

## UNILATERAL HYPOGLOSSAL NERVE PALSY FOLLOWING RHINOPLASTY

## RİNOPLASTİ SONRASI TEK TARAFLI HİPOGLOSSAL SİNİR FELCİ

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## ABSTRACT

In this case we presented isolated unilateral hypoglossal nerve palsy after an uneventful rhinoplasty operation. After rhinoplasty numbness of tongue, difficulty in speaking, chewing and swallowing occurred in the first day of surgery. Left side deviation of the tongue was present when the patient put her tongue out. Neurological assessments were compatible with hypoglossal nerve palsy. There was no other pathology detected in differential diagnosis. We followed the patient with oral vitamin B complex and steroids. Complete recovery was obtained ten months after surgery.

**Keywords:** Intubation, Rhinoplasty, Tongue numbness, Unilateral Hypoglossal Nerve Palsy

## ÖZET

Bu olgu sunumunda biz olağan bir rinoplasti sonrasında gelişen izole tek taraflı hipoglossal sinir felci sunduk. Rinoplasti sonrası ilk gün dilde uyuşma, konuşma, çiğneme ve yutma güçlüğü oluştu. Hasta dilini dışarı çıkardığında dilin sol tarafa kaydığı gözlemlendi. Nörolojik değerlendirmeler hipoglossal sinir felci ile uyumlu idi. Ayırıcı tanıda başka bir patoloji saptanmadı. Hasta ağızdan B vitamin kompleksi ve steroidler ile izlendi. Tam iyileşme ameliyattan on ay sonra elde edildi.

**Anahtar Sözcükler:** Entübasyon, rinoplasti, dil uyuşukluğu, tek taraflı hipoglossal sinir felci

## INTRODUCTION

Temporary hoarseness and difficulty in swallowing after prolonged endotracheal intubation are frequent symptoms which spontaneously recover within days.<sup>1</sup> But rarely these symptoms may be signs of cranial nerve injury. Vagal and hypoglossal nerves are the most affected nerves from these types of injury.<sup>2</sup> The nucleus of hypoglossal nerve is located in the medial medulla and supra-nuclear inputs are accepted bilateral and symmetrical. After leaving the brain stem hypoglossal nerve exits the skull through the hypoglossal canal. In this nerve palsy atrophy and fasciculation are seen in ipsilateral tongue muscles. Ipsilateral deviation is present when the tongue is out of the mouth. Overpressure of the intubation tube or pre-existing Arnold-Chiari malformation may be the possible causes but there was no other pathology detected in differential diagnosis. We aimed to present isolated unilateral hypoglossal nerve palsy after uneventful rhinoplasty operation in which transoral intubation for general anaesthesia is done.

## CASE REPORT

A rhinoplasty operation was performed to 39-year-old female (63 kg) patient under general anaesthesia.

The patient's preoperative physical examination and full blood count were in normal ranges.

100 mcg of fentanyl and 300 mg thiopental is utilized for induction of anaesthesia. Endotracheal intubation was performed with spiral tube number.<sup>8</sup> Cuff of the tube is inflated as much as consistency of an earlobe. Transoral intubation was performed at once without any difficulty. General anaesthesia was maintained with Sevofluorane, remifentanyl and oxygen. Surgical procedure lasted seamlessly approximately 150 minutes. After the enough spontaneous breathing of the patient is observed, the extubation was performed and patient is transferred to the clinic. The first day after surgery, numbness of tongue, difficulty in speaking, chewing and swallowing occurred. Left side deviation of the tongue was present when the patient put her tongue out.

Neurological examination revealed that tongue deviated toward the left and fasciculation on the left side of the tongue was present (Figure 1). Pharynx, soft palate, palatal arcs, uvula and gag reflex was normal and no additional neurological pathology was detected. Physical examination and laboratory findings did not refer any etiologic infectious agent like cytomegalovirus,



**Figure 1.** Tongue deviates toward the left side when the patient was asked to protrude her tongue



**Figure 1.** Complete recovery of the tongue deviation was obtained after ten months

herpes, toxoplasma, brucella, Lyme, tuberculosis. There had been neither sarcoidosis nor paraneoplastic signs. So it has been concluded that develops due to intubation. Cranio-cervical magnetic resonance imaging (MRI) and magnetic resonance angiography (MRA) and tongue Electromyography (EMG) were taken for diagnostic purposes. According to the electromyographic study, fasciculation and fibrillations (signs of denervation) was present in the muscle which is innervated by the left hypoglossal nerve while the right side was normal. Cranio-cervical MRI and MRA were all normal. Significant pharyngeal hematoma, basilar artery thrombosis or Arnold-Chiari malformation was not detected.

As a result of all these investigations isolated left hypoglossal nerve palsy was diagnosed. The patient was discharged from hospital second day after surgery and followed with oral vitamin B complex and 32 mg of methylprednisolone. Weakness in tongue movements, speech difficulties and dysphagia began to recover in first week. Rapidly comeback of function demonstrated that neuropraxia type injury (which is characteristic for compression injury) is present. Complete recovery was obtained after ten months (Figure 2).

## DISCUSSION

Hypoglossal nerve innervates the motor muscles of tongue and contributes to mastication, speaking. In this case physical examination and laboratory findings did not refer any etiologic factors. Hypoglossal nerve palsy might have developed during any stage of intubation or extubation because of nerve entrapment in various anatomical structures and also excessive dorsiflexion of head.<sup>3</sup> In our case, intubation was considered as a reason. There was no other accompanying neurological evidence. Hypoglossal nerve injury is thought to be occurred on pharynx because of the listed reasons:

- i. Pressure by inflating spiral tube cuff,
- ii. Compression of laryngoscope blade
- iii. Anterior or lateral hyperextension of head.
- iv. Extubation before the cuff is deflated
- v. Extended duration of LMA (Laryngeal mask airway)

These factors may be together in different combinations. Briefly isolated hypoglossal nerve injury after an aesthetic operation is a rare entity.<sup>2,4</sup> In many cases it is reported that presence of intracranial or extra cranial space occupying lesion, head and neck trauma, vascular events, infections, autoimmune disease or neuropathy which concerns directly nerve may cause hypoglossal nerve injury.<sup>1,4-6</sup> It is unlikely happen in an uneventful anesthesia and without a Arnold Chiari or any other reasons.

## CONCLUSION

In case of tongue movement alterations and dysarthria after general anaesthesia hypoglossal nerve palsy should be considered. Whether the etiology is found or not, anti-inflammatory drug therapy can be given.

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