

A rare complication of recurrent cerebrovascular infarct: Bilateral vocal cord paralysis

Serebrovasküler infarktın nadir bir komplikasyonu: İki taraflı ses teli felci

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ABSTRACT

Bilateral vocal cord paralysis (BVCP) is usually the result of an iatrogenic injury, especially secondary to thyroid and parathyroid surgery. However, BVCP that cause airway obstruction due to cerebral cortical stroke very rarely has been reported. We, herein report a case of BVCP that resulted in respiratory arrest as a late and life threatening complication of recurrent cerebral infarct. A 67 year-old male patient admitted the emergency room with complaint of respiratory insufficiency. His complaint was progressed during last 3-4 months. He had two cerebral infarctions attacks in a month approximately one year ago. On admission, physical examination revealed that, he had bilateral wheezing and stridor. He had right sided hemiplegia and had no history of heart failure or chronic obstructive lung disease. Endoscopic laryngoscopy was performed to evaluate upper airway obstruction. Laryngoscopy revealed that bilateral vocal cords were fixed and immobile at midline. Due to recurrent respiratory arrest, insufficient and fixed BVCP, open tracheostomy was performed. After operation, he had no respiratory insufficiency or any complications. So he discharged from hospital with normal respiratory functions.

Key words: Cerebral infarct, vocal cord paralysis, bilateral, clinical findings

INTRODUCTION

Bilateral vocal cord paralysis (BVCP) is usually the result of an iatrogenic injury especially due to thyroid and parathyroid surgery. Thyroid surgery or parathyroid surgery which is often performed on both sides of the neck can injure both recurrent laryngeal nerves. The most common cause of bilateral

ÖZET

İki taraflı ses teli felci (İSTF) sıklıkla tiroid ve paratiroid cerrahisi gibi iyatrojenik bir hasar sonucu oluşur. Fakat serebral infarkt sonrası hava yolu tıkanıklığına neden olan İSTF nadir olarak bildirilmiştir. Bu yazıda tekrarlayan serebral infarktın, geç ortaya çıkan ve hayatı tehdit eden bir komplikasyonu olarak solunum durması ile sonuçlanan bir İSTF olgusu sunduk. Atmış yedi yaşında erkek hasta, son 3-4 aydır giderek artan solunum yetmezliği şikayetiyle acil servisimize başvurdu. Özgeçmişinde kalp yetmezliği ve kronik obstruktif akciğer hastalığı öyküsü olmayan hasta, yaklaşık bir yıl önce bir ayda iki kez serebral infarkt geçirmişti. Yapılan solunum sistemi muayenesinde bilateral wheezing ve stridor; nörolojik muayenesinde ise sağ tarafta kuvvet kaybı mevcuttu. Üst solunum yolu obstrüksiyonunu değerlendirilmek üzere endoskopik laringoskopi yapıldı. Laringoskopide iki taraflı ses tellerinin orta hatta sabit ve hareketsiz olduğu görüldü. Solunum yetmezliğinde artma ve tekrarlayan solunum durması nedeniyle hastaya trakeostomi açıldı. Operasyon sonrası hastanın solunum yetmezliği geriledi. Solunum fonksiyonları normale dönen hasta taburcu edildi.

Anahtar kelimeler: Serebral infarkt, vokal kord paralizisi, bilateral, klinik bulgular

vocal cord paralysis is complication of thyroideectomy. Tracheal intubation, trauma and neurodegenerative and neuromuscular diseases may also cause BVCP.^{1,2}

Most common symptoms with BVCP are inspiratory stridor, dyspnea, chest retractions and nasal flaring. Over 50% of patients with BVCP will require a tracheotomy.³

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BVCP resulted airway obstruction due to cerebral cortical stroke has been very rarely reported. Therefore, herein we reported a case with BVCP that resulted in respiratory arrest as a late and life threatening complication of recurrent cerebral infarct.

