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Research Article

**A COMPARATIVE STUDY ON THE TREATMENT OF IBVC
IMMOVABILITY BY ENDOSCOPY POSTERIOR
TRANSVERSE WITH DIATHERMY****¹Dr. Hafiza Summia Hanif, ²Hizbullah, ³Dr Muhammad Ahmad Iqbal**¹Sir Syed College of Medical Sciences for Girls²Pakistan Institute of Medical Science Islamabad (PIMS) Hospital³King Edward Medical University**Abstract:**

Objectives: The main objective of this research work is to evaluate the effectiveness, abnormalities and safeties rate of PTC (posterior transverse cordotomy) in the management of immobility of IBVC (iatrogenic bilateral vocal cord).

Methodology: This research work was conducted on twelve female patients with immobility of IBVC after the operation of thyroid who visited Outpatient Department of otolaryngology in Mayo Hospital Lahore. The duration of this research was from January 2014 to December 2017. PTC endoscopy was performed on every patient. These patients had to follow up for one hundred and eighty days & they were assessed for the frequency of decannulation, the condition of voice after surgery and other related abnormalities.

Results: Nine patients got flourishing decannulation on third day after the surgery. Two patients were in need of another operation for other vocal cord. The analysis of after surgery voice displayed that 8 patients had the same voice as before surgery and only one patient has bad voice. After surgery, dyspnoea was not available in six patients, it was mild in five patients and it was severe in only one case. No patient found any difficulty in swallowing the food & breathing. This whole method was from eight to nineteen minutes. The average duration of this method was 10.6 minutes.

Conclusions: The treatment of immobility of IBVC with the help of electrocautry has the ability to create proper voice after surgery. This method is full of safety and it is not associated with severe complications.

Key Words: IBVC, PTC, decannulation, vocal, swallow, endoscopy, surgery, severe, complication.

Corresponding Author:**Dr. Hafiza Summia Hanif,**

Sir Syed College of Medical Sciences for Girls

QR code



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INTRODUCTION:

The immobility of IBVC is very uncommon but it is a serious health problem. The harm to the laryngeal nerves at the time of thyroid operation is the cause of rise of this issue [1, 2]. Strider after operation is a life taking outcome and performing tracheotomy is the best way of cure for this problem [3]. Various surgical methods are in use for the treatment of immobility of IBVC. The classification of these methods carried out as static and/or dynamic [4]. The use of static methods is common due to controversial outcomes of dynamic methods. Specialists observed a remarkable change in the static treatment methods with the addition of the LASER technology [5].

The objective of the treatment is to reset the proper way of air without having any impact on the quality of air [6]. Laser cordectomy is very famous in recent times but LASER technology is very costly and it is available in a few health centres of our country [5]. The equipment of electrocautry is now available in all the surgery centres. This apparatus is relatively cheap one. This system will not make a burden on the patients who cannot pay high amounts. The mentioned factors showed that use of the electrocautry for the treatment of IBVC is very efficient method.

METHODOLOGY:

Twelve females discovered with immobility of IBVC after the operation of thyroid disease were the patients of this research work. These patients visited the OPD of the otolaryngology department in Mayo Hospital Lahore. The duration of this research was from January 2014 to December 2017. The age of those patients was from thirty years to fifty eight years with an average age of 42.8 years. The documentation about the complete background information, neurological & otolaryngological evaluations together with direct check-up of larynx with the help of fiberoptic nasopharyngoscopy recorded. Patients with recent paralysis attack, failed previous treatment & those patients who had follow up of less than one hundred and eighty days were not the part of this research work.

The signs of hoarseness, swallowing issues, stridor & dyspnoea recorded in the collected data. The recording of voice carried out before and 6 months after the operation. The voice after operation classified into same, better, worse. Pearson scale seven was in use for the evaluation of swallowing and aspiration as described in Table-1. The seriousness of dyspnoea in the period of before and after operation classified into nil, mild, medium, serious and very serious according to the prescribed standard [8] as described in Table-2.

