Laryngeal Papillomatosis in an Adult Patient Undergoing General Anaesthesia: An Incidental Finding

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ABSTRACT

Laryngeal papillomatosis is a rare respiratory tract disease of viral aetiology. It presents with airway obstruction, cough and voice affectation. Immunodeficiency and sexual behavior are predisposing risk factors. The index patient is a 32-year-old female in whom laryngeal papillomatosis was incidentally discovered during general anaesthesia and laryngoscopy, who developed recurrent disease following excision biopsy. For diagnosis, high index of suspicion is important, the slightest symptoms should be evaluated and neck x-rays and indirect laryngoscopy are valuable. Treatment is difficult and costly, entailing repeat surgeries and adjuvant drug therapies.

Keywords: Tumour, Human Papilloma Virus, Recurrent, Respiratory tract

INTRODUCTION

Laryngeal papillomatosis is a rare benign neoplastic disease arising in the mucous membrane of the respiratory tract consisting of exophytic proliferative lesions of connective tissue covered by epithelium due to Human Papilloma Virus (HPV) types 6 and 11 infection.[1,2] Lesions occur anywhere between the nasal cavity and the lungs.[1] It is commoner in females and children born to mothers with HPV infection, but may occur in adults. Symptoms include breathlessness, hoarseness of the voice, chronic cough, noisy breathing and dysphagia. Morbidity and mortality may occur during management.[3] Cases have been reported in Africa, America, Papua New Guinea, Australia and Europe.[1,2] Low social class is associated with the condition and is often responsible for late presentation and difficulty accessing medical care.[4,5] The incidence is reported as 3.1 cases per year in Senegal, and 1.8 per 100,000 in adults.[4,7] That of juvenile onset recurrent respiratory papillomatosis has been reported to be 4.3 per 100,000.[7] Mildly symptomatic lesions may be missed or misdiagnosed

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during preanaesthetic evaluation, high index of suspicion and appropriate investigations are vital.

CASE SUMMARY

A 32-year-old female chorister presented with 2 months' history of waist pain, pelvic fullness and a 3-year history of abdominal swelling. She had occasional mild voice hoarseness and phlegm production. She had no history of dysphagia, cough or breathlessness, was not sexually active and had myomectomy 5 years prior to presentation. Examination revealed a 22 weeks sized uterus. There was adequate mouth opening, thyromental distance was 7cm, and mallampati score was 1. Retroviral screening, full blood count and renal function tests were normal. Abdominopelvic ultrasonography showed uterine fibroids. She was booked for elective myomectomy under combined spinal epidural (CSE) anaesthesia. On the day of surgery, unavailability of CSE packs forced a change of plan to general anaesthesia. During laryngoscopy, she was found to have a warty mass attached posteriorly to the vocal cords, spreading from the left vocal cord towards the midline, and obscuring the tracheal inlet. Anaesthesia was discontinued, a size 5 laryngeal mask airway was inserted for manual ventilation, she was recovered from general anaesthesia, and referred to the oto-rhino-laryngologist for evaluation.

At the ear, nose and throat (ENT) clinic, examination revealed a supple neck, central trachea, cervical lymph nodes were not palpable. Indirect laryngoscopy revealed normal appearing base of the tongue, epiglottis, arytenoids, aryepiglottic folds and a papillomatous fleshy exophytic mass on both vocal cords with a slight occlusion of the glottic rima. There was equal bilateral glottis movement of abduction and adduction on phonation. Lateral neck X-ray showed irregularly shaped soft tissue opacities at C5-C6 level, obstructing the laryngeal air column (Fig 1). She couldn't afford neck CT scan. She was diagnosed with chronic laryngitis with laryngeal papillomatosis and booked for excision biopsy.

In the perioperative period, sedatives were avoided, small sized endotracheal tubes and tracheostomy tubes were kept ready, and preparations for possible emergency tracheostomy. Standard monitoring was commenced, intravenous atropine 0.6mg and dexamethasone 8mg given, pre-oxygenation with 100% oxygen done for 5 minutes, then anaesthesia was induced with incremental halothane from 0.4% to 3% in 100% oxygen and 100mg propofol. Upon adequate mask ventilation, and deep anaesthesia, 100mg suxamethonium was used to achieve muscle paralysis. Laryngoscopy and trachea intubation with a size 6.0mm internal diameter cuffed endotracheal tube were achieved.

Anaesthesia was maintained using isoflurane, atracurium was given for muscle relaxation, fentanyl and paracetamol were administered for analgesia. At the end of surgery, muscle relaxation was reversed with neostigmine 2.5mg and atropine 1.2mg, patient was recovered from anaesthesia, extubated awake, monitored for 20minutes for immediate postoperative complications before transfer to the recovery room.

She developed postoperative hoarseness of the voice and dysphagia, and was managed with diclophenac, augmentin, prednisolone tablets and strict voice resting. Histology showed a benign neoplasm composed of numerous proliferations of papillary structures lined by well differentiated squamous epithelium overlying fibrovascular cores with neither dysplasia nor abnormal mitosis, and made an impression of laryngeal papillomatosis (Figures 2 and 3). She subsequently had myomectomy for her initial diagnosis.

Six months later, she presented with hoarseness of the voice and feeling of presence of a foreign body in the throat. Indirect laryngoscopy revealed papillomatous fleshy mass on the right vocal cord and posterior commissure. Endoscopic nasopharyngoscopy was recommended but was unaffordable to the patient.

