ORIGINAL ARTICLE

Functional Aphonia: a New Approach to Treatment

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ABSTRACT

Background: Aphonia in young females is attributed as functional pathology.
Objective: To document the new treatment modality for functional aphonia in young females.
Setting and Design: Retrospective study in ENT department of Sargodha Medical College Sargodha.
Subjects & methodology: Records of these young female patients presenting with aphonia from January 2008 to December 2010 was collected, new treatment modality and its results were analyzed.
Results: The success rate of the procedure was around 91.3%
Conclusion: In treating aphonia vocal card stretching with Fiber optic Laryngoscope is required and it is excellent in results, cost and time saving procedure too.
Key words: Functional Aphonia, Flexible Nasolaryngoscope, Vocal card

INTRODUCTION

Hoarseness is a common complaint in today's fast paced high stressed life. In medical terminology it is considered a generic term used to describe a vocal pathologies like dysphonia, aphonia, diplophonia, odynophonia and vocal fatigue.[1] Functional Aphonia is the disease of Females. This is usually thought to have psychological basis and though undoubtedly is a Psychological component in some patients. There may be an organic etiology not yet identified. The term functional Aphonia describes Patients who presents with a whispered voice on phonation and having no visible mucosal disease in Larynx.[2]

There is deficiency of published literature on functional aphonia. In a study 74 cases of Functional Aphonia, only three were under the age of 16 years.[3] It shows it is disease of young age group. Bridger, noted that only six of their 109 dysphonic patients were in younger age group and this study included, more broadly, dysphonia as well as total aphonia.[2] Studies reports a preponderance of females presenting with functional aphonia. One study found that females are seven times more likely than males to present with this condition.[4] After the diagnosis has made and ENT investigations completed, subsequent management can vary from symptomatic treatment[5] to Psychiatric referral [6] with or without speech therapy.

Currently patients with Functional Aphonia are treated with speech therapy and Psychological counseling. It is time consuming and requires facility of speech therapist.

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MATERIAL AND METHODS

This method has been used since January 2008 to December 2011 and 46 patient had been successfully treated by using this method. This study included 46 consecutive patients between the age of 17 to40 years. 44 were females and 2 male. They were diagnosed with the help of History and IDL examination as cases of Functional Aphonia from January 2008 to December 2010.

Other causes of Aphonia like vocal card paralysis and acute Laryngitis are excluded from study. Consent from patient was obtained before the commencement of procedure. Patients were advised to come nil by mouth for 4 hours before the procedure. All the patients were sprayed with 4% Xylocaine spray before the procedure in nose and throat.

Fiberoptic nasolaryngoscope was introduced through nose and examination of larynx was made, vocal card seen in abduction position. With the tip of Nasolaryngoscope vocal card is made to stretched and patient is encouraged to say EEEE and then asked to cough. Procedure is repeated 3 to 6 times in single sitting. After obtaining good quality voice nasolaryngoscope withdrawn and attendant of patient were advised to indulge the patient in normal conversation.

RESULTS

There were 44 (95.65%) females and 2 (4.34%) males in the study between ages ranging from 17 to 40 years. In all patients procedure performed under L/A. Patients having other causes of change in voice had been excluded from the study. After vocal card stretching with Fiberoptic Nasolaryngoscope there was immediate improvement in voice. On repeated

stretching it kept on improving, quality ranged from no voice to low intensity voice and then normal voice. Stretching repeated 4 to 6 times in single sitting. These entire patients remained in follow up for 3 months. Out of these 46 patients only 4 (8.68%) required repetition of procedure. These 4 patients were female, subjected to this procedure one time more. Out of these 4 patients one (2.17%) could not get benefit to this procedure and had recurrence again. Success rate of procedure in Male is 100% and in female is 90.47% These 4 patient were referred to Psychiatrist for management of Neurotic problem if any.

DISCUSSION

The larynx is subdivided into three regions: the supraglottis, glottis, and subglottis. The supraglottis encompasses the area above the true vocal folds and includes the epiglottis, false vocal folds, aryepiglottic folds, and arytenoids. The glottis consists of the true vocal folds and the immediate subjacent area extending 1 cm inferiorly. The subglottis refers to the region beginning at the inferior edge of the glottis and extending down to the inferior border of the Cricoid cartilage [8]. The true vocal folds are bands of tissue comprised of muscle, fibrous ligament, and mucosa extending from the arytenoids posteriorly to the midline thyroid cartilage anteriorly.

Phonation refers to production of a primary vocal tone at the level of the vocal folds. Vocal quality is then modified by resonation through the upper airway and sinonasal tract and articulated into speech. Airway patency and protection is important during respiration and swallowing. The normal swallow mechanism includes laryngeal elevation, posterior deflection of the epiglottis, and closure of the true and false vocal folds to prevent aspiration of ingested material. Valsalva is generation of increased pressure against a tightly closed glottis. This enables functions such as cough, straining, throat clearing, and defecation. Phonation is generated by the interaction of aerodynamic forces of the exhaled air column with the viscoelastic properties of the true vocal fold mucosa as the vocal folds are held approximated (adducted) in the midline. This results in a vibratory, oscillating wave in the superficial layers of the vocal fold as air is expelled from the lungs [8].

