CASE REPORT

A rare presentation of recurrent respiratory papillomatosis

Y. Mathangasinghe[1], I. H. D. S. Pradeep[2], Dhammike Rasnayake[2]
[1]Department of Anatomy, Faculty of Medicine, University of Colombo
[2]National Hospital for Respiratory Diseases, Welisara

Keywords: Respiratory; papilloma; recurrent papilloatosis; tracheobronchial

Introduction

Recurrent respiratory papillomatosis (RRP) is a rare disease characterized by the presence of multiple papillomata in the respiratory tract. The reported prevalence of RPR among adults is approximately 2 per 100,000 in European populations (1, 2), nevertheless, prevalence data of RRP in Asian populations are sparse. Moreover, RRP is usually a focal entity which predominantly involves the larynx (1). Here, we report a very rare presentation of RRP with diffuse tracheobronchial involvement.

Case Report

A 25-year-old female presented with progressively worsening dry cough, discomfort in the throat and shortness of breath on exertion of six months duration associated with loss of appetite and loss of weight. There was no pyrexia, haemoptysis, odynophagia or wheezes. Apart from mild persistent stridor, the rest of the respiratory system examination was normal, with on air oxygen saturation of 98%. She did not have features of connective tissue disorders, and her genital examination was unremarkable.

Her chest X-ray and Contrast Enhanced Computed Tomography (CECT) of the neck were normal. CECT of the chest revealed nodular thickening of the distal tracheal and main bronchial walls extending to bilateral lobar bronchi suggestive of tracheobronchial papillomatosis (Figure 1). Diffuse papillary lesions extending up to the segmental bronchi were visualized on fibreoptic bronchoscopy (Fig 2).

Guided biopsy of lesions revealed polypoidal mucosal tissue lined by respiratory epithelium with focal squamous metaplasia without evidence of granuloma, dysplasia or carcinoma. The core of the lesion showed moderate infiltration of mixed inflammatory cells suggestive of papilloma. Her serology was positive for Human Papilloma Virus 6 (HPV 6).

Correspondence: Yasith Mathangasinghe
E-mail: yasithmathangasinghe@gmail.com
Received: 13-09-2019 Accepted: 10-11-2019
https://orcid.org/0000-0003-4641-5642
DOI: http://doi.org/10.4038/sljs.v37i4.8636

Investigations for immunodeficiency including HIV serology and autoimmune screening were negative. She underwent bronchoscopy guided laser treatment of papilloma three

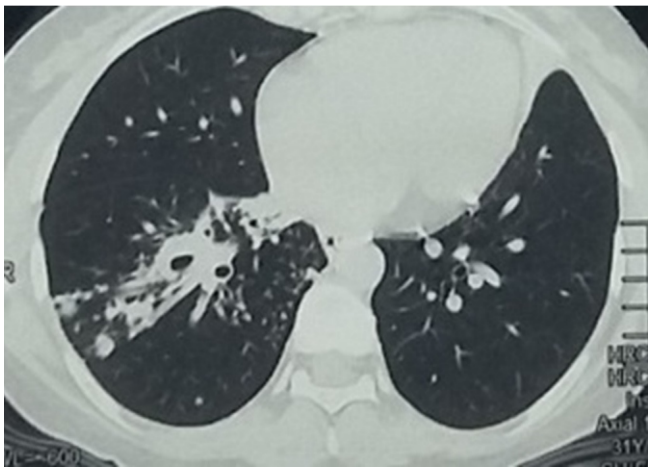

Figure 1. Contrast Enhanced Computed Tomography (CECT) of the chest showing diffuse tracheobronchial papillomatosis.

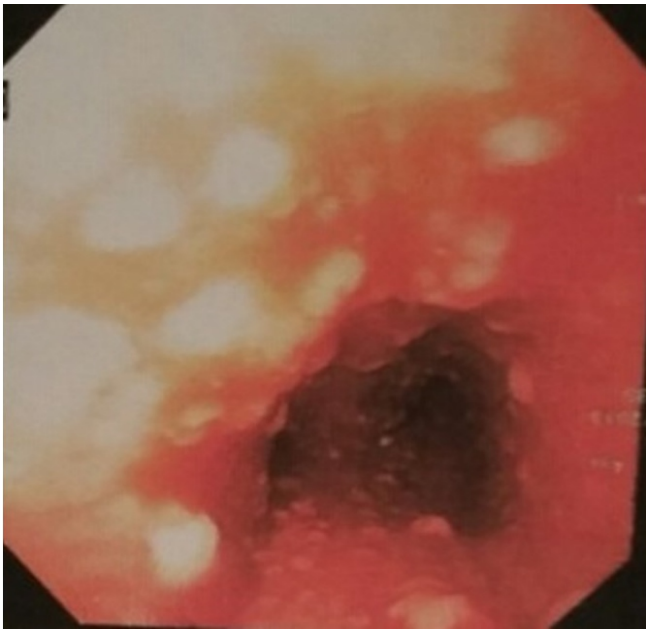

Figure 2. Fibreoptic bronchoscopy showing multiple papillary lesions in a bronchus

times, and due to the recurrent nature of the disease, she was treated with intravenous Cidofovir. She was followed up during the last 12 months at our institution and the last bronchoscopy which was performed four months ago showed no progression of the disease and her symptoms are well-controlled. The management plan is to follow her up at three monthly intervals and redo rigid bronchoscopy and ablation if necessary.

