

Case Report

IDIOPATHIC BILATERAL VOCAL CORD PARALYSIS

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Abstract: Bilateral vocal cord paralysis refers to the neurologic causes of bilateral vocal cord immobility and specifically refers to the reduced or absent function of vagus nerve or its distal branch recurrent laryngeal nerve. Various etiologies for vocal cord paralysis are neck surgery (predominantly thyroid), trauma, neurological disorders and laryngeal malignancies. Bilateral immobile vocal cords due to bilateral abductor palsy leads to respiratory distress that can become life threatening. Idiopathic causes are the second most common cause of childhood BVCP. Diode laser cordectomy is an alternative option to CO2 laser cordectomy.

Keywords: Bilateral vocal cord paralysis Diode laser

Introduction

A male patient, 14 years of age, presented in ENT emergency with severe respiratory distress and stridor. Stridor was so severe that it was disturbing the whole ward. Patient was offered emergency tracheostomy but he refused. So patient was managed in emergency with medically like steroids, oxygen inhalation and antibiotics and admitted in ENT ward for diagnosis and definite treatment. Patient responded to medical treatment a little bit. Proper history and examination was done in ENT ward after admission. History of patient started 4 years ago when he started mild attacks of dyspnea some times during sleep. Gently this problem was increasing in intensity. He visited various teaching hospitals for this problem and in some hospitals he was diagnosed as a case of asthma and treated more than three months but no improvement. Some hospitals diagnosed DNS and offered him treatment for DNS problem but patient was not satisfied. After this patient developed severe dyspnea during exertion and stridor even during sitting position. There was deterioration in his problems during sleeping and some improvement with extension of neck. On examination patient was uncomfortable with stridor during sitting on the bed but voice was alright. Chest was indrawn during respiration with involvement of extra respiratory muscle. On ENT examination both vocal cords were in paramedian position with no mobility and slight chink in posterior commissure. Nasopharyngoscopy was done and same findings confirmed (**figure-1**). We did the CT scan of chest neck and brain up to thorax region and no abnormality was seen. Patient was diagnosed as a case of idiopathic bilateral vocal cord paralysis. We also discussed the patient with neurophysician and endocrinologist. Patient was counseled about the disease and its management plan.

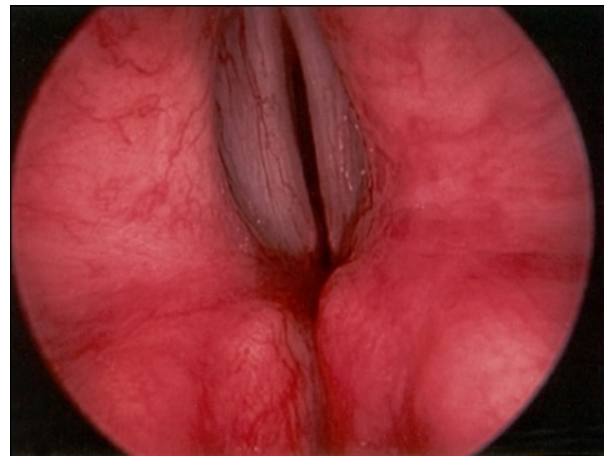


Fig-1: Preoperative image of glottis opening showing bilateral abductor paralysis



Fig-2: Picture of the patient showing tracheostomy scar mark.

Ultimately tracheostomy was done to relieve the symptoms of the patient (fig-2). There was drastic improvement in the symptoms of the patient. Then

we reviewed the literature for the definite management of the bilateral abductor paralysis. Different surgical procedures have been described for this problem like arytenoidectomy, laser cordectomy, lateralization of vocal cord and reinnervation technique. We did partial resection of posterior one third of left vocal cord with the help of diode laser leaving arytenoids (**figure-3**).

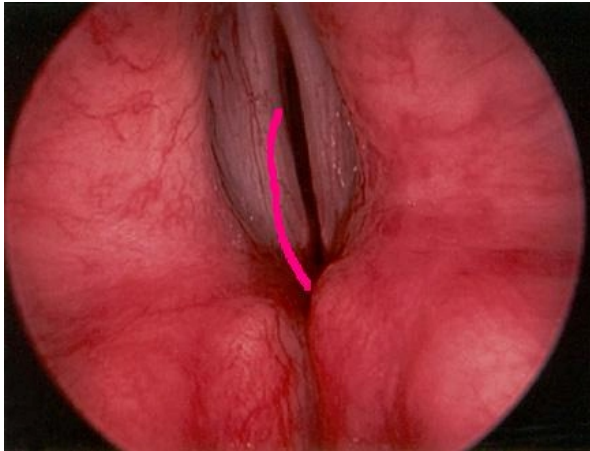


Fig-3: Line diagram showing the incision made for surgery (left vocal cord).

