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Puberphonia-surgical management with modified ishiki thyroplasty type III

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ABSTRACT

The case consisted of a young male with mutational dysphonia, who aged 25years. The speaking fundamental frequencies (SFFs) at the time of the initial diagnosis was 174.6. In this patient, voice therapy proved ineffective; therefore, surgery was considered. In the anterior-posterior compression test performed preoperatively in this patient, the voice became low-pitched. The SFFs decreased postoperatively to 106.9, Hz, in this patient. Type 3 thyroplasty (TP3) is effective for the treatment of patients with mutational dysphonia in whom voice therapy proved unsuccessful. The SFF of men is high in childhood. At the time of the second pubescent sexual orientation, the frequency usually decreases. However, in some cases, the high-pitched voice of childhood may persist without successful switch to a low-pitched voice during puberty. Thus, there are rare cases of adults with a high-pitched boyish voice. Voice therapy is usually effective for the treatment; however, it may fail in some cases. We performed TP3 for subjects in whom voice therapy proved ineffective. With TP3, the tension of the vocal folds decreases and the voice becomes low-pitched.

Key words: Mutation; Voice therapy; Kayser-Gutzmann method; Androgen; Phonosurgery; Framework surgery

INTRODUCTION

The persistence of adolescent voice even after puberty in the absence of organic cause is known as puberphonia[1]. The condition is commonly seen in males[2-5]. Normally adolescent males undergo voice changes due to sudden increase in length of vocal cords due to enlargement of thyroid prominence (Adam's apple). This is uncommon in females because their vocal cords do not show sudden increase in length. This sudden increase in length of vocal cords is due to sudden increase in testosterone levels found in pubescent males [2,6]. Children reach puberty around 12 years of age when their hormone levels begin to become elevated. In males, this is also the age when their larynx has a rapid increase in size. The vocal cords become longer and begin to vibrate at a lower pitch (or frequency). This explains why most males go through the period of voice breaks. The vocal cords are trying to adjust to their new dimensions. No such laryngeal changes take place in females who continue using a high pitched voice. The incidence of puberphonia in India is about 1 in 9,00,000 population[3,4]. Even though the incidence is low, for a individual it causes social and psychological embarrassment.

In infants laryngotracheal complex lies at a higher level. It gradually descends. During puberty in males the descent is rapid, the larynx becoming larger and unstable and on top of it the brain is more accustomed to infant voice. The boy may hence continue using high pitched voice even after puberty or it may break into higher and lower pitches [3].

Case Report:

23 years old male came to ENT OPD Guntur medical college and hospital with complaints of persistence of adolescent voice since childhood. There was an inability to raise his voice. And he complained of voice fatigue. He was psychologically depressed due to social embarrassment

On examination his adam's apple was prominent. Laryngeal contour normal. Gutzmann pressure test (external downward pressure on the thyroid cartilage will often evoke normal sounding voice) was positive. Secondary sexual characters developed normally. Psychological evaluation shows the patient was psychologically disturbed. Initially he was referred to speech therapist and completed a course of voice therapy but he did not show any improvement may due to his stress and anger. He was emotionally disturbed and anxious to get normal adult voice. So isshiki type 3 relaxation thyroplaty was planned under local anesthesia

Procedure:

Procedure was done under local anesthesia. Previously patient was put on nil per oral for 6 hours.

Puberphonia also known as mutational falsetto or voice break. Speech therapy is must before interfering with any surgical procedure. Psychological counseling should be considered depending upon his mental status. Isshiki type III relaxation thyroplasty has shown promise in managing these patients. Schematic diagrams are shown below for better understanding of the procedure.



Fig 2. A horizontal incision was made at the lower border of the thyroid cartilage and layers separated



Fig 3 Perichondrium elevated from the thyroid cartilage, Perichondrium of the thyroid cartilage infiltrated with xylocaine



Figure 4 Thyroid cartilage was exposed and skeletonised



Figure.5 Perichondrium of the thyroid cartilage incised in the midline vertically, on either side of the Laminae of the . cartilage with fissur burr or knife



Figure 6 &7 2 – 3 mm strips of cartilage incised either side of the midline of the thyroid



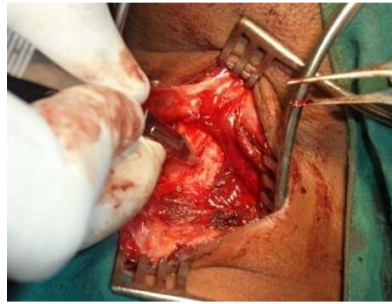


Figure 8 Middle portion of the thyroid cartilage freed on either side of the midline



Figure 9 Free border of the thyroid cartilage were reapproximated

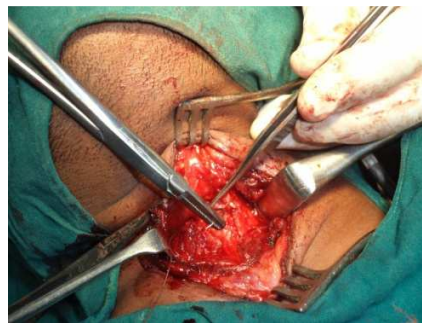


Figure 10. Wound closed in layers



CONCLUSION

Even though speech therapy is the most accepted management modality in managing these patients, in extreme cases if the situation warrants a surgeon should extend his longest arm to rescue the patient

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