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Case Report

Ear, Nose and Throat Section

A Rare Case of Severe Post Adenoidectomy Secondary Haemorrhage

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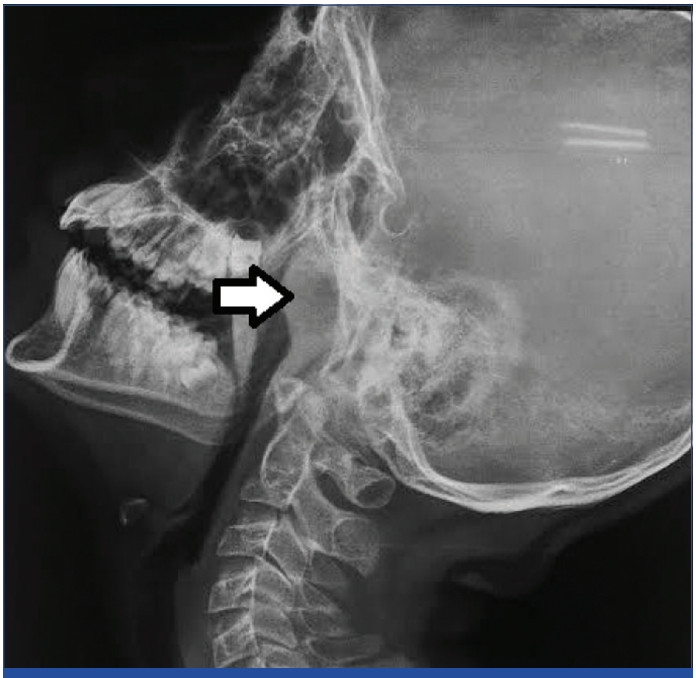
ABSTRACT

Tonsillectomy and adenoidectomy are amongst the most common surgeries performed in children. Haemorrhage, after and during these procedures, is a major and known complication. Most commonly, the haemorrhage presents intraoperatively or in the immediate postoperative period and is self-limiting. However, secondary haemorrhage presenting after adenoidectomy where adenoidectomy alone was performed have been reported in very few patients. In this case, a 10-year-old male presented with history of upper airway obstruction including sleep apnoea, adenoid facies, and bilateral moderate conductive hearing loss since four years. He had no co-morbidities, history of bleeding diathesis. The preoperative evaluation of the adenoids (clinically and radiologically) revealed no abnormal vasculature or anatomical variations. Conventional adenoidectomy and bilateral grommet insertion was performed under General Anaesthesia (GA). The postoperative period was entirely uneventful, and the patient was discharged on postoperative day 3. Despite having no risk factors, he presented with profuse posterior epistaxis after conventional adenoidectomy on postoperative day 5. Immediate management was done by posterior nasal packing and intravenous amoxicillin-clavulanate. Definitive treatment was done by re-exploration and debridement of the remnant adenoid tissue using a microdebrider under GA the next day. The patients had no complaints postoperatively or at 6 months follow-up. The rarity of complications makes adenoidectomy a fairly safe procedure. However, despite being uncommon, secondary complications of adenoidectomy should be anticipated by surgeons to avoid dire consequences for the patient.

