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Thyroplasty for idiopathic unilateral vocal fold paralysis in an oldest patient of 88 years with restoration of voice: A case report

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Abstract

The objective of this article is to illuminate a remarkable case of thyroplasty conducted on the world's oldest patient, an 88-year-old gentleman, suffering from Idiopathic Unilateral Vocal Fold Paralysis (UVFP) with restoration of his vocal capabilities. Thyroplasty Type 1, originally delineated by Professor Isshiki, has long been regarded as the gold standard for voice restoration in individuals afflicted with Unilateral Vocal Fold Paralysis.

A male patient, aged 88 years, presented at the Outpatient Department of the Sri Sathya Sai ENT and Melody Voice Clinic in Guntur, Andhra Pradesh, India, in February 2025, with a protracted history of hoarseness and episodic choking incidents while consuming liquids, persisting for a duration of six months. Following a thorough clinical examination and a series of diagnostic investigations, the diagnosis of Idiopathic Vocal Fold Paralysis was established. The patient subsequently underwent Thyroplasty Type-1 utilizing the Sandwich Technique under local anesthesia, resulting in an immediate enhancement of vocal quality on the operating table. Thereafter, he engaged in a structured voice therapy regimen for six weeks, with follow-up assessments conducted every three months to date, demonstrating sustained vocal improvement. Pre- and post-operative evaluations, including Video Laryngostroboscopy, Flexible Dynamic Phonation Endoscopy, Maximum Phonation Time, and Audio-Video Voice Recordings, were meticulously documented as parameters throughout the follow-up period.

Keywords: Vocal fold paralysis, thyroplasty, phonosurgery in elderly

Introduction

Type 1 thyroplasty, also referred to as Medialization thyroplasty (ML), is the most prevalent surgical intervention employed to rectify Unilateral Vocal Fold Paralysis. Prof. Isshiki *et al.* first introduced the concept of thyroplasty for medialization of vocal fold with silicone implant ^[1]. Advantages of thyroplasty include its reversibility, durability, and the ability to be conducted under local anesthesia with minimal sedation, all while the patient's vocal performance is monitored on the operating table.

The etiology of a hoarse voice in Unilateral Vocal Fold Paralysis (UVFP) is attributed to the glottal gap that exists between the functional vocal fold and the paralyzed counterpart during phonation. The principle of Thyroplasty surgery involves the creation of a surgical window at the level of the paralyzed vocal fold within the thyroid lamina of the neck, performed under local anesthesia. A silicone implant is then meticulously positioned within this Thyroplasty window, thereby medializing and displacing the paralyzed vocal fold towards the mid-line. This intervention effectively closes the glottal gap, resulting in an immediate enhancement of vocal quality. Silicone has been extensively utilized by voice surgeons and is regarded as the preferred implant for type-1 thyroplasty due to its intrinsic advantages of custom carving and cost-effectiveness. However, its primary drawback lies in the challenges associated with securing and affixing it within the thyroplasty window. To address these fixation issues pertaining to the silicone implant, the author has conceived an innovative technique known as Sandwich Thyroplasty, which offers a streamlined, rapid, and efficient method for securing the silicone implant within the thyroplasty window ^[2].

Case report: A male patient, approximately 88 years of age, presented at the Outpatient Department of the Sri Sathya Sai ENT and Melody Voice Clinic in Guntur, Andhra Pradesh, India, in February 2025, with a chief complaint of hoarseness of voice and episodes of choking while consuming water, persisting for a duration of six months.

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He had previously undergone speech and swallowing therapy at another medical center, with minimal benefit. Following a comprehensive clinical assessment and an array of diagnostic evaluations, the determination of Idiopathic Vocal Fold Paralysis (L) was conclusively made. Video Laryngostroboscopy was showing mid-fold glottal gap during phonation as shown in Fig-1. His Maximum Phonation Time (MPT) was 3 seconds. Audio Video recording of the voice was done for documentation and for perceptual voice analysis.

After obtaining informed consent, the patient underwent Type 1 Thyroplasty employing the Sandwich technique, executed under local anaesthesia at Vikas Hospital in Guntur, Andhra Pradesh, India, on the 17th of February, 2025. While the patient was positioned supine with the neck in a neutral alignment, a transverse incision measuring 4 centimeters was made along the skin crease following the administration of 1% Lidocaine just above the cricoid cartilage. The thyroid lamina was subsequently exposed on the paralyzed side. A thyroplasty window was delineated according to the Half to Half rule of Peak Woo [3]. The margins of the window were meticulously excised using an Otodrill in accordance with the Sandwich technique. A silicone implant was introduced into the window, and vocal function was assessed utilizing Maximum Phonation Time (MPT). The silicone implant was secured within the window via the Sandwich technique as seen in Fig- 2, and the wound was closed in layers, leaving a drain in situ. During the procedure, a remarkable enhancement in vocal quality was observed on the operating table, with MPT reaching 6 seconds. The positioning of the medialized vocal fold and the closure of the glottal gap were further corroborated by transnasal flexible video nasopharyngolaryngoscopy.

