

## CASE REPORT

# Airway management in a patient with large antrochoanal polyp

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## ABSTRACT

Anesthetic management of patients with large antrochoanal polyps needs anticipation and adequate preparation for the associated problems. Presenting as nasal polyps, these may mislead and cause unexpected problems in ventilation as well as intubation. We present a case of a large antrochoanal polyp leading to bilateral nasal obstruction undergoing general anesthesia for polypectomy. A brief review of literature is included.

**Keywords:** Antrochoanal polyp; Oropharyngeal airway obstruction; Sinonasal polypectomy

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## INTRODUCTION

An antrochoanal polyp or Killian's polyp (after Professor Gustav Killian, who described it in 1906) is a benign solitary polypoid lesion that affects mainly children and young adults. Originating from the maxillary sinus antrum, it grows through the maxillary sinus ostium towards the nasal cavity and posterior portion of the pharynx. Presenting as a case of nasal polyps, it may mislead and cause unexpected problems for the unsuspecting anesthesiologist during ventilation and intubation. The purpose of this case report is to reiterate the potentially dangerous implications of general anesthesia for surgery for these polyps can have.

## CASE REPORT

A 35 year male patient with BMI of 23 kg/m<sup>2</sup>, presented in the ENT outpatient department with complaints of bilateral nasal obstruction, change in voice and recurrent headaches for the previous one year. He also complained of rhinorrhoea and hyposmia. On examination it was seen that the patient had obstructed nasal breathing and was predominantly a mouth breather. The degree of obstruction did not increase in the supine position. Oropharynx examination was done in the sitting position revealed no mass in the oropharynx. Airway was classified

as Mallampati grade II. Neck extension and thyromental distance were within normal limits. Wilson Risk Score was less than 5 indicating easy laryngoscopy and intubation. A coronal view on contrast enhanced computerized tomography scan of paranasal sinuses reported a mass lesion extending from the left maxillary antrum into the nasopharynx and left nasal cavity. There was also an extension of the mass into the right nasal cavity. Axial view of CT scan showed a mass at the junction of nasopharynx and oropharynx. Systemic examination did not elicit any abnormality. Blood tests revealed a normal hemoglobin, platelet count, coagulation profile and renal function. Patient was diagnosed as a case of antrochoanal polyp with bilateral extensions into both nasal cavities and was posted for transnasal endoscopic sinonasal polypectomy under general anesthesia. No sedative premedication was given to the patient in preanesthesia room. In the operating room, anticipating the unexpected difficult ventilation and intubation difficult airway aids were kept ready. Fiberoptic bronchoscope mounted with a 7.5 mm ID tube was also kept ready. Monitoring included electrocardiogram lead II, pulse oximetry, non invasive blood pressure and capnography (Philips Sure Sign VM USA). Patient was given intravenous midazolam 2 mg, glycopyrrolate 0.2 mg and induced with intravenous propofol 2.5 mg/kg and fentanyl 2µg/kg. After ensuring adequate mask ventilation

and chest expansion, intravenous succinylcholine 2 mg/kg was given for vocal cord relaxation. On mask ventilating after giving relaxant we observed that the patient's chest was not expanding with positive pressure and capnogram also confirmed the observation. As arterial saturation at that moment was still 99% we did a fiberoptic bronchoscopy to investigate the cause of obstruction as well as to aid in intubating the patient. A large soft tissue mass was seen in the posterior nasopharynx extending into oropharynx which was obstructing the airway. Fibrescope was navigated past the mass through the cords, manipulation of a cuffed 7.5 mm ID tube was achieved into the trachea and airway secured. Packing was done around the tube to protect the airway from aspiration of blood. Nasal endoscopy was done and a fleshy polypoidal mass about 5×2 cm with a pedunculated extension (Fig.III) was excised and extracted via the left nostril. After haemostasis was achieved, orotracheal suction was done under vision, pack removed and extubation performed uneventfully when the patient opened his eyes and responded to our commands. Postoperatively patient had an uneventful course and was discharged on 3<sup>rd</sup> postoperative day. The patient was seen in the outpatients department two weeks postsurgery and was well with complete resolution of his symptoms.

## DISCUSSION

The antrochoanal polyp is benign solitary polypoidal lesion arising within the maxillary sinus but passing through and enlarging the sinus ostium or more commonly an accessory ostium into the choana and posterior nasopharynx.<sup>1</sup> It is most commonly seen in young adults in 3<sup>rd</sup> to 5<sup>th</sup> decades and is more common in males compared to females.<sup>2</sup>

These patients are usually young ASA I/II patients who are posted for transnasal endoscopic sinonasal polypectomy or functional endoscopic sinus surgery (FESS). Large choanal polyps obstructing the oropharyngeal airway have been reported in scientific literature.<sup>3</sup> A similar case of unilateral antrochoanal polyp with bilateral nasal obstruction has also been reported.<sup>4</sup> A history of change in voice should be suggestive of pharyngeal extension of the polyp. Thorough preoperative evaluation of the airway including indirect laryngoscopy to see the post nasal space and larynx for any growth and CT paranasal sinuses to see the extent of the mass is a necessary prerequisite. CT scans are helpful in attempts to quantify the extent of polyp disease and are essential before any surgical intervention.<sup>5</sup> The polyps are expansible and in some cases may expand and erode the skull base<sup>6</sup> CT scan is essential for gathering data on the state of the skull base in these patients. A contrast x-ray

neck lateral view may also prove useful in these cases.<sup>7</sup> Although larger masses may prolapse posteriorly and be visible through the mouth as they hang down from the nasopharynx, in our case no mass was visible on oral examination. A similar finding has also been reported by other authors<sup>7</sup> which may sometimes lead to judgemental errors. In our case the mass extended from the maxillary sinus ostium into the nasopharynx, and so was not visible on oral examination. Polypoidal masses arising from posterior ethmoidal sinus hang down in the oropharynx and are better visible.

We did not noticed any increase in the degree of obstruction after the patient assumed supine position while still conscious. Also there was no difficulty in mask ventilation so we felt safe in administering the relaxant. We were adequately prepared with airway aids like oropharyngeal airway and fibrescope to aid airway control in case of difficulty. Loss of muscle tone and airway collapse after muscle relaxant administration increase vulnerability of the upper airway to be obstructed during anesthesia leading to inability to ventilate the patient, as happened in our case. Adequate preparation for sudden loss of airway control, e.g. fiberoptic intubation or tracheostomy, should be ensured. Either securing the airway before anesthesia in doubtful cases or alternatively maintaining spontaneous breathing until intubation is the alternative. Insertion of an oropharyngeal airway and attempting ventilation may have helped, but has the risk of accidental traumatic bleeding and worsening of the situation. Use of a laryngeal mask airway in supraglottic lesions is not advocated for obvious reasons. Since we were prepared with the fibrescope we preferred to directly investigate and intubate the patient. We deliberately chose a smaller sized tracheal tube so that any risk of difficulty in tube manipulation into the trachea due to mass could be diminished.

Because of the risk of aspiration of blood, awake extubation should be performed in sinonasal surgery. Blood tests should always be performed in these patients to ensure that they are not suffering from underlying coagulopathy or blood dyscrasias since bleeding is a high risk factor in nasal cases and achieving adequate hemostasis is a challenging task.

## CONCLUSION

We would like to emphasize through this case report the probable airway difficulties and adequate preparations for a case of nasal polyps. All aids for airway control should be in place and expertise in fiberoptic intubation should be at hand.

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