# Subglottic Leiomyoma: Report of a Case

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**Abstract:** Subglottic leiomyoma is a rare disease. We encountered such a tumor in a 7-year-old boy who was transferred to our hospital with respiratory distress and hoarseness of 2 weeks' duration. Stridor was noted and flexible fiberoptic examination revealed a huge mass over the subglottis. The tumor was removed endoscopically. Pathologic examination disclosed a leiomyoma. The patient recovered well and no recurrence was noted during 17 months of follow-up. Although subglottic leiomyoma is rare, it should be included in the differential diagnosis of a subglottic tumor.

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Leiomyomas are frequently diagnosed in the uterus and gastrointestinal tract [1, 2], but rarely in the larynx because of the lack of smooth muscle [3, 4]. We report a case of spherical leiomyoma measuring 7 mm in diameter found in the subglottis of a 7-year-old boy. The clinical course and histopathologic features of this rare tumor are described.

## Case Report

On December 7, 2000, a 7-year-old boy with no previous history of endotracheal intubation was referred to our outpatient clinic from a local medical center due to progressive respiratory distress and hoarseness for 2 weeks. Physical examination revealed inspiratory stridor. Fiberscopy revealed a smooth-surfaced fleshy tumor immediately below the right vocal cord, partially obstructing the subglottic airway (Fig. 1). Bilateral vocal cords were still freely movable. Neck computerized tomography (CT) scanning revealed a well-defined and well-enhanced mass over the subglottic area (Fig. 2).

Rigid ventilation bronchoscopy while the patient was under general anesthesia revealed that the tumor was spherical in shape and had a smooth surface without vascular engorgement. The tumor had a broad pedicle adhering to the right posterior wall of the subglottis. A No. 5 cuffed endotracheal tube was inserted. A suspension laryngoscope was used to remove the entire tumor with forceps. There was minimal bleeding throughout the procedure. Respiratory distress and hoarseness immediately improved after surgery.

On gross examination, this 7-mm diameter tumor was elastic, spherical and smooth. Histopathologic examination with hematoxylin and eosin staining showed interlacing fascicles of spindle-shaped cells with cigar-shaped nuclei and eosinophilic cytoplasm. No cellular atypia or mitoses were evident (Fig. 3). Immunohistochemical staining showed a positive reaction to smooth-muscle actin (Fig. 4), and leiomyoma was diagnosed.

The postoperative course was uneventful. Follow-up laryngoscopy 17 months after surgery revealed no signs of recurrence.

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**Fig. 1.** Fiberoptic revealing a smooth-surfaced fleshy tumor (arrow) immediately below the right vocal cord (arrowhead). The tumor was partially obstructing the subglottic airway.

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**Key words:**

- larynx
- subglottis
- leiomyoma

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Discussion

Papillomas are the most common pediatric laryngeal neoplasms and are usually benign [5–7]. Cases of leiomyoma outside the uterus and gastrointestinal tract are rare. Leiomyomas located in the larynx are also unusual because there is little smooth muscle in the larynx compared with the uterus and gastrointestinal tract [3, 4]. Our review of the literature found only 37 cases of laryngeal leiomyoma, most of which were in adults [3, 8–10]. The first reported case of laryngeal leiomyoma in Taiwan was reported in an adult in 1995 [11]. Pediatric subglottic leiomyoma has not been previously reported in Taiwan.

Leiomyoma of the larynx may be located in the supraglottis, glottis or subglottis. Most recorded cases were located in the supraglottis or glottis [3, 8–10]. The symptoms of laryngeal leiomyoma include hoarseness, dyspnea, and sensation of a foreign body or pain over the throat. In the subglottis, the possible origins of leiomyoma are either the muscular layer of the posterior tracheal wall or the walls of small blood vessels [4].

A large subglottic tumor was revealed by fiberoscopy in this patient, which made management by oral intubation problematic. Prior to this finding, we had prepared all necessary instruments including those for urgent tracheostomy, a rigid ventilation bronchoscope and a laryngoscope. Although the mass looked large, we were able to intubate the patient smoothly with a No. 5 cuffed endotracheal tube, the smallest cuffed tube available at our hospital.

Definite diagnosis of leiomyoma depends on histologic examination. The characteristic findings of leiomyoma are as follows: interlacing fascicles of spindle-shaped cells, cigar-shaped nuclei, eosinophilic cytoplasm, and a positive reaction to smooth-muscle actin or desmin by immunohistochemistry [1, 4, 12].

Three types of laryngeal leiomyomas have been reported: simple leiomyoma, vascular leiomyoma (angioleiomyoma), and epithelioid leiomyoma leiomyoblastoma, ‘bizarre’ leiomyoma [2, 8, 12, 13]. Vascular leiomyoma is a rare tumor rich in vascular components that is usually found in the skin of the limbs and the head [5]. Epithelioid leiomyomas occur mostly in the stomach [8, 13]. Pathologically, cells of epithelioid leiomyomas are arranged in solid nests and sheets, and the nuclei are usually oval or round, not cigar-shaped [8].
Elevated mitotic activity, anaplasia, and bizarre cell forms are criteria used to differentiate malignant leiomyosarcomas from benign leiomyomas [4, 12]. Clinically, the benign features of the tumor in this patient were smooth surface and free movement of the vocal cords despite the close proximity of the large tumor [4].

The treatment for laryngeal leiomyoma is excision [1, 5]. If the tumor obstructs the upper airway causing respiratory difficulties, tracheostomy should be performed before removing the tumor. Generally speaking, glottic and supraglottic tumors, and small subglottic tumors with a pedicle, may be removed by endoscopy. Nonetheless, for large subglottic tumors, it is safest and most appropriate to use an external approach [1, 2, 4, 5, 12]. Recurrence is rare after complete removal [1, 4, 12].

References