
CASE REPORTS

ALAR NECROSIS DUE TO PILOT TUBE EROSION IN A NASOTRACHEALLY INTUBATED INFANT: A CASE REPORT

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Abstract

Prolonged nasotracheal intubation is a risk factor for alar necrosis. Here, we discuss the case of a nasotracheally intubated infant who developed significant alar necrosis due to erosion of the pilot tube into the right nare.

Introduction

Nasal injury is a rare but potentially serious complication that can occur as a result of nasotracheal intubation¹ or nasogastric tube placement. In a review of anesthesia closed claims collected from 35 major professional liability insurance companies, 13 out of 4,460 claims for adverse outcomes were due to nasal injuries².

Although a rare problem, one review article summarized several case reports whereby poorly fitting or inadequately fixated nasotracheal tubes were suspected to have caused alar necrosis³. In children, prolonged nasotracheal intubation is also cited as a risk factor for development of alar necrosis⁴. We present a unique case in which the prolonged intubation of a pediatric patient led to erosion into and necrosis of the nasal ala by the pilot tube, which to our knowledge has not been reported in the literature. We have also included photographic examples of this rare complication to elucidate the potential outcome of prolonged nasotracheal intubation.

Case Report

Our patient, a full term female, was noted at birth to have a heart murmur and multiple anomalies including dysplastic thumbs and a short neck. Further workup revealed the presence of coarctation of the aorta, a large ventricular septal defect, patent ductus arteriosus, unicuspid aortic valve and aortic stenosis. There was no specific genetic diagnosis discovered, though the patient was tested for multiple anomalies including Turner's syndrome and DiGeorge syndrome.

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She underwent a hybrid procedure which included bilateral pulmonary artery banding and ductal stent placement at two weeks of age. She subsequently endured a complex post-operative course and required reintubation and developed persistent ventilator dependency due to recurrent hypoxia and respiratory distress. She did self-extubate inadvertently during this time period and rapidly became hypoxic and suffered a cardiac arrest, which was responsive to resuscitation. She was found to be a difficult intubation at this time.

Additional investigation revealed tracheal narrowing with a diagnosis of complete tracheal rings extending from the subglottis to the carina. It was difficult to advance an endotracheal tube past the narrow segment of the trachea, and the patient remained intubated for approximately one month prior to a slide tracheoplasty performed by the cardiovascular surgery service at two months of age.

On arrival to the OR, the anesthesiologist untaped the original endotracheal tube and discovered that the pilot tube (the narrow connection between the endotracheal tube and the pilot cuff) had eroded into the right nasal ala.

Following the procedure she was reintubated by the anesthesiologist in the contralateral nare and the tube was carefully taped.

Plastic surgery was consulted after the patient's

slide tracheoplasty and recommended twice daily application of standard concentration bacitracin ointment and further consultation as an outpatient to discuss a future revision of the scar tissue. The patient tolerated the bacitracin application well and the initial lesion healed without further complication. Follow-up of this inpatient at several months of age revealed significant residual notching of the affected nare which may become cosmetically distressing to the patient at a later date.

Discussion

The occurrence and delayed diagnosis of nasal alar necrosis in this patient was likely due to her tenuous respiratory status and known difficult airway. The patient's nursing team reported that they had been hesitant to check the tube and its taping for fear of dislodging it.

Prolonged nasotracheal intubation puts patients at risk for injuries such as nasal alar necrosis. Erosion of the pilot tube into the nasal ala may be reduced by careful securing of the nasotracheal tube and frequent checks to ensure undue pressure or tension from the ventilator circuit is not being exerted on the nasotracheal tube or its pilot cuff on the nare.

Fig. 1

Nasotracheal tube in right nare with pilot tube erosion into ala



Fig 2

Alar necrosis is revealed upon displacement of pilot tube



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