Oscillation occurs about 100 to 300 times per second (Hz) during speech, and is greater than 1000 Hz in a soprano while singing. This is too fast for the human eye to perceive, and special techniques (such as videostroboscopy) are needed to capture vocal fold vibration. The frequency of vibration is perceived by the ear as pitch. Pitch is mainly determined by vocal fold length and tension, and is regulated by minute adjustments of the cricothyroid muscle. Increase in mass of the vocal fold can also alter pitch, as seen with polyps or an increased amount of tissue in Reinke's space [9].

The glottic vocal tone is produced at the level of the glottis (true vocal folds); it then resonates in the pharynx and nose, adding harmonics and timbre, and is articulated by fine motor control of the tongue, palate, and lips. A patient with cleft palate may have normal vocal fold function, but will have a hypernasal voice due to the palatal defect and poor velopharyngeal closure. The dysarthric patient may have normal vocal fold function, but abnormal articulation secondary to neurologic dysfunction of the tongue or lips[9]

The false (or "ventricular") vocal folds are situated superior to the true vocal folds and are separated from them by a lateral recess termed the laryngeal ventricle. The ventricle contains mucus producing glands that provide lubrication for the true vocal folds, which are themselves devoid of glandular elements. The false vocal folds are adducted only during effortful closure, as with valsalva and reflex laryngeal closure due to noxious stimuli. They do not normally approximate during phonation; however this may be observed in pathologic conditions, such as in patients with incompetent true vocal fold closure due to vocal fold paralysis, mass lesion, or presbyphonia (vocal fold changes due to aging of the larynx).

Functional dysphonia is impairment of voice production without an identifiable organic lesion [8]. Functional dysphonia often affects people in occupations that cause vocal stress, with teachers representing the largest occupational group seeking help in vocal clinics.

Hoarseness may be due to either functional or organic causes. Any patient with persistent hoarseness should be evaluated in order to establish a diagnosis. In the absence of symptoms of an acute upper respiratory infection, patients with hoarseness persisting for more than two weeks should be referred for a complete Otolaryngologic examination. This is especially important in the setting of associated risk factors for head and neck cancer (primarily tobacco and alcohol use), or worrisome coexistent symptomatology such as severe cough, haemoptysis, unilateral ear or throat pain, odynophagia, dysphagia, or unexplained weight loss.[9]

Other Causes of hoarseness may be kept in mind as a differential diagnosis of functional Aphonia. Acute laryngitis, is self-limited and related to acute respiratory illness or acute voice misuse Chronic laryngitis, which is related to irritants, reflux, chronic infection, or habitual vocal misuse Benign vocal fold lesions Malignancy Neurologic dysfunction Non-organic ("functional") issues Systemic conditions and rare causes

For the years treatment of Functional Aphonia is speech Therapy and Psychiatric medicines are being used. Speech therapy is time consuming job and very slow in producing efficacious results. Moreover Speech therapist are not available in many cities of Pakistan. Psychiatrist perform very helping job in diagnosis and treatment of underlying cause of Aphonia. But the patients do feel stigma on visiting to Psychiatric consultant.

Some ENT specialist use digital pressure over the Thyroid cartilage and other Macintosh Laryngoscope to irritate the vocal card. Macintoch Laryngoscope can produce injury to teeth and produces more psychologic trauma to patient who is having already psychiatric issues.

The ratio of the sexes, with the greater number of female presenting in this young group is similar to the ratio found in other studies. No satisfactory explanation for this high ratio of females has been made yet.[4]

Four out of 46 (8.68%) cases has suffered a recurrent episode of Aphonia, it would be interesting to see if in future any of group have further voice problem. One study suggests that there may be underlying neurosis that might responds to Psychiatric treatment.[3] In our study no psychiatric referral was made on 1st episode. But on recurrent episode of Aphonia Psychiatric referral was advised.

The group which was having recurrent episode may be vulnerable in some way as yet unidentified to the Physiological changes of a laryngeal disturbance. The method reported by the author was incidentally found to be useful while performing Fiberoptic Flexible Laryngoscopic examination for diagnosis of Aphonic case. No such reference is available.

Some Speech Therapist made the observation that half the group seemed apparently unconcerned about the problem, though to be voiceless is a major social handicap. Froese and Sims also comment on this “curious attitude” and suggest “this is undoubtedly due to secondary gain the handicap provides.[6]

CONCLUSION

Voice disorders are being encountered more and more frequently in the present day. A quick diagnosis with prompt institution of the correct treatment is of utmost importance. There is a preponderance of females presenting with aphonia among young peoples. In treating aphonia vocal card stretching with Fiberoptic Laryngoscope is required and it is excellent in results, cost and time saving procedure too.

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