

# Self-Tracheotomy in Acute Airway Obstruction: A Rare Case

Erdi Özdemir, Yavuz Atar, Güven Yıldırım, Yavuz Uyar, İmran Aydoğdu, Yusuf Öztürkçü, Ayşe Enise Göker, Ziya Saltürk, Tolgar Lütfi Kumral  
S.B. Okmeydanı Eğitim ve Araştırma Hastanesi, Kulak-Burun-Boğaz Kliniği, İstanbul, Türkiye

## ABSTRACT

Acute upper airway obstruction is an emergency that can lead to death in minutes. Therefore, early intervention is required using either a tracheotomy or cricothyrotomy. A tracheotomy provides an airway by opening a window on the anterior surface of the trachea. A cricothyrotomy is an emergency procedure that can be performed outside a hospital. We present a patient with acute upper airway obstruction who attempted to perform a tracheotomy on himself. The patient was admitted to hospital with stridor and bleeding caused by a sharp instrument. We learned that the patient had cut himself whilst attempting to provide an airway by performing a tracheotomy. He was taken to the operating room where a tracheotomy was performed and the bleeding was controlled by ligating the anterior jugular vein. He was diagnosed with acute epiglottitis and treatment was begun. A tracheotomy should be performed by trained healthcare professionals.

**Keywords:** tracheostomy, airway, obstruction, emergencies

## ÖZ

### **Akut Hava Yolu Obstrüksiyonunda Ender Görülen Self-Trakeotomi Olgusu**

Akut üst solunum yolu obstrüksiyonu, dakikalar içerisinde ölümlü sonuçlanabilen acil bir durumdur. Trakeotomi veya krikotirotomi, bu gibi acil durumlarda uygulanan müdahalelerdir. Trakeotomi, hava yolunu güvence altına almak için trakea ön duvarında alternatif bir pencere oluşturma işlemidir. Krikotirotomi ise; daha çok hastane dışı durumlarda acil uygulanan bir prosedürdür. Biz üst solunum yolu tıkanıklığında kendi kendine trakeotomi uygulayan olguyu sunduk. Hasta, acil servise stridor, trakeotomi açmaya çalıştığı boyun ön duvarda kanama ile başvurdu. Hasta acil solunum darlığı yakınmasıyla operasyona alındı ve trakeotomi uygulandı, ayrıca kanamaya neden olan anterior juguler ven bağlandı.Yapılan tetkiklerinde akut epiglottit saptandı ve buna bağlı üst solunum yolu tıkanıklığı olduğu anlaşıldı. Trakeotomi; yalnızca sağlık profesyonelleri tarafından uygulanması gereken ciddi bir müdahaledir.

**Anahtar kelimeler:** trakeostomi, havayolu, tıkanıklık, acil

## INTRODUCTION

A tracheotomy is a surgical procedure used to provide an airway in cases of upper airway obstruction. Its indications are prolonged mechanical ventilation, acute upper airway obstruction, and increased secretions in the lower airways that cannot be aspirated<sup>(1)</sup>. A cricothyrotomy is a simpler surgical procedure that can be used to save patients' lives, even outside an operating room<sup>(2)</sup>.

Several algorithms can be applied in cases of upper airway obstructions. According to the American Society of Anaesthesiologists, a cricothyrotomy or tracheotomy can be performed as the final step in pa-

tients that the physician "cannot ventilate and cannot intubate"<sup>(3)</sup>.

Tracheotomies and cricothyrotomies require special techniques and have specific complications, so they should be performed by trained personnel. In the absence of a trained individual, a patient might have to perform one of these procedures themselves. This study presents a patient who attempted to perform a self-tracheotomy.

## CASE REPORT

Consent of the patient was taken.A 42-year-old man developed a sore throat, fever, hoarseness, dysphagia,

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**Yazışma adresi:** Ass. Erdi Özdemir, S.B. Okmeydanı Eğitim ve Araştırma Hastanesi 34400 İstanbul - Türkiye

**e-posta:** erdiozdemir67@hotmail.com

and shortness of breath. He was prescribed an oral antibiotic and symptomatic treatment. Despite therapy, his symptoms progressed. He woke up with dyspnea and attempted to provide an airway using a garden hose. After failing, he cut his throat with a knife and breached the trachea, providing an airway. He was brought to the emergency room by his relatives. He had tachycardia (115 beats/min) and a fever of 38.5°C. He had two 1-cm-long incisions on the anterior surface of his neck (Figure 1). Flexible laryngoscopic examination revealed a swollen, hyperemic epiglottis occluding his airway. There was no emphysema or haematoma on the initial examination. Laboratory tests revealed white blood cells 18,300/  $\mu\text{L}$  (neutrophils 15,400  $\mu\text{L}$ ), haemoglobin 16.4 g/dL, and C-reactive protein 87 mg/L. He was hospitalised with a diagnosis of acute epiglottitis. He was taken to the operating room in order to perform a tracheotomy and copious bleeding began. The anterior jugular vein had been cut and was bleeding. It was ligated and a tracheotomy was performed to maintain the airway. Ceftriaxone 1 g b.i.d. and intravenous steroids were begun. A psychiatry consultation revealed no pathology. After the epiglottitis was treated, he was extubated. He had no additional problems at the 1-month follow-up.



Figure 1.

