

A rare complication following the removal of a palatal tumour

Abstract

Post-Extubation stridor (PES) is a condition that has been fairly reported in the literature of anaesthesiologists yet scarcely reported in that of Maxillo-facial surgeons. Post-extubation stridor has multiple aetiologies and risk factors that can promote this condition. However, there are techniques that can predict the occurrence of this complication. More importantly the question remains how to have a prophylactic approach towards this condition. We present a case of a 60 year old female patient that endured this complication after removal of a palatal pleomorphic adenoma.

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Islam Ellabban, Mohamed Hamed, Khalid Hassan

Department of Oral and Maxillofacial Surgery, Misr international University, Egypt

Correspondence: Islam Ellabban, Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Misr International University, Cairo, Egypt, Email islamellabban7@hotmail.com

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Introduction

PES is defined as the presence of a high-pitched inspiratory wheeze after extubation requiring medical intervention. Associated with respiratory distress within 24 hours of extubation¹ PES was accompanied with a respiratory rate >30/minute or increase by >10/minute from baseline. PES is a serious complication that could lead to respiratory failure if it is not properly addressed. Consequently, anaesthesiologists started to devise techniques in order to avoid this complication, whilst others focused on the treatment and prophylaxis of this condition. The main causative factor for PES was laryngeal oedema that could occur² due to trauma from decreased airway lumen results in an increase of air flow velocity, producing the pathognomonic sound of stridor.

Case report

A 60 year old female patient attended the university out-patient clinic with a chief complaint of a painless lump. There was no history of fever or purulent discharge. The patient gave no history of other skin or mucosal lesions. Extra-oral examination revealed that the patient was healthy looking but obese, The Cervical Lymph nodes were not palpable or tender. There was normal mouth opening with no deviation or clicking of the temporo-mandibular joints. Eyes,

Nose, Ears and Lips all clinically appeared Normal. Intra-oral examination revealed a swelling that starts 8mm from the gingival margins of upper anterior teeth to the gingival margin of the upper right first permanent premolar. The lesion is slightly shifted towards the right side and does not involve the soft palate. Its size was approximately, 5cmx7cm. it was Oval Rounded Sessile Nodule. It had a normal Colour of the surrounding mucosa with no evidence of ulceration. And the consistency was firm (Figure 1). A fine needle aspiration biopsy was done and gave a negative result. Subsequently an incisional biopsy was carried out and sent for histopathological examination after a CBCT had revealed no bony erosion in the palatal bone. The results came back manifesting clusters of round or stellate cells lying in eosinophilic mucinous material. No definite malignant criteria can be seen in the cells. The stroma in this specimen showed large hyalinised dense and acellular areas separating the islands of the tumour cells. These histopathological findings were highly suggestive of Pleomorphic Adenoma. Hence an excisional biopsy under general anaesthesia was planned. All biochemical investigations were within normal range except the patient's Blood Glucose Level. Her fasting blood sugar was 220 mg/dl and the Postprandial Blood sugar was 365 mg/dl. Diabetician consultation revealed the need for shifting the patient treatment from oral hypo-glycaemics to Insulin for proper blood sugar management.



Figure 1

The lesion was undermined from its edges using electrocautery. The specimen was then separated from the underlying palatal periosteum by blunt dissection using a muco-periosteal elevator and the specimen was delivered using Allis forceps. A periodontal Pack was placed over the surgical field and was covered with a preoperatively made palatal stent to prevent hematoma. The specimen was placed in 10 % formalin and was sent for histopathological examination. Upon about five minutes of withdrawal she suffered difficulty in breathing; sweating and eventually she lost consciousness. The patient was re-admitted to the hospital emergency Room. Clinical Examination, the patient had endured difficulty in breathing, Vital signs showed a Pulse: 100 beats/min, Temp: 37 C, Blood Pressure: 120/80 mmhg, breathing: 14/minute Random Blood sugar: 170 mg/dl. Investigations revealed a normal ECG, CT brain and cardiac enzymes. Finally the emergency consultant diagnosed her to be suffering from Post-extubation stridor. Consequently she was administered Adrenaline via a nebulizer and hydrocortisone I.M 100 mg. the patient's respiration had significantly improved and she was released from the hospital the following day.

Discussion

In this case the surgery was uneventful; however it was in the post-operative scenario in which the complication had occurred. Respiratory complications after tracheal extubation are three times more common than complications occurring during tracheal intubation and induction of anaesthesia (4.6% vs 12.6%).³ Although laryngeal edema occurs in nearly all incubated patients, only some of them develop clinical symptoms. Laryngeal edema is therefore usually transient and self-limiting. Clinical signs associated with laryngeal edema develop about 15% of all reintubations are performed because of post-extubation laryngeal edema.⁴ Laryngeal Oedema due to damages by endotracheal intubation (trauma to the larynx), oedema will lead to decreased size of the laryngeal lumen, the decreased airway lumen results in an increase of air flow velocity.² The main aetiologies for PES was mobile and large tracheal tubes, excess cuff Pressure, tracheal infection, aggressive tracheal suctioning, and the presence of a nasogastric tube.⁴ Meanwhile the risk factors are female gender due to a narrower trachea, prolonged intubation⁴ and a high body mass index.⁵

Management

Initially this condition was controlled by re-intubation, other treatment modalities started to rise like intravenous or nebulized corticosteroids combined with nebulized epinephrine, these are the most common drugs. However, in severe cases reintubation is a must. Laryngeal oedema can be severe enough to prevent the success of re-intubation, in this case emergency tracheostomy is mandatory to save the patient's life.⁶ Miller and Cole in 1996 were the first to try to devise test that would aid in predicting PES. Before the test measurement, oral and endotracheal secretions were suctioned, and the ventilators were placed on the assist-control mode. Inspiratory Tidal volume is measured just after intubation and expiratory tidal volume is measured just after extubation with the cuff inflated and deflated. Six subsequent breath cycles were measured and the average value was calculated.¹ The leak volume was defined as a difference between expiratory tidal volumes with the cuff inflated and deflated. Increased difference indicates that the patient has a high risk for PES other methods started to come into light like the utilization of ultra-sound.⁷ Later on, studies were done to compare between the two techniques, which turned out

that the CLT had more sensitivity and specificity.⁸ The next question was what can be done for the prophylaxis of patients who turned out to have a high risk for PES. The administration of corticosteroids was the key to this issue where Corticosteroids (budesonide) were nebulized following extubation and compared with nebulized saline (Placebo), this resulted in more than 50% reduction in the incidence of PES for high risk patient in the corticosteroid group. In a meta-analysis revealed that the most effective regimen was to administer Corticosteroid at least four hours before planned extubation.⁹

Conclusion

Our aim in this case report was to alert maxillofacial surgeons of this condition that could appear simple, yet has grave complications, consequently surgeons should avoid early dismissal of the patient. There should be an increased co-operation between anaesthesiologist and Maxillofacial surgeons in order to identify patients who have a high risk to develop PES and seek the means to prevent it. Also, rapid management of this complication is mandatory if it occurs.

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Conflicts of interest

Author declares that there is no conflict of interest.

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