Keywords: Adenoid, Bleeding, Complications, Debridement

CASE REPORT

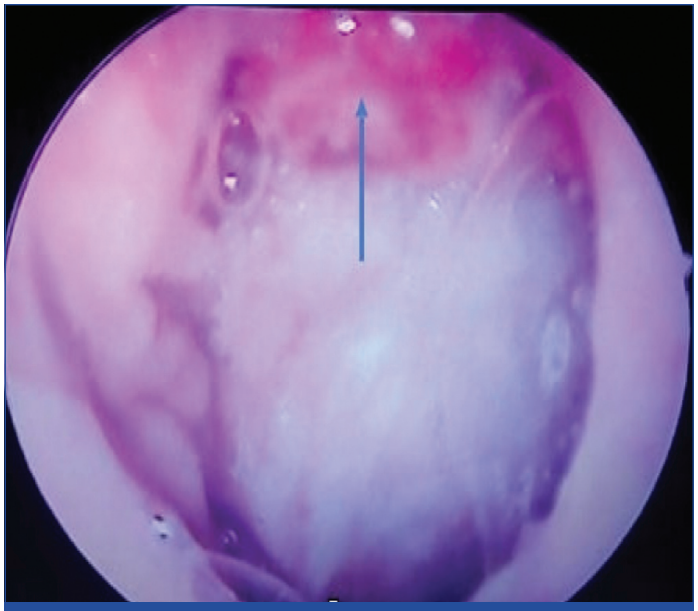
A 10-year-old male presented to the Outpatient Department, with history of recurrent rhinitis, mouth breathing, snoring and daytime sleepiness for four years. He had classical adenoid facies including a high arched palate, crowded teeth, and malar hypoplasia. Diagnostic nasal endoscopy and lateral radiograph of the neck revealed grade IV adenoid hypertrophy [Table/Fig-1] completely obstructing both choanae. He also had bilateral, moderate conductive hearing loss of 30 db and a 'B' type curve on impedance audiometry. On Examination Under Microscope (EUM), he was found to have bilateral bulging, dull tympanic membranes. There was no concomitant tonsillar hypertrophy. He was posted for adenoidectomy with bilateral grommet insertion after appropriate preanaesthetic clearance. A written and informed parental consent was taken. There were no co-morbidities, no history of bleeding diathesis or any other relevant complaints and all his biochemical parameters were within normal limits.



[Table/Fig-1]: Radiograph-soft tissue neck lateral view showing adenoid hypertrophy.

Intraoperatively, bilateral grommet insertion was done followed by adenoidectomy under general anaesthesia with endotracheal intubation. Boyle Davis mouth gag was applied. Adenoids were palpated, medialised and curetted out with St. Clair Thomson's adenoid curette. Posterior choanal patency was confirmed by posterior rhinoscopy. Minor intraoperative bleeding was controlled on table adequately. Blood loss during the surgery was 80 mL. Patient tolerated the procedure well and the postoperative period was uneventful. The child was discharged on postoperative day 3 under antibiotic coverage.

On postoperative day 5, he presented to the emergency with profuse anterior and posterior nasal bleeding and haematemesis. He complained of mild pain and itching in the nose and throat for a day before the onset of bleeding. The bleeding was bilateral, sudden in onset, profuse and continuous. On examination, he was afebrile, tachycardic with a pulse rate of 101/min and blood pressure of 100/70 mmHg with active epistaxis. On diagnostic nasal endoscopy, minimal remnant adenoid tissue was found near the posterior choanae[Table/Fig-2]. It was congested and haemorrhagic with adherent blood clots. Posterior nasal packing was done, bleeding controlled, and the child was admitted and administered intravenous amoxycillin clavulanate and tranexamic acid, according to the body weight. His haematological parameters including total leucocyte count, platelet count, prothrombin time/activated partial thromboplastin time/International Normalised Ratio (INR) were found to be within normal limits. The patient was taken up for surgery under General Anaesthesia (GA) the next day and the remnant adenoid tissue was removed under observation by microdebridement followed by cauterisation [1].He was monitored for a week and then discharged. The patient has been followed-up regularly and remains asymptomatic six months postoperative.



[Table/Fig-2]: Minimal haemorrhagic adenoid remnants as seen on diagnostic nasal endoscopy.

DISCUSSION

Adenoid hypertrophy is a very common pathological condition in children. They are present at birth and gradually increase in size as an immunologic response to antigen exposure. It usually presents with evident manifestations including facial dysmorphism, dental malocclusion, breathing difficulties, swallowing problems, sleep disturbances including sleep apnoea, decreased hearing and subsequent decline in intellectual and physical growth and social interaction. If diagnosed early, however, it has excellent prognosis with complete resolution of all symptoms. Adenoidectomy has been treatment of choice for these cases for decades. Earlier quite a few physicians preferred conservative management for 3-6 months before advising surgery. However, these days, adenoidectomy is preferred as the first line of management in patients with sleep apnoea and protracted sinonasal infections to prevent the long-term complications of adenoid hypertrophy.