CASE

A 67 years old male patient admitted to the emergency room with complaint of respiratory insufficiency. His respiratory insufficiency was progressively worsened during the last 3-4 months. He had two cerebral infarction attacks in a month approximately one year ago. In his past medical history, he had myocardial infarction 10 years ago and had also Alzheimer disease for 2 years. He had no known chronic asthma or bronchial diseases. He was using acetylsalicylic acid (300 mg/day) and carvedilol (12.5 mg/day). Physical examination revealed bilateral wheezing and stridor. He had right sided hemiplegia in neurological examination. Other systems were found to be normal. His laboratory results are seen in Table 1. His brain computed tomography (CT) demonstrated left parietal occipital infarction which was same as in CT of 3 month ago.



Picture 1. Bilateral vocal cords fixed and immobile at midline

Due to recurrent respiratory distress, he was hospitalized to investigate the causes such as aspiration pneumonia, pulmonary thrombemboli or any other causes. His chest X-ray was normal. D-Dimer result and thorax CT imaging gave no clue for pulmonary emboli. Also his transthoracic echocardiog-

raphy and Doppler ultrasonography of lower extremities showed no pathology. Echocardiography showed severe tricuspid and mitral insufficiency, pulmonary arterial pressure of 60 mmHg and ejection fraction of 35%.

We had endoscopic laryngoscopy to evaluate upper airway obstruction. Laryngoscopy revealed that bilateral vocal cords were fixed and immobile at midline (Picture 1). During follow up respiratory arrest developed and he was intubated and transferred to intensive care unit. After extubation, he had again respiratory insufficiency and respiratory arrest. So, he had again intubated. Due to recurrent respiratory arrest, insufficient and fixed BVCP; an open tracheostomy was performed. After operation he had no respiratory insufficiency or any other problems. He was discharged with normal respiratory functions.

Table 1. Biochemical and radiological results of patient on admission to emergency room

	Patient's value	Normal ranges
Blood glucose (mg/dl)	146	70-115
Creatinine (mg/dl)	1.73	0.7-1.3
Urea (mg/dL)	79	21-43
ALT (IU/L)	20	0-55
AST (IU/L)	33	5-34
Mg (mg/dL)	1.7	1.6-2.6
Na (mEq/l)	138	135-145
K (mEq/l)	4.2	3.5-4.5
Ca (mg/dL)	9.5	8.4-10.2
P (mg/dL)	2.9	2.3-4.7
CRP	11.30	0.01-0.82
Heamoglobin (g/dl)	12.9	12-18
Platelet 10 ³ /μl	370	130-400
WBC	18.5	5.0-12.4
TSH (μIU/mL)	2.2	0.4-4
Arterial Blood Gases		
pH	7.28	7.35-7.45
pCO ₂ (mmHg)	63	35-48
pO ₂ (mmHg)	64	83-108
sO ₂ (%)	82	95-99
D-dimer, μg/L	30	10-150

DISCUSSION

Stroke is a leading cause of mortality and resulted in lots of post infraction complications. BVCP is not routinely seen as a complication of cerebral infarct. In the literature, upper airway obstruction with BVCP secondary to ischemic stroke has been reported in few cases. Ito et al.⁴ have reported two patients with BVCP during subacute phase of brain infarction. Also Shaw⁵ has reported two patients with unilateral cortical stroke resulted in BVCP and airway obstruction. Those patients had early tracheostomy after infarct due to BVCP.⁵

Leading cause of BVCP is surgical trauma especially during thyroidectomy. Hollingers et al.⁶ found that in adult cases, thyroidectomy was by far the most common etiology of BVCP. Some rare variety of central nervous system diseases such as transient ischemic attacks, hydrocephalus, myoclonus, shy-drager syndrome, multiple system atrophy and amyotrophic lateral sclerosis have been reported to produce vocal cord immobility.¹

Patients with BVCP would have symptoms of wheezing, stridor and respiratory arrest and could result in death. Therefore, over 50% of patients with BVCP require a tracheotomy.⁶ After ischemic stroke, if wheezing and stridor appear, physicians should be careful and aware of BVCP. In our pa-

tient, respiratory problems (dyspnea, wheezing) were developed and progressed after two cerebral ischemia or stroke attacks. In the end, he had respiratory arrest and needed tracheotomy.

In conclusion, physicians should be aware of a late, rare but fatal complication (BVCP) of cerebral ischemia. They should examine his patients with laryngoscope when patients have wheezing and stridor after cerebral stroke.

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