## DISCUSSION

A tracheotomy is a surgical procedure performed in patients with airway obstruction, on prolonged mechanical ventilation, or with increased airway secretions. The complication rate for the procedure is 5~40% and the mortality rate is about 2% (4). The most common complications are bleeding, subcutaneous emphysema, pneumothorax, pneumomediastinum, cartilage destruction, tracheal stenosis, and tracheomalacia (1,5).

A cricothyrotomy is a subtype of tracheotomy. It is seldom performed, but can be life-saving. It involves making an incision in the membrane between the cricoid and thyroid cartilages (6). Although the exact frequency is not known, it can be performed outside a hospital with appropriate equipment by an experienced person. These are the most important factors determining the success rate of the procedure (3). Mattias et al. (7) found that cricothyrotomy had higher complication rates when performed by inexperienced people. Common complications are injury to the thyroid, cricoid, posterior tracheal wall, anterior oesophageal wall, hemorrhage, and failure to provide an airway (7). Mobility of the trachea is another important reason for failure. Consequently, the reported complication rate of emergency cricothyrotomy usually exceeds 40%, although one study reported a rate of %6 (2,8).

To our knowledge, there has never been a report of a patient performing a tracheotomy on him/herself in the English literature. Our patient had acute epiglottitis, which is rare in adults. The patient had learned about this procedure from a television documentary. This demonstrates that television and Internet documentaries can raise awareness of health situations. A patient could save his or her life by successfully performing a self-tracheotomy, but the attempt might also cause death. Recognising the importance of time, our patient saved his life. The high rate of complications is the main limitation in this rare situation. We believe that our patient was lucky because the trachea often moves to one side when pressure is applied to it when attempting to enter the lumen. After entering the lumen, perforation of the posterior wall and oesophagus is also a possibility. Bleeding may cause aspiration and death. If our patient had not lost time

trying to save himself with a garden hose and self-tracheotomy he might have reached the hospital in time via ambulance.

Although our case is the first surgical attempt encouraged by a television broadcast, cyberchondria is a well-known issue. Patients with cyberchondria search the Internet for information about their symptoms and consult physicians with suspected disease. This activity often increases their anxiety and confusion <sup>(9)</sup>. It is a form of reassurance-seeking behaviour. Rather than obtaining support via online interactions with similarly worried individuals, cyberchondriacs find their anxiety amplified, often because of new pathologies that they discover online that trigger new worries <sup>(10)</sup>. We think that our case parallels cyberchondriac behaviour, but was potentially more dangerous. Therefore, people should be informed about the potential risk and misinformation regarding the content of Internet and television programmes. Health professionals should warn people about the potential side effects and complications of interventions.

## CONCLUSION

Tracheotomy and cricothyrotomy are surgical interventions that have potentially fatal complications and should be performed only by health professionals. We suggest that documentaries and health programs warn people about the possible complications of healthcare interventions.

## REFERENCES

1. Satta R, Turner M. Emergency tracheotomy in the dental office. *International Journal of Oral and Maxillofacial Surgery*. 2009;38:1114-5. <https://doi.org/10.1016/j.ijom.2009.06.015>
2. Varaday SS, Yentis SM, Clarke S. A homemade model for training in cricothyrotomy. *Anaesthesia*. 2004;59:1012-5. <https://doi.org/10.1111/j.1365-2044.2004.03810.x>
3. Henderson JJ, Popat MT, Latta IP et al. Difficult Airway Society guidelines for management of the unanticipated difficult intubation. *Anaesthesia*. 2004;59:675-94. <https://doi.org/10.1111/j.1365-2044.2004.03831.x>
4. Goldenberg D, Ari EG, Golz A, et al. Tracheotomy complications: A retrospective study of 1130 cases. *Otolaryngol Head Neck Surg*. 2000;123:495-500. <https://doi.org/10.1067/mhn.2000.105714>
5. Ong C. Differential presentation of post tracheostomy bleeding: a case series. *Acta Anaesthesiologica Scandinavica*. 2003;47:1034-7. <https://doi.org/10.1034/j.1399-6576.2003.00164.x>
6. Leibovici D, Fredman B, Gofrit ON, et al. Prehospital cricothyroidotomy by physicians. *Am J Emerg Med*. 1997;15:91-3. [https://doi.org/10.1016/S0735-6757\(97\)90059-0](https://doi.org/10.1016/S0735-6757(97)90059-0)
7. Helm M, Hossfeld B, Jost C. Emergency cricothyroidotomy performed by inexperienced clinicians: surgical technique versus indicator-guided puncture technique. *Emerg Med J*. 2013;30:646-9. <https://doi.org/10.1136/emermed-2012-201493>
8. McGill J, Clinton JE, Ruiz E. Cricothyrotomy in the emergency department. *Ann Emerg Med*. 1982;11: 361-4. [https://doi.org/10.1016/S0196-0644\(82\)80362-4](https://doi.org/10.1016/S0196-0644(82)80362-4)
9. Holyoake DD, Searle K. Cyberchondria: emerging themes for children's nurses in the internet age. *Nurs Child Young People*. 2015;27(5):34-8. <https://doi.org/10.7748/ncyp.27.5.34.e600>
10. Starcevic V, Aboujaoude E. Cyberchondria, cyberbullying, cybersuicide, cybersex: "new" psychopathologies for the 21<sup>st</sup> century? *World Psychiatry*. 2015;14(1): 97-100. <https://doi.org/10.1002/wps.20195>