they have women's biological bodies. Thus, procedures are performed that seek congruence with the intended sex, such as hormone therapy (Bergel & Pinho, 2001; Nygren, Nordenskjöld, Arver, & Södersten, 2016; Watt, Tskhay, & Rule, 2017; Schmidt, Goulart, Dorfman, Kuhl, & Paniagua, 2018; Dornelles, Serpa, Krueh, Guazina, & Carlesso, 2019).

In transgender men, hormone therapy induces and maintains masculinization by keeping testosterone levels within the male range, requiring lifelong use, and also producing some irreversible changes in the voice (Bergel & Pinho, 2001; Bultynck et al., 2017; Irwig, Childs, & Hancock, 2016). The use of male hormones in transgender men helps with vocal changes, increasing vocal folds' mass, and lowering the fundamental frequency (f₀). For most transgender men, hormone therapy is effective for body and vocal changes, so the search for vocal care is less frequent. Although f₀ lowering occurs with hormone therapy, evidence suggests that voice and gender identity may not fully align, so voice-gender congruence may not be achieved. Other female communication characteristics are not modified by hormone therapy, and it may not result in communication patterns that are masculine enough for the individual; vocal instability is also frequently observed (Nygren et al., 2018; Bultynck et al., 2017; Thornton, 2008; The World Professional Association For Transgender Health – Wpath [WPATH], 2011; Ziegler, Henke, Wiedrick, & Helou, 2018).

There are reports regarding the perception of vocal instability at the beginning of hormone therapy, similar to that experienced by adolescents during puberty, leading to voice therapy (Watt et al., 2017; Schmidt et al., 2018; Thornton, 2008; Ziegler et al., 2018). It is recommended systematic voice assessments during testosterone treatment because testosterone treatment may not always result in communication patterns that are masculine enough for the individual, and vocal instability is also frequently observed (Nygren et al., 2018; Buckley, Dahl, Cler, & Stepp, 2019).

Not all transgender men individuals undergoing testosterone therapy to masculinize voice should expect f₀ lowering down to cisgender male normative frequencies after 1 year. Transgender men who pursue voice masculinization may need management from laryngology and speech-language therapy to improve voice-gender congruence, mitigate voice problems, and increase satisfaction with voice (Ziegler et al., 2018).

Our objective was to describe the steps of the voice therapy and its results on the voice of a transgender man under female-to-male change hormone treatment. Even with the hormone-induced changes, the subject had complaints regarding his voice, which improved with the aid of voice therapy. This case report adds to the scant literature on voice masculinization in transgender men, with very few works documenting the effects of voice therapy in this population. This case report therefore contributes with significant new knowledge.

2. Case Report

T.M., 35 years old, 60 kg and 1.58 m, unemployed, diagnosed with gender dysphoria (GD, DSM-V), undergoing female-to-male change hormone treatment, started voice therapy in a university clinic. The hormone treatment started eight months prior to the study. T.M. authorized the use of the data from therapy and evaluation for scientific studies preserving his identity and signed the Consent Form (Ethics Committee 23081. 016945).

In the medical history taking, the reported complaints were; “would like to have my voice more adequate to my masculine gender, lower”; “my voice oscillates during the day, it is lower just after waking up”; feeling uncomfortable to “impose the voice”. T.M. was treated by an endocrinologist, and he was also referred to a psychologist, a dentist, and an otolaryngologist by the clinic. T.M. was in the waiting queue for gender confirming surgery at a specialized hospital. Data collections started after the medical history taking (Tables 1 and 2). The audiological diagnosis was hearing threshold within normal limits bilaterally, type "A" tympanometry curves, and bilaterally present acoustic reflexes. Adequate hearing is necessary for self-monitoring of vocal emission (Menezes, Luz, Bastilha, Christmann, & Cielo, 2020).

The therapeutic planning aimed at improving the lowering and stabilization of f_0 , develop male vocal markers, and promote the self-satisfaction of T.M. with his voice. T.M. received guidance on the anatomophysiology of the vocal apparatus, on the female and male anatomophysiological and vocal quality characteristics, on his awareness of the characteristics of his own voice, and on vocal health. The therapy objectives were to develop the costodiaphragmatic breathing; the pneumophonoarticulatory coordination; improve vocal projection and quality; increase maximum phonation time (MPT) and pauses; lower and stabilize f_0 ; adjust the resonance; decrease pitch and increase loudness; decrease the tension on the labial commissures and the jaw during speech; develop male vocal markers; and develop male aspects of speech and language.