Grade	Description
0	No problem
1	Non-continuous cough
2	Continuous/ Permanent cough, becomes severe with meals
3	Lungs complications

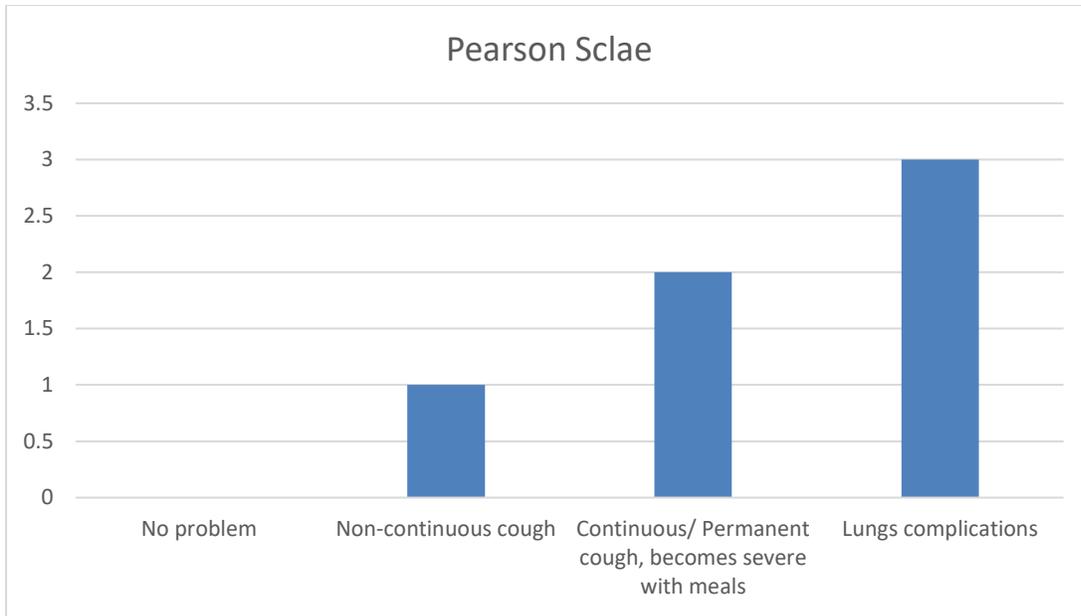
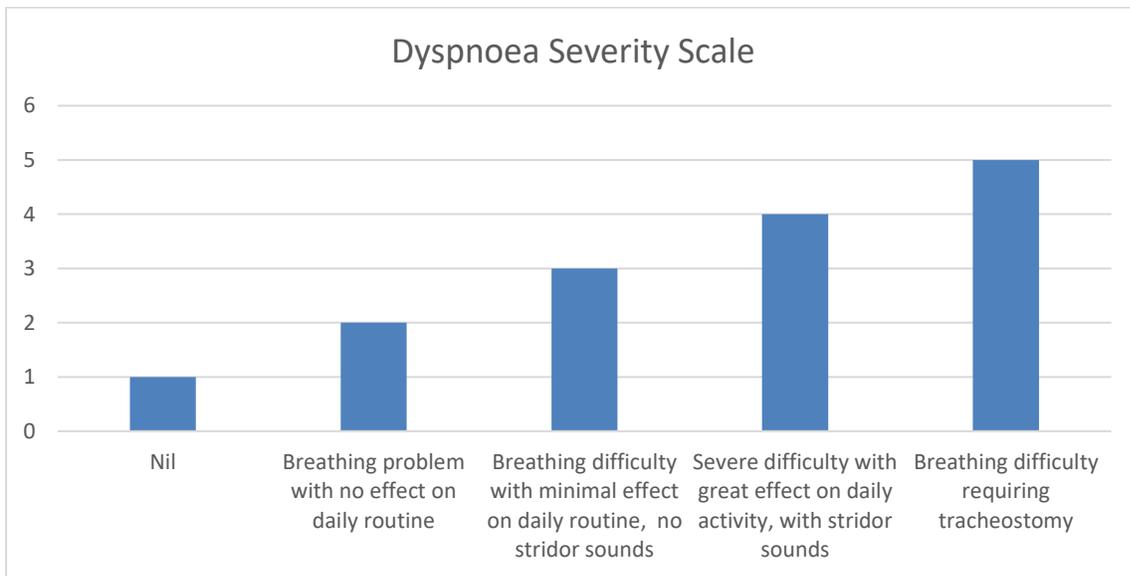