Postoperatively, the patient was discharged after 48 hours with instructions to observe absolute voice rest for 7 days, alongside a regimen of corticosteroids for 3 days and antibiotics for 7 days. He subsequently engaged in voice therapy for a duration of 6 weeks. One month post-surgery, videolaryngostroboscopy revealed excellent closure of the midfold glottal gap accompanied by a normal mucosal wave over the paralyzed vocal fold as shown in Fig-3. Maximum Phonation Time had increased to 9 seconds, and his audio-visual recording exhibited a remarkable enhancement in vocal quality.

Follow-up assessments conducted every three months to date have demonstrated sustained vocal improvement.

Discussion

Thyroplasty type I, also referred to as Medialization Thyroplasty, is a phonosurgical intervention primarily employed to reposition a paralyzed vocal fold towards the midline. The application of silicone implants in medialization thyroplasty has been acknowledged as a safe and efficacious surgical approach for the management of Unilateral Vocal Fold Paralysis (UVFP). Since the inception of thyroplasty for the medialization of the vocal fold utilizing silicone implants, a multitude of modifications have been introduced to optimize the procedure and enhance its effectiveness. To surmount the challenges associated with the stabilization of the silicone implant within the thyroplasty window, the author has devised an expedient, straightforward, and innovative technique designated as Sandwich Thyroplasty, which refines the thyroplasty window as originally delineated by Prof. Isshiki. Review of

literature reveals that there is no strict upper age limit for Type I Thyroplasty; suitability depends on individual health and vocal needs. Cartilage ossification in older patients may require technique adjustments but does not preclude surgery.

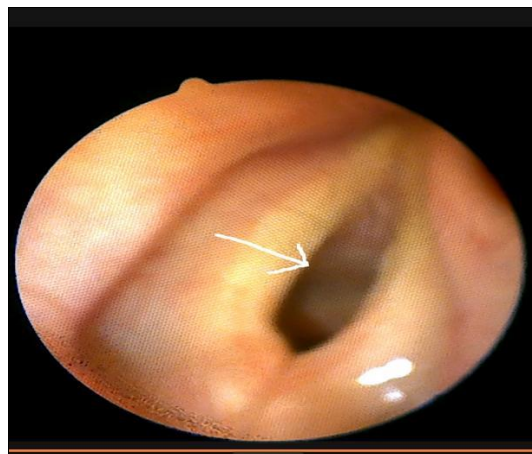


Fig 1: Video laryngostroboscopy showing (white arrow) mid-fold glottal gap due to Unilateral Vocal Fold Paralysis (L)



Fig 2: Silicone implant (white arrow) secured in the Thyroplasty window for medialization of vocal fold (L)

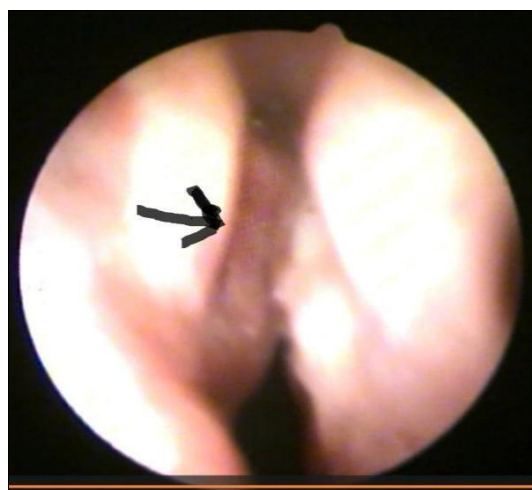


Fig 3: Video laryngostroboscopy showing (black arrow) closure of glottal gap after Thyroplasty surgery

Conclusion

Type I Thyroplasty is frequently favored for the management of Unilateral Vocal Fold Paralysis in older

adults, owing to its commendable safety profile when performed under local anesthesia. Key clinical considerations for thyroplasty in elderly individuals include cardiopulmonary stability, the capacity to endure the procedure in a supine position for an uninterrupted duration of one hour under local anesthesia, the aspiration for vocal enhancement paired with realistic expectations, and the age-related degree of vocal impairment. The case report presented herein highlights that Thyroplasty conducted on an 88-year-old individual is believed to represent the first documented instance of this procedure performed on a patient of such advanced age worldwide.

Authors declare: No conflict of interest.

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