Figure 1. Lateral X-ray of the neck showing irregularly shaped soft tissue opacity at the level of C5-C6, obstructing the laryngeal air column

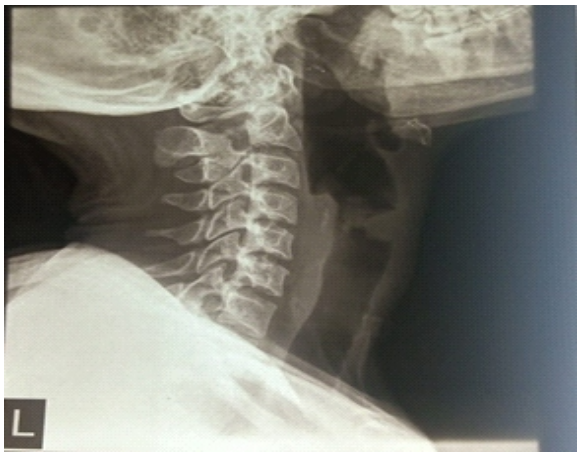


Figure 2. Photomicrograph(X40) shows a benign epithelial neoplasm composed of proliferating squamous cells having slightly enlarged nuclei and abundant eosinophilic cytoplasm disposed in papillary pattern and separated by thin fibrocollagenous stroma, some of these papillae have fibrovascular core. Overall features are those of squamous papilloma.

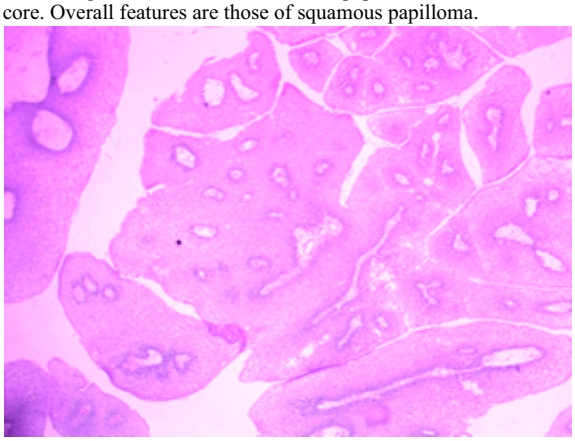
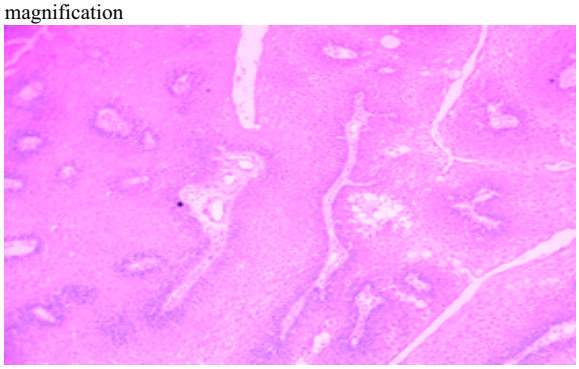


Figure 3. Photomicrograph (X100) showing the lesion at higher magnification



DISCUSSION

Laryngeal papillomatosis have a predilection for the larynx but may occur anywhere along the respiratory tract.[1,2,6] Immunodeficiency, HPV infection, more lifetime sex partners and higher frequency of oral sex are risk factors.[8] Patients often trivialize dysphonia, and dyspnea may occur after prolonged disease.[4,7] Features may resemble other obstructive airway diseases; misdiagnosis and late presentation with acute airway complications are common.[1,5,9] The index patient was neither immunocompromised nor sexually active, had lesions restricted to the larynx and attributed her hoarseness to frequent singing.

The condition is common in children bellow five years, affecting more males than females.[1] Adult-onset recurrent respiratory papillomatosis occurs in persons in the fourth decade of life. Our patient was a female in her 4th decade of life without childhood nor maternal historical predisposing factors.

Recurrent lesions are difficult to cure, can spread to the hypo laryngeal vestibules, epiglottis, trachea and lungs, and may lead to head and neck cancers. Surgery is aimed at ensuring airway patency, preserving underlying laryngeal tissues and maintaining an acceptable voice quality.[2,6] Patients often require repeated surgeries which might include micro debridement, photoangiolytic laser treatment, carbon dioxide laser treatment and tracheostomy. Adjuvant pharmacological therapies aim at immunomodulation, disruption of HPV replication, control of inflammation and prevention of angiogenesis. Interferon therapy, cidofovir, bevacizumab, celecoxib, programmed cell death-1 inhibitor, HPV vaccine prolong time to recurrence.[10,11] Cost is a major constraint and affected our patient's care.

The anaesthetic management aims at ensuring airway patency and ventilation. Communication between the anaesthetist and surgeon is important. Induction with sevoflurane, halothane or propofol may be used.[12,13] Spontaneous ventilation ensures some degree of

muscle tone and gas exchange.[12] Mask ventilation of the patient was possible following induction, and we were able to safely intubate following administration of suxamethonium. As in this patient, small tubes should be used for endotracheal intubation and readiness for a surgical airway must always be ensured. Endotracheal intubation has been implicated in distal seeding of lesions.[13] Anaesthesia may be maintained with propofol and remifentanil, isoflurane or sevoflurane.

Complications include bleeding, oedema, pain, dysphagia or obstructive symptoms. Humidified oxygen should be used in the recovery room. Stridor may be managed with dexamethasone and nebulized adrenaline. For our patient, voice rest alleviated postoperative hoarseness.

A high index of suspicion during the preanaesthetic visit will ensure that subtle features of this condition are detected. Painstaking investigation and follow up are key in management. Affordability of care however constrains patient management.

Disclosure
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