Table-II: Dyspnoea severity scale

Severity of dyspnoea	Category	Description
Nil	1	Nil
Mild	2	Breathing problem with no effect on daily routine
Moderate	3	Breathing difficulty with minimal effect on daily routine, no stridor sounds
Severe	4	Severe difficulty with great effect on daily activity, with stridor sounds
Very severe	5	Breathing difficulty requiring tracheostomy

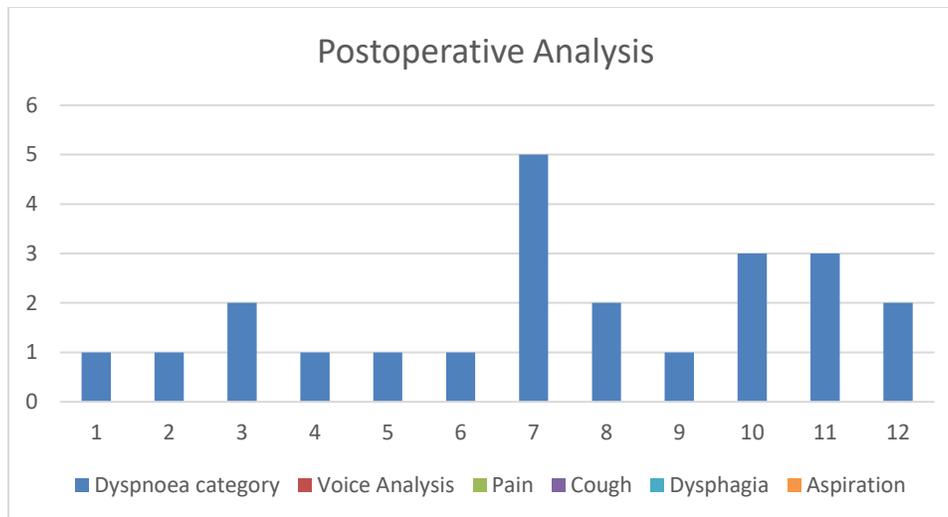


The operation carried out in all the patients under anaesthesia. Laryngoscope of a proper size was in use and suspended to description of the larynx. Four percent xylocaine solution sprayed on larynx. Vocal cords were visible with the help of microscope of Ziess OPMI with four hundred millimetres lens. The application of the passive electrode of the machine of electrocautry carried out on left calf and thirty centimetres long electrode as mentioned in Figure-1. For the activation of the cautry, foot control of electrocautry was in use for the best control by the specialist. Wedge shaped region formed because of cut ends recoiling of membranous cord as described in Figure-2 & Figure-3. The recording of voice of every patient carried out in every follow up.

RESULTS:

Twelve women with immobility of IBVC were the part of this case study. The range of age was thirty to fifty eight years with an average age of 42.8 years. Tracheotomy was present in 7 patients at the time of appearance. Prophylactic tracheotomy carried out in 4 patients before the operation method. Cordotomy carried out regardless of prophylactic tracheotomy in only one patient. Stridor started in five patients just after operation of thyroid and the result was the appearance tracheotomy. Cordotomy of left side carried out in fifty percent patients whereas cordotomy performed on left side in remaining fifty percent. Bleeding of one person just after cordotomy controlled with the help of pressure. This whole method took eight to nineteen minutes with a mean duration of 10.6 minutes. The symptoms in the patients after the operation are available in Table-III.

