

Decoding atypical laryngeal growths – A case report

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ABSTRACT

Respiratory papillomatosis is a relatively rare disease with a potential for devastating consequences. The viral etiology of this condition has been well established. Most often, the wart is successfully managed surgically. Post-surgical removal, there exists a high chance of recurrence of the papilloma. It has been documented that surgical removal followed by an adjuvant therapy helps to delay the recurrence. Furthermore, the use of quadrivalent human papillomavirus vaccine is expected to decrease the incidence of respiratory papillomatosis or help with treatment of the disease in the years to come. Here, we discuss an unusually late presentation of adult-onset laryngeal papilloma that was managed with some deviation from the routine.

Key words: Laryngeal growth, Laryngeal papilloma, Papillomatosis, Recurrent respiratory papillomatosis, Viral wart

Recurrent respiratory papillomatosis (RRP) is a potentially life-threatening condition characterized by occurrence of papillomata anywhere in the respiratory tract, predominant sites being where there is a change of epithelium (e.g., from squamous to ciliated) and especially the tonsillar pillars, uvula, vocal folds, and laryngeal commissure. The condition is caused by human papillomavirus (HPV) serotypes 6, 11, 16, and 18. HPV infects the mucosal basal layer and induces cellular proliferations by activating host replication genes through epidermal growth factor receptor pathway, resulting in thickening of the basal layer and development of a papilloma which appears grossly as velvety or exophytic “cauliflower” [1,2].

Various studies have observed that patients of lower socioeconomic status are at increased risk of RRP. However, no correlation has been found between socioeconomic status and severity of disease [3]. Our patient is an elderly gentleman who was diagnosed with a viral wart for the first time in the eighth decade of life and was successfully managed surgically and with anti-viral medications.

CASE REPORT

This 74-year-old gentleman who is an ex-smoker and a known hypertensive on medication (Tab. Telmisartan 80 mg once daily) presented with complaints of hoarseness of voice for 4 months. The hoarseness was insidious in onset and associated with progressively increasing dysphagia to solids. He denied any recent history of fever, respiratory distress, cough, or any similar complaints in the past. On initial presentation, his vitals were

within normal limits and no abnormality was detected on external examination of the respiratory system and the larynx. Fiber optic laryngoscopy (FOL) revealed a vocal cord growth. He was adequately counseled and admitted with a plan for microlaryngeal surgery under general anesthesia. Chest X-ray revealed an opacity with multiple calcific foci in the upper zone of left lung field, few small ill-defined nodular opacities seen inferiorly and bilateral apical pleural thickening (Fig. 1). He was advised computerized tomography (CT) scan of the thorax for better visualization of the lesions, but consent was refused in spite of repeated counseling during admission and at the time of follow-up.

After pre-anesthetic check-up, under aseptic conditions, the said surgery was performed – a polypoidal mass over the anterior one-third of the right vocal cord growth was noted. The mass was excised and sent for histopathological examination (HPE) and, the hypopharynx was examined. Microscopic examination of the right vocal cord mass reported polypoidal vocal cord mucosa with hyperkeratosis, papillomatosis, acanthosis, koilocytic change, keratohyalin granules, and exocytosis of inflammatory cells; the final impression was viral wart (Fig. 2).

Postoperatively, he was maintained on oral antibiotics (Amoxicillin + Clavulanic acid 625 mg thrice daily for 5 days), NSAIDs and Serratiopeptidase (twice daily for 3 days). Post-surgical excision, hoarseness of voice persisted even in the absence of laryngeal edema. Hence, once the HPE report was received, he was advised adjuvant therapy with antivirals (Acyclovir 800 mg thrice daily for 21 days). The hoarseness disappeared soon after and FOL performed after 3 weeks revealed that the bilateral vocal cords were within normal limits (Fig. 3). 18 months post-surgery,

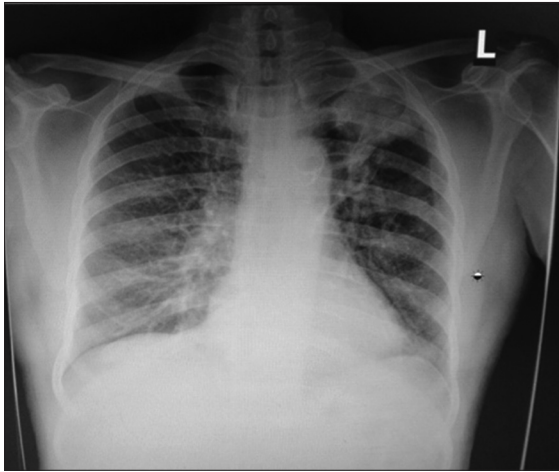


Figure 1: Chest X-ray done on the day of admission

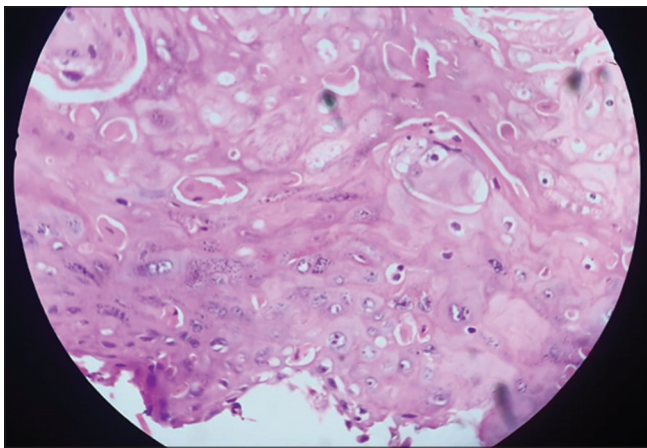


Figure 2: Histopathological examination $\times 40$ showing the viral wart

he continues to remain asymptomatic even in the absence of adjuvant therapy.