Discussion

RRP is a rare disease caused by HPV. HPV 6 and 11 are the most common aetiological factors in RRP (2), while diffuse and severe involvement of the respiratory tract is associated with HPV 6 (3). Young maternal age (<20 years), presence of genital warts during pregnancy, prolonged delivery, host genetic and immune factors including HLA status are possible risk factors for RRP in children while sexually transmitted HPV is the main risk factor in adults (2).

Clinical presentation of tracheobronchial papillomatosis is often nonspecific. Adults may present with cough, hoarseness of voice, wheezing, exertional dyspnoea and stridor, whereas children usually present with the symptoms of obstructive airway disease (2). Soft stridor may be audible if it involves the glottis (2). The stridor might change with the position of the patient (1). Oral papilloma can be found in 30% of the cases with diffuse RRP (3). Reticulonodular shadows with or without the involvement of the lung parenchyma may be visible on chest X-ray and CT (4). Operative endoscopy guided biopsy is the gold standard of diagnosis (2).

Macroscopically, the lesions are exophytic finger-like projections with a central fibrovascular necrotic core (5). Light microscopy demonstrates a stratified squamous lining in contrast with the pseudostratified columnar ciliated lining in the normal respiratory mucosa (5). The squamociliary junction of the larynx is the commonest site of focal RRP papillomata (1). The diffuse tracheobronchial extension is known to be associated with lung lesions, pneumatocoeles, cavitatory empyema and recurrent pneumonia (4). Though there was diffuse tracheobronchial involvement with papillomata, the lungs were spared in this case.

Debulking surgery while preserving normal anatomy is the treatment of choice (1, 2). Repeated surgeries are often necessary to control the disease due to its recurrent nature (1). CO_2 based laser methods were used initially for debulking. Argon Plasma Coagulation technique and other advanced laser methods were introduced subsequently. Submucosal and microsurgical resection methods are becoming popular since they prevent thermal damage to adjacent structures caused by laser (1). Currently, Argon Plasma Coagulation method and Laser are used in National Hospital for Respiratory Diseases in Sri Lanka.

RRP is considered "severe" when multiple sites of the respiratory tract are involved, four or more surgical interventions are necessary per year and the young onset of disease (1). Patients with severe disease are benefited from adjuvant therapy (2). Recombinant monoclonal antibodies against Vascular Endothelial Growth Factor (VEGF) such as bevacizumab; antivirals such as acyclovir, ribavirin and cidofovir; retinoids and cyclo-oxygenase-2 inhibitors have shown promise in treating severe RRP (2). The majority of "non-severe" cases are stable over time, while others progress or regress despite treatment (3). Periodic screening for the development of bronchogenic squamous cell carcinoma is necessary, especially in adult onset disease (1). Although current treatment modalities are not extremely efficacious in reversing the disease progression, the introduction of HPV vaccination might reduce the prevalence of RRP globally in the future.

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

References

1. Campisi, P., The Epidemiology of Recurrent Respiratory Papillomatosis, in Recurrent Respiratory Papillomatosis. 2017: Springer. p19-31. https://doi.org/10.1007/978-3-319-63823-2_2
2. Fortes, H.R., et al., Recurrent respiratory papillomatosis: a state-of-the-art review. Respiratory medicine, 2017. 126: p. 116-121. https://doi.org/10.1016/j.rmed.2017.03.030
3. Mounts, P., K.V. Shah, and H. Kashima, Viral etiology of juvenile- and adult-onset squamous papilloma of the larynx. Proceedings of the National Academy of Sciences, 1982. 79(17): p. 5425-5429. https://doi.org/10.1073/pnas.79.17.5425
4. Blackledge, F.A. and V.K. Anand, Tracheobronchial extension of recurrent respiratory papillomatosis. Annals of Otology, Rhinology & Laryngology, 2000. 109(9): p. 812-818. https://doi.org/10.1177/000348940010900905
5. Abramson, A.L., B.M. Steinberg, and B. Winkler, Laryngeal papillomatosis: clinical, histopathologic and molecular studies. The Laryngoscope, 1987. 97(6): p. 678-685. https://doi.org/10.1288/00005537-198706000-00005

Learning Points:

- Recurrent Respiratory Papillomatosis usually presents with nonspecific respiratory symptoms and a high degree of suspicion is needed for the diagnosis, even if the initial chest X-ray is normal.
- HPV 6 and 11 are the commonest aetiological factors of recurrent respiratory papillomatosis
- Bronchoscopy guided biopsy is the gold standard of diagnosis.
- Periodic screening is necessary for the early detection of bronchogenic squamous cell carcinoma