After one week we were able to remove the tracheostomy tube. The patient symptoms improved but there was mild dyspnea during exertion. During time there was some deterioration of symptoms like dyspnea during exertion and stridor during sleep. The patient voice was satisfactory.

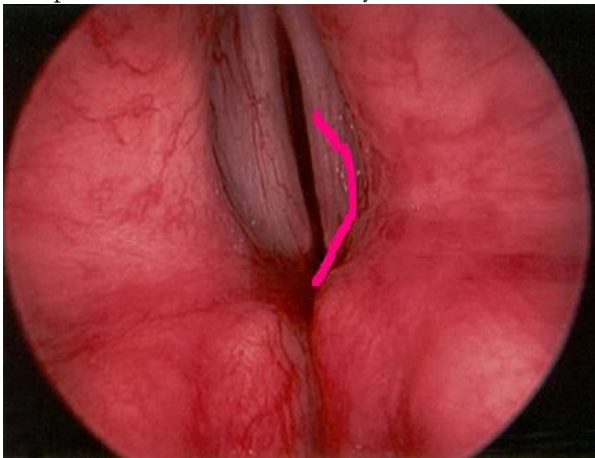


Fig-4: Line diagram showing the incision made for surgery (right vocal cord).

After six weeks, we removed posterior one third of right vocal cord without tracheostomy and symptoms improved without compromising the voice (**fig: 4**). Now the patient is comfortable without dyspnea during exertion and with normal

voice.

Discussion

Bilateral vocal cord immobility is a broad term that refers to all form of reduced or absent function of vocal cord. Bilateral vocal cord paralysis refers to the neurologic causes of bilateral vocal cord immobility and specifically refers to the reduced or absent function of vague nerve or its distal branch recurrent laryngeal nerve. Bilateral immobile vocal cord due to bilateral abductor palsy leads to respiratory distress that can become life threatening. Vocal cords are immobilized either due to palsy or from mechanical derangement of laryngeal structure such as cricoarytenoid joint. Various etiologies for vocal cord paralysis are neck surgery (predominantly thyroid), trauma, neurological disorders and laryngeal malignancies.¹ According to Benninger's findings in a series of 117 cases of bilateral vocal cord paralysis can be attributed to following causes surgical trauma 44%, malignancy 17%, endotracheal intubation 15%, neurological diseases 12% and idiopathic causes 12%.² Idiopathic causes are the second most common cause of childhood BVCP.³

Surgeons have long been searching for techniques to safely widen the glottis airway in patients with bilateral vocal cord paralysis without detracting from vocal quality and/or causing aspiration. For last 15 years, transoral carbon dioxide (CO₂) laser endoscopic arytenoidectomy has perhaps become the most common method. Oswal et al described their result of endoscopic co₂ laser surgery for bilateral immobile vocal cords on the basis of respiration phonation and swallowing.⁴ Co₂ laser is the most appropriate tool for cordectomy with the advantages of increased precision, better homeostasis and minimal tissue handling. Gandhi described the use of transoral co₂ laser for managing cases with compromised airway due to BVCP BY subtotal arytenoidectomy with posterior cordectomy with good result.⁵

Conclusion

When considering the treatment of bilateral abductor paralysis it is important to remember the basic point that patient has good voice but poor airway. Any operative procedure to improve the airway will decrease the quality of voice and on occasion fail to improve the airway. There are chances of recovery in vocal cords in 24 to 36 months, so any surgical procedure should be delayed for two years. Diode laser cordectomy is an alternative option to CO₂ laser cordectomy.

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References

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Answer Picture Quiz

Correct Diagnosis:-

Chest Xray shows presence of Ping Pong Balls (Plombage) in Right upper zone. Plombage involved the extra-pleural insertion of a "plombe" to collapse the lung for treatment of Tuberculosis during 19th century.

They included:

- Fat
- Solid paraffin wax
- Lucite spheres
- Plastic ping pong balls

A tracheostomy tube can also be seen.