DISCUSSION

Laryngeal papillomatosis (LP), a disease caused due to HPV infection of the airway mucosa, is characterized by growth of exophytic proliferative lesions of connective tissue covered by epithelium. Although papillomas may present anywhere along the aerodigestive tract, the larynx is the most common location [2]. LP has an incidence of approximately 4.3 cases/100,000 children and 1.8 cases/100,000 adults annually [4]. In developed countries like USA, LP has a prevalence of about 0.002% in adults and 0.004% in children [5].

LP has bimodal incidence – the juvenile-onset RRP (JORRP) typically occurring in children aged 2–4 years and adult-onset RRP typically occurring in the third and fourth decades of life. Boys and girls appear to be nearly equally affected in JORRP, whereas adult-onset papillomas are more common in males (2:1) [1]. Our patient presented for the 1st time in the eighth decade of life.

Common presentations include hoarseness, stridor, cough, and dyspnea. Less commonly observed symptoms are snoring, mouth

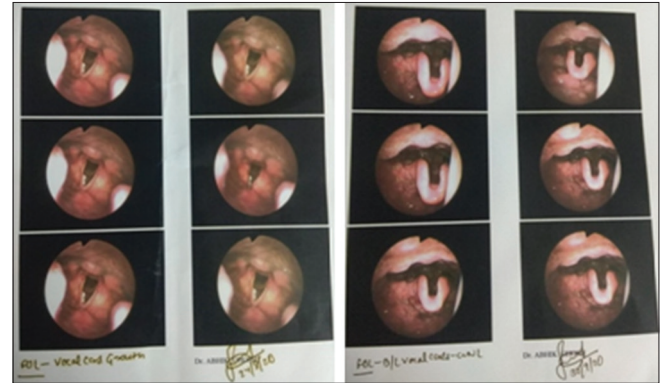


Figure 3: Fiber optic laryngoscopy before and after treatment

breathing, foreign body sensation, and weight loss. Patients in the pediatric age group may also present with failure to thrive. As with our patient, majority of the cases present with a combination of clinical features rather than an isolated complaint [6]. A study published in 2015 reported concurrent HPV infection of the oral cavity of 100% of the patients diagnosed with adult-onset RRP [7]. However, physical examination of our patient did not reveal any evidence of oral cavity HPV infection. Depending on the site, the diagnosis of the lesions is typically made through visualization by various imaging modalities or FOL, followed by biopsy of the suspicious lesions through laryngoscopy, nasopharyngolaryngoscopy, or bronchoscopy. The gross appearance of a wart is exophytic, with frond-like projections on white or pink lesions.

CT scan of the thorax advised in this patient would have been helpful in identifying possible lung papillomatosis. CT is highly accurate for the characterization of focal or diffuse airway constriction caused by nodular vegetant lesions. Patients with lung involvement are rarely diagnosed based on chest X-ray findings – solid or cavitated pulmonary nodules [4].

Treatment of RRP focuses towards removing the warts, decreasing the spread of disease, maintaining a patent airway, preserving the adjacent anatomical structures, improving voice quality, and increasing the time between surgical procedures. The primary treatment of RRP is surgical removal of the papilloma to reduce the tumor burden. Surgical options include cold steel excision, carbon dioxide or argon laser, endoscopic microdebrider, and pulsed dye laser. Tracheostomy might be necessary for patients with airway obstruction; however, it is to be avoided because tracheostomy creates a squamocolumnar junction which may activate or facilitate the spread of RRP [1]. We used suspension laryngoscopy to visualize the vocal cords before excision of the mass.

Adjuvant therapy is designed to slow the regrowth of papillomas and increase the time between surgeries. Medications used for this purpose include antivirals such as acyclovir, valacyclovir, ribavirin or cidofovir, interferon, and indole 3-carbinol (13-C) [8]. 13-C is an anticancer compound found in cruciferous vegetables such as cabbage, cauliflower, and broccoli. However our patient was administered a course of antivirals in view of persistence of symptoms post-excision, with excellent results.

To this day, no cure has been found for RRP. In 3–5% of patients, RRP will undergo a malignant transformation to squamous cell carcinoma. It has been observed that malignant transformation occurs many years after patients are usually diagnosed with RRP [9,10]. No dysplasia or malignancy was noted on HPE of our specimen. Theoretically, the quadrivalent HPV vaccine should prevent RRP, and further studies are required to focus on the role of vaccination to prevent RRP.

CONCLUSION

Due to its unpredictable course, knowledge and management of respiratory papillomatosis is essential to any clinical practice. As of now, efficacy of adjuvant therapies is limited to increasing the interval between surgical procedures. Although an optimal and universally effective cure for RRP is yet to be documented, vaccination maybe a good therapeutic option. In this regard, large scale randomized control trials and larger case control studies must be conducted. Additional research on the interplay between low-risk HPV and the immune system may pave the way for novel immunomodulatory approaches to better manage these patients. Furthermore, occasionally the physician may have to switch from the routine to an individualized treatment schedule, to achieve the desired outcome.

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