Were used the spaghetti technique (breathing air through the mouth as done when “sucking spaghetti”, with rounded and protruded lips) (Pontes & Pinho, 2008); the prolonged /b/ technique; and laryngeal massage. These techniques aimed at improving vocal projection and at lowering the larynx and f_0 . Three sets of 15 repetitions of each technique were performed, with 30 seconds of rest between sets, followed by 3 periods of laryngeal massage (after 3 sets of one technique, another 3 sets of the following technique were performed, and then 3 periods of laryngeal massage were performed). Each period of laryngeal massage

lasted 3 minutes, with 30 seconds of rest between periods. The performance was in front of the mirror, followed and fed back by the speech therapist throughout.

After the performance, texts were read promoting vocal self-monitoring, decreased pitch variation during speech, increased pauses, focus on the interlocutor, and “chest resonance”; this developed descending pitch at the end of sentences, decreasing vowel prolongation, and lower pitch variation, as an exercise to stimulate male voice markers and vocal stability. In addition, T.M. trained making sentences shorter and more affirmative, choosing words identified as from the male vocabulary (e.g., avoid diminutives), and using objective and direct language in his spontaneous speech, to achieve a voice and communication style that is congruent with his gender identity.

Ten 45-minute voice therapy sessions were held, once a week. After reevaluation (Tables 1 and 2) several aspects showed improvements. T.M. mentioned that he was pleased with his own voice, now lower and more stable, as he wanted. He was discharged from voice therapy, instructed to continue with the exercises and the self-monitoring, in order to keep his voice in good condition.

3. Results and Discussion

In Table 1, the result of the voice therapy assessments and reassessments, noting improvements in several aspects.

Table 1 – Result of the voice therapy assessments and reassessments.

	PRE-VOICE THERAPY	POST-VOICE THERAPY
MPT(s)	/a/ = 13 s	/a/ = 14 s
	/i/ = 14 s	/i/ = 14 s
	/u/ = 14 s	/u/ = 14 s
	/s/ = 9 s	/s/ = 13 s
	/z/ = 10 s	/z/ = 14 s
	/è/ = 9 s	/è/ = 10 s

		/e/ = 11 s	/e/ = 13 s
Ratio	s/z	0.9	0.9
	è/e	0.8	0.7
Voice type and vocal quality		Mild strained and feminine, mild vocal effort	Normal (low) and stabilized
Articulation		With smile (lateralized lip commissures), jaw slightly locked	Precise
Pauses		Few and short	Adequate
Mode fundamental frequency (f0)		155 Hz	116 Hz
Vocal Register		Oscillation from modal head to modal chest	Modal chest
Resonance		Anterior, pharyngeal	Balanced
Pitch		High	Adequate
Loudness		Decreased (weak)	Adequate
Breathing Type and Mode		Mixed Type and Nasal Mode	Mixed Type and Nasal Mode
Vital capacity		2200 ml	2500 ml
Composed phonic coefficiente		183 ml/s	170 ml/s

Legend: MPT - maximum phonation times; voiceless /e/ and /e/.
 Source: authors.

In Table 2, the result of self-assessment protocols showing improvements in several aspects.

Table 2 - Result of Self-Assessment Protocols.

	PRE-VOICE THERAPY (score)	POST- VOICE THERAPY (score)
Transsexual Voice Questionnaire*	79	44
Vocal Performance	34	25
Speech Volume and Voice Volume Degree	degree of speech amount = 3 voice volume degree = 2	degree of speech = 5 voice volume degree = 3
Vocal Behavior Profile	39	37
Hospital Anxiety and Depression Scale	anxiety = 6 depression = 6	anxiety = 4 depression = 2
Voice Activity and Participation Profile	128	33
Voice Handicap Index	functional = 19 physical = 27 emotional = 19	functional = 9 physical = 10 emotional = 11
Voice-Related Quality of Life	total = 47.50% emotional = 56.25% physical = 41.66%	total = 90% emotional = 93.75% physical = 79.16%
Voice Symptom Scale	total = 39 limitation = 27	total = 21 limitation = 15

	emotional = 8 physical = 4	emotional = 1 physical = 5
URICA-Voice	8.9 – contemplation	10.5 – contemplation

Legend: *Transsexual Voice Questionnaire modified version (the questions: 3. My voice makes me feel less feminine than I would like; 4. The pitch of my speaking voice is too low; 6. My voice gets in the way of me living as a woman; 9. My voice gets croaky, hoarse or husky when I try to speak in a female voice; 10. My voice makes it hard for me to be identified as a woman; 18. When I am not paying attention my pitch goes down; 19. When I laugh I sound like a man; and 28. It distresses me when I'm perceived as a man because of my voice, have been adapted to: 3. My voice makes me feel less masculine than I would like; 4. The pitch of my speaking voice is too high; 6. My voice gets in the way of me living as a man; 9. My voice gets croaky, hoarse or husky when I try to speak in a male voice; 10. My voice makes it hard for me to be identified as a man; 18. When I am not paying attention my pitch goes up; 19. When I laugh I sound like a woman; and 28. It distresses me when I'm perceived as a woman because of my voice).

Source: Authors.

