TREATMENT OF LARYNGOMALACIA IN A TWO MONTHS OLD INFANT WITH LASER AERYEPIGLOTTOPLASTY

Case Report

İKİ AYLIK İNFANTTA LARİNGOMALASİNİN LASER ARİEPİGLOTİPLASTİ İLE TEDAVİSİ

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ABSTRACT

We described a case of apnea secondary to laryngomalacia in a two-months-age infant. He presented with paradoxical breathing with stridor. After being treated with laser aryepiglottoplasty his syptoms disappeared completely. This very simple and safe treatment modality is not commonly used in pediatrics departments and we want to emphasize its success in laryngomalacia cases.

Key words: *laryngomalacia; apnea;laser aryeepiglottoplasty.*

ÖZET

Laringomasiye bağlı apne nedeniyle başvuran iki aylık infant sunulmaktadır. Hastaneye başvuruda stridor ile beraber parodoksal solunumu olan hastanın laser ariepiglottiplasti ile tedavi sonrasında şikayetlerinde tam düzelme izlendi. Bu yöntem basit ve güvenilir bir tedavi şeklidir ancak pediatristler tarafından çok bilinmemektedir. Bu nedenle sunulup, dikkati çekmek amaçlanmıştır.

Anahtar kelimeler: *laringomalasi;apne; laser ariepiglottiplasti.*

Laryngomalacia is a disorder characterized by collapse of laryngeal cartilage during inspiration with glottic obstruction. It is the most common disorder of the larynx, and also the most frequent cause of stridor in children. Studies have indicated that laryngomalacia relates up to 50 to 75% of diagnoses in patients with laryngeal malformation(1,2). In literature apnea accompanying laryngomalacia has been reported in a few cases. Pediatric patients with severe laryngomalacia, defined as those patients with obstructive dyspnea, cyanosis, failure to thrive, and cor pulmonale, require surgical treatment(3). Laser aryepiglottoplasty, a novel therapeutic technique to be applied in Turkey has been efficacious in relieving laryngomalacia and consequently apnea in our patient.

CASE REPORT

A two-months-old, 4860 g boy was admitted to our hospital with stridor. He was delivered at 39 weeks' gestation from a 25 year-old woman after an uncomplicated pregnancy. His obstetric and family history was uneventfull. He had a paradoxical breathing with stridor starting from birth. Oxygen saturation (SaO2) was 95-100 % in room air. But during episodes of apnea, SaO2 measurements under 90% were noted. Physical examination and chest x-ray were normal. His family reported that the frequency and duration of apneic episodes was increasing in time so that, he began to experience feeding problems. Flexible pharingolaryngoschape revealed that the choanae were patent and velopharynx was collapsed and larynx was in an omega-shaped construction leading to the diagnosis of laryngomalacia. After the application of laser division of the aryepiglottic folds, he did not experience apneic episodes any more his sitridor has decreased prominently.(**Figure 1).**

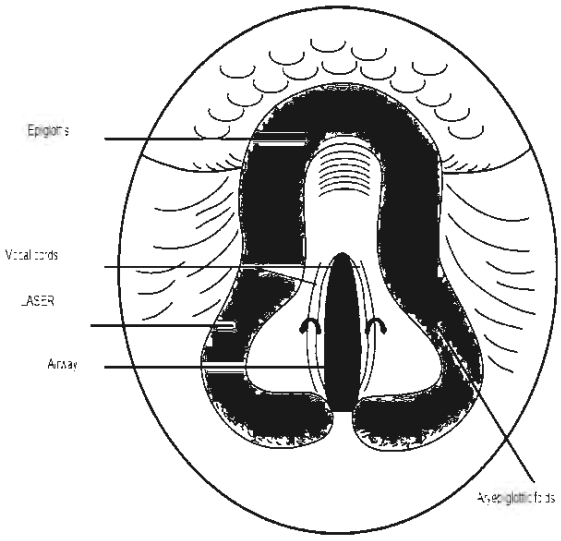

Figure 1*. An illustration of localization of laser aryepiglottic fold.*

DISCUSSION

The characteristic manifestation of laryngomalacia is inspiratory stridor. Stridor usually manifest in the first two weeks of life and deteriorates with crying, agitation or exercise, but improves with neck extension. The final diagnosis of laryngomalacia is obtained with endoscopy of the respiratory tract on patients breathing spontaneously. The studies can indicate presence and severity of obstruction caused by collapse of laryngeal cartilage. Most children with laryngomalacia do not require any surgical intervention since flaccidity of supraglottic cartilage improves with age, with symptoms disappearing completely up to two years of age(1,2). This is also the case for children with cerebral palsy and laryngomalacia, considering that only a minority of these patients will develop severe ventilatory obstruction requiring treatment4. Pediatric patients with severe laryngomalacia, defined as those patients with obstructive dyspnea, cyanosis, failure to thrive, and cor pulmonale, require surgical treatment(3). It is important to underscore that severity of laryngomalacia does not depend on intensity of stridor, but rather on manifestations as a result of ventilatory obstruction(5). Tracheostomy was indicated for some laryngomalacia patients(5); however, due to complications of tracheostomy in children(6), endoscopic excision of redundant supraglottic tissue (supraglottoplasty, epiglottoplasty, or aryepiglottoplasty) became the first option for treatment of children with severe laryngomalacia(3,5). Endoscopic findings in pediatric patients have shown the presence of redundant arytenoid mucosa, small aryepiglottic ligament, and floppy epiglottis also much similar to that in laryngomalacia. This type of laryngomalacia is called neurasthenic laryngomalacia and is probably a result of a disorder in innervation of pharynx and larynx muscles. Good results have been reported with endoscopic surgery in neurasthenic laryngomalacia patients(4). Endoscopic findings indicated bilateral arytenoid (100%) and epiglottis (25%)

collapse; indications for surgery were related to resting respiratory difficulties (75%) and low transcutaneous oxygen saturation (50%). Endoscopic excision of redundant supraglottic tissue is a simple technique that was well-tolerated by patients. Improvement in ventilation was observed soon after the surgical procedures, which can be carried out with surgical instruments or laser. Results for supraglottoplasty for laryngomalacia were different in children with and without neurological disease. Children without cerebral palsy presented excellent results in early and late follow-up procedures. All of them presented improvement in ventilation despite occasional, mild stridor. Clinical improvement of these children was clearly observable since there was no need for hospital readmission or emergency care due to ventilatory difficulty(7). Complications reported for this procedure are local bleeding, infection and sepsis, synechia of the interarytenoid muscles, supraglottic stenosis, and aspiration(3). CPAP and/or tracheostomy has been generally recommended in apneic infants. But this procedure is very difficult for families and physicians. Laser aryepiglottoplasty is a safe procedure for pediatric patients causing significant improvement of severe laryngomalacia in children. The amelioration of symptoms by this technique could not only decrease the burden of breathing in some selected patients but also decrease parental anxiety. We want to emphasize that this procedure is a simple, safe and relatively an inexpensive one and it should be considered in all larygomalacic children, particularly for those experiencing feeding difficulties and apneic episodes.

Currently the interventional therapeutical modalities are reserved for severe laryngomalacia cases. We feel that laser aryepiglottoplasty, a relatively new and safe method, should be considered for also mild to moderate larngomalacia cases, not only to relieve breathing discomfort but also to decrease parental anxiety.

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