Difficulty in Breathing (Class)	Vocal Status	Pain	Cough	Difficulty in Swallowing	Aspiration
1	Better	-	-	-	-
1	Better	-	-	-	-
2	Same	Yes	-	-	-
1	Better	-	-	-	-
1	Better	-	-	-	-
1	Better	-	-	-	-
5	Worse	-	Yes	-	-
2	Better	-	-	-	-
1	Better	-	-	-	-
3	Same	Yes	-	-	-
3	Same	-	-	-	-
2	Better	-	-	-	-



After the operation, 9 patients had type one and two of dyspnoea, two patients had type 3 dyspnoea and only one patient had type 5 dyspnoea.

Cough after operation was present in one patient. Swallowing and aspiration complication were not present in any case. Better voice was available in 8 patients after surgery, three patients described that their voice was same whereas one patient reported worse voice. Decannulation carried out on the third day after operation. The victorious decannulation achieved in nine patients out of twelve patients. Other remaining complaint some types of complications. Decannulation also performed after a small duration but at this time it was not successful.

DISCUSSION:

In this case study, we utilized the diathermy for complying PTC for the treatment of IBVC immobility not LASER method, to achieve proper airway to get the good voice. LASER works as a hot knife and used for remove of the organ instead of tissue cutting [9]. Twelve patients suffering of immobility of IBVC were the part of this case study. There is a variation in the duration of time between surgery of thyroid and start of the signs, ranging from just after operation in only four patients to up to twenty one years after operation. Another research work concluded this duration from 6 months to 8 years [10]. PT (prophylactic tracheotomy) is very safe procedure before performing the endoscopic cordotomy but various other research works in which LASER cordotomy carried out, provided a disparity of concepts as far as prophylactic tracheotomy before operation is concerned [2, 4, 8, 11]. Total victorious decannulation gained in 11 out of 12 patients constituting rate of decannulation as more than ninety one percent. In another case study, the utilization of LASER cordotomy in eighteen patients got rate of decannulation as more than eighty eight percent [2]. The rate of decannulation of this case study is similar to many other research works [2, 12, 13].

The reported rate of revision in the same issue is from nineteen to sixty six percent [8]. In a research work, cordectomy carried out with the help of two types LASER CO₂ & KTP-532 [2], revision operation

complicated in fifty percent patients. In another case study, in which RF (radio frequency) was in use for cordotomy in place of LASER, revision operation was not the requirement [4]. Granuloma formation at the place of surgery is the main cause of revision of surgery [2, 4]. Dursun & Gokcan concluded that LASER should be practiced at low energy mode in mode of pulses to reduce thermal injury which can lead to reduction of the formation of granuloma [8]. This abnormality was not available in our patients. The exposed cartilage is the next reason for the formation of granuloma [2].

In one case study on twenty five patients, cordectomy with partosome amount of arytenoidectomy performed, after surgery aspiration was present in 6 patients [11]. The greater amount of temperature generated by the LASER concluded the injuries of nearby tissues which can lead to the severe pain at the place of the surgery [14]. The mean duration of the method in this case study was 10.6 minutes. But LASER operation requires too much time for completion of task. Most of the patients in this research work claimed their voice 'better' where twenty five percent patients said that there was not any change in their voice. In one patient, the voice became bad after operation. We believed that the performance of PTC (posterior transverse cordotomy), front vocal cords are conserved giving the wide air passage with better voice preservation. This concept is very similar to many other case

studies [2, 15, 16].

CONCLUSIONS:

This research work shows that the treatment of the immobility of IBVC with the help of electrocautery has the ability to produce good results in terms of proper voice. This procedure is very easy to perform and less time taking method. It is a best and cheap alternative of the treatment carried out by LASER.

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