T.M. underwent hormone treatment for masculinization, which brought about vocal and body changes. But he presented female characteristic traits such as ascending pitch at the end of sentences, vowels prolongation, pitch variation during speech, few and short pauses, high pitch, f0 within the female frequency range (Bergel & Pinho, 2001; Nygren et al., 2018; Watt et al., 2017; Schwarz et al., 2017). Testosterone's main effect on the voice of transgender men is lowering f0, and the degree of self-satisfaction with the voice change, the listeners' perception, and the degree of change in the voice may vary. It is recommended systematic voice assessments during testosterone treatment because it may not always result in communication patterns that are masculine enough for the individual, and vocal instability is also frequently observed.

Research reveals that voice-gender incongruence may persist in transgender men undergoing testosterone treatment; some transgender men report dissatisfaction with their pitch after several months of testosterone treatment; others report negative voice symptoms after testosterone treatment (Nygren et al., 2018; Buckley et al., 2019). The speech therapist intervention is required because, unlike f0, some aspects such as articulation, pitch variation, resonance, vocabulary, and nonverbal behavior of the voice are not altered by hormone therapy.

A study (Bultynck et al., 2017) investigated voice self-perception during hormone therapy in 80 transgender men and 103 transgender women, aged 16 to 69 years. After hormone therapy the voice self-perception improved for transgender men. Another study investigated the effects of testosterone treatment on voice masculinization, voice problems, and voice satisfaction in 50 transgender men aged 18-64 years (Nygren et al., 2018). Most

transgender men were found to have developed a male voice, and they were satisfied; however, there was a group of transgender men with voice problems and insufficient voice masculinization. This indicates that voice therapy may improve voice masculinization in transgender men under hormone therapy.

The expected f_0 for the female voice is within the 150 to 250 Hz frequency range, and the male voice is within the 80 to 150 Hz range (Schwarz et al., 2017; Chaloner, 2001; Menezes et al., 2020). T.M. had f_0 within the female range (155 Hz) and a high pitch before voice therapy, and f_0 reached 116 Hz within the male range (Table 1) after therapy.

In addition to f_0 , factors such as pitch variation, articulatory peculiarities, vocabulary, culture, and accent, also influence gender perception based on the voice (Watt et al., 2017; Schmidt et al., 2018). In agreement with the literature (Nygren et al., 2018; WPATH, 2011; Schwarz et al., 2017; Chaloner, 2001) about the characteristics of the female voice, it was observed in T.M. an articulation with a smiling face (contributing to the high pitch), ascending pitch at the end of sentences, wide pitch variation, few and short pauses, and increased vowel prolongation. We sought to change these characteristics into male markers; closed articulation, descending pitch at the end of sentences, narrow pitch variation, more and longer pauses, and decreased vowel prolongation. We used text reading, voice therapy sessions with self-monitoring with a mirror, and feedback throughout therapy, as well as making sentences shorter and affirmative, choosing words identified as from the male vocabulary, and using direct and objective language.

A study (Thornton, 2008) shows that female speech tends to be slower, with lighter and more accurate articulation than the male speech. The man tends to end sentences with descending pitch, and the woman with ascending pitch; the female voice has wider pitch modulation, the male voice is more monotonous and stable (Chaloner, 2001).

Another characteristic of the male voice, "chest resonance", was trained; the sensation of the voice vibrating in the chest, through self-monitoring and reinforcement of the control over the lower larynx, and the mental imaging of voice production in the chest. The spaghetti technique was used to provide soft palate and tongue dorsum elevation, pharyngeal widening, and laryngeal lowering by contraction of the sternothyroid muscle (Pontes & Pinho, 2008); the prolonged /b/ technique to lower the larynx, improve glottal closure, relax the pharyngeal and laryngeal muscles, stabilize the emission, decrease f_0 , increase MPT and the amplitude of vocal fold vibration; and the laryngeal massage was used to lower the larynx. These promoted f_0 lowering, pitch adequacy, decreased effort and strained voice, and voice stabilization.

After voice therapy, T.M. felt greater satisfaction with his own voice, and improved quality of life, as shown by the results in Table 2. After therapy he stated “Now my voice is better, it was too high and I wanted it to be adequate to my male gender, have it lower, that is why I looked for help. Now it is lower as I wanted it to be, that is why I am happy with the results.” For a successful gender transition, vocal quality self-perception is essential. Having the intended gender identified by the voice, improves the quality of life (Watt et al., 2017; Schmidt et al., 2018; Thornton, 2008; Chaloner, 2001).

4. Conclusion

Voice therapy provided the development of the male vocal markers in the voice of a transgender man undergoing female-to-male change hormone treatment, improving the f0 lowering already promoted by the hormone treatment. The voice became compatible with his gender, allowing him to be recognized as a man by his voice, and to be pleased with his own voice.

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Percentage of contribution of each author in the manuscript

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