Post Transplant Lymphoproliferative Disorder (PTLD) of the Larynx in Children

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Abstract

Objectives: Posttransplant lymphoproliferative disorder (PTLD) involving the larynx has the potential to cause airway obstruction, and it is likely underdiagnosed. The objective of this report is to describe the clinical presentation, intraoperative characteristics, and management of two children with PTLD of the larynx.

Methodology: A detailed review of patient medical records was performed. A comprehensive literature review was completed using PubMed. The clinical characteristics of this disease are outlined. Treatment options and patient management strategies are discussed.

Results: (Case Reports): Between July 2013 and July 2014, two patients were presented with laryngeal PTLD. Patient 1 is a 16-month-old male who presented 7 months following liver transplantation with stridor during activity and elevated Epstein-Barr (EBV) titer. Flexible endoscopy demonstrated thickening of the epiglottis, arytenoid mucosa, and aryepiglottic folds. Patient 2 is a 9-year-old female admitted 9 years following cardiac transplantation with progressive airway symptoms, reduced oral intake, and weight loss. Laryngoscopy and rigid bronchoscopy demonstrated mucosal discoloration and thickening involving the posterior larynx. Both patients underwent intraoperative biopsy, confirming PTLD. Immunosuppression was reduced and the patient’s symptoms improved.

Introduction

Posttransplant lymphoproliferative disorder (PTLD) is the most common de novo malignancy to affect transplant recipients. It is known to occur more frequently in children, and disease often involves cervical lymph nodes and lymphatic tissue comprising Waldeyer’s ring.3 - 4 PTLD of the larynx is rarely identified, but may be an underdiagnosed phenomenon. As with PTLD in other locations, symptoms of laryngeal PTLD are frequently non-specific. Patients may present with symptoms of upper airway obstruction. Given this, clinicians should have a high index of suspicion for PTLD involving the larynx in transplant recipients presenting with upper airway symptoms. These patients are at increased risk for acute airway compromise in the operating room during any procedure. We present two cases of PTLD of the larynx, and describe the clinical presentation, intraoperative characteristics and patient management strategies.

Methods and Materials

A detailed review of the electronic patient medical records was performed. A comprehensive literature review was completed using PubMed. This study was exempt from IRB review.

Case Report #1

Patient 1 is a 16-month-old male who presented 7 months following orthotopic liver transplantation (OLT). He was initially admitted following hepatic encephalopathy concerning for acute cellular rejection, and noted on examination to have “noisy breathing”. The patient’s parents reported a two-week history of dyspnea on exertion and progressively loud snoring during sleep without apneic pauses or gasping. He was eating normally. On physical examination revealed mild stertor, inspiratory stridor, and erythematous, 2+ tonsils. Flexible laryngoscopy demonstrated an edematous epiglottis and thickened right aryepiglottic fold. The postcricoid and interarytenoid mucosa was erythematous. AP and lateral airway radiographs demonstrated an enlarged epiglottis. (Fig 1A) Microlaryngoscopy and bronchoscopy with biopsies were performed, confirming EBV-related lymphoid hyperplasia of the epiglottis and posterior larynx. (Fig 1B) The patient’s Tacrolimus dose was reduced to achieve a steady state level at 3-8 μg/L and he received several rounds of rituximab. Although his inspiratory stridor and snoring improved temporarily, he subsequently developed inspiratory stridor at rest one month later. Thickening of the arytenoid and epiglottic mucosa with a cobblestone appearance was again noted. (Fig 1C) Four months following his original diagnosis, the patient again developed mild stertor and inspiratory stridor despite marked improvement in the appearance of his larynx. Symptoms temporarily improved, but he subsequently developed inspiratory stridor at rest one month later. Thickening of the arytenoid and epiglottic mucosa with a cobblestone appearance was again noted. (Fig 1D) Repeat biopsies were negative for persistent disease. The patient has subsequently had his tonsils and adenoids removed due to sleep disordered breathing. He continues to be followed by ENT and gastroenterology and his EBV viremia has resolved.

Case Report #2

Patient 2 is a 9-year-old female who presented almost 9 years following cardiac transplantation for pulmonary atresia. The patient was admitted with worsening oral and oropharyngeal ulceration, reduced oral intake, and a 7lb weight loss. The patient had recently been started on Sirolimus, however this was discontinued shortly before admission due to a persistent cough and fatigue. At the time of admission the patient was receiving Tacrolimus (0.75mg twice daily) and immun (25mgdaily). Flexible laryngoscopy demonstrated ulceration and plaques involving the soft palate, base of tongue and larynx. A working diagnosis of candidiasis was established. Chest computed tomography (CT) was obtained with findings concerning for pulmonary involvement. A microlaryngoscopy and pulmonary bronchoscopy were performed. Microlaryngoscopy demonstrated yellowish plaques with a necrotic appearance involving the posterior pharyngeal wall and left arytenoid mucosa (ZA). The tracheal appearance was normal. Biopsies from the posterior pharynx and larynx demonstrated extensive mucosal necrosis and inflammation, without evidence of fungal elements. Subsequent analysis was performed and a diagnosis of PTLD was established. Repeat biopsies were performed 6 days later, which demonstrated persistent EBVs, CD20+ PTLD. Four days later the patient was taken back for possible debridement of necrotic tissue (Fig 2B). Biopsies were nondiagnostic. Following repeat biopsy the patient had an episode of hemoptoeia, endoscopy with biopsy revealed increased lymphoplasmacytic cellularity with EBV positive plasmacytoid cells. The patient’s immunosuppression was then changed to Tacrolimus monotherapy and reduced to 0.6 mg BID. EBV titer remained elevated and repeat endoscopy and biopsy was again positive for EBV plasmacytoid infiltrate. The patient was started on weekly Rituximab infusions for 1 month. The Tacrolimus level was then reduced from 7μg/L to achieve a steady state goal in the range of 4-6 μg/L. The patient continues to have issues with severe eczema and alopecia, however, she exhibits no evidence of oral lesions or upper airway symptoms.

Discussion

Transplant recipients have an overall rate of malignancy greater than that of the general population. Transplant recipients have an overall rate of malignancy greater than that of the general population. Posttransplant lymphoproliferative disorder (PTLD) of the larynx is rarely described in children, but may be an underdiagnosed phenomenon. As with PTLD in other locations, symptoms of laryngeal PTLD are frequently non-specific. Patients may present with symptoms of upper airway obstruction. Given this, clinicians should have a high index of suspicion for PTLD involving the larynx in transplant recipients presenting with upper airway symptoms. These patients are at increased risk for acute airway compromise in the operating room during any procedure. We present two cases of PTLD of the larynx, and describe the clinical presentation, intraoperative characteristics and patient management strategies.

References

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