Due to its cost-effectiveness the most common method of adenoidectomy is still conventional curettage, especially in developing countries. Other more recent methods include co-ablation, suction diathermy, endoscopy-assisted adenoidectomy, powered adenoidectomy and carbon dioxide or potassium-titanyl-phosphate laser adenoidectomy. Complications during or after adenoidectomy are quite common, however, serious complications are rare. Complications in the immediate postoperative period include haemorrhage, infection, pain, dehydration, uvular oedema amongst others. The more unusual complications include atlantoaxial subluxation, mandibular fracture, injury to eustachian tube, vascular injury, subcutaneous emphysema, mediastinitis, cervical osteomyelitis and taste disorders [2].

Haemorrhage remains the most common complication of adenoidectomy. Primary haemorrhage following adenoidectomy is common but secondary haemorrhage is extremely rare. Secondary haemorrhage has been reported in only 0-0.49% cases following adenoidectomy [3]. In most cases, it is due to adenoid remnants near the choana or torus tubaris, seen in conventional adenoidectomies [4]. According to the Surgical Instrument Surveillance Programme, 2003, the rate of R1 bleed for both tonsillectomy and adenoidectomy were the same. However, R2 bleed after adenoidectomy alone was never reported in their five years study [5].

Till date, the cause for the relative rarity of secondary bleed postadenoidectomy remains unknown. Primary cases of postadenoidectomy bleed are thought to be due to remnant adenoid tissue near the choana or torus tubaris or injury to the musculature to the adenoid bed [3]. Such patients can be easily managed by cauterisation or removal of the remnant tissue, or alternatively, conservative management by posterior nasal packing.

Haemorrhage has been managed successfully over decades by postnasal packing in majority of cases [5,6]. Literature shows that postnasal packing is still the most commonly utilised method to control and prevent post-adenoidectomy bleed. In a study conducted in England to assess the management of reactionary haemorrhage after adenoidectomy, it was observed that 87.3% of the surgeons preferred postnasal packs. It was observed that a postnasal pack kept for a period as short as four hours is usually effective in controlling post-adenoidectomy bleed [7]. In case of failure of this method, other methods may be used to control secondary haemorrhage include re-curettage, cauterisation or coagulation of the remnant tissue under observation. Removal of the remnant tissue ensures that there are no further episodes of bleeding and offers a permanent resolution of the said complication [1].

Some cases also reported coagulation disorders as the likely cause of haemorrhage Angiography with embolisation have been attempted as alternative methods for management in patients with haemorrhagic shock [8].

In the study by Costantini F et al., only one in 201 patients of adenoidectomy presented with secondary haemorrhage. The patient presented with nasal bleeding on the fourth postoperative day following adenoidectomy, which resolved spontaneously [9]. WindfuhrJP reported a similar case of a 4-year-old child with postoperative bleeding on day 3 which required ligation of the external carotid artery. He proposed that injury to the ascending pharyngeal artery or an aberrant vessel was the most likely cause for the torrential bleed [10]. In yet another case report, Cayonu M and Altundag A reported severe haemorhage in an eight-year-old girl seven days after adenoidectomy which was managed by endoscopic cauterisation and postnasal packing [11].

Despite being highly uncommon, secondary haemorrhage after adenoidectomy should be anticipated by surgeons to avoid grim consequences for the patient. Severe complications may be avoided with certain precautionary measures. A higher risk of complications should be attributed to patients with risk factors like [10,12]:

- Age more than 70 years
- Any history of acute infection or URI in the pre-operative period
- Chronic nasopharyngitis
- Presence of aberrant vasculature or nasopharyngeal neoplasm during palpation before commencement of the procedure
- History of systemic diseases like hypertension, diabetes, bleeding diathesis, hyperthyroidism, immunosuppression
- Excessive bleeding against expectation during surgery,
- Excessive debridement and curetting of the adenoids
- Difficulty in postprocedure haemostasis or prolonged trickle or oozing from the nasopharynx,
- Previously diagnosed coagulation disorder or increased bleeding and clotting times in the immediate postsurgical period
- Dehydration and poor postoral intake postoperatively
- Excessive postoperative pain
- Fever lasting more than 48 hours after surgery

Some steps may be taken to avoid complications in these procedures. Only patients without symptoms or history of acute rhino-pharyngitis should be taken up for surgery. In case of conventional adenoidectomy excessive curettage should be avoided. In case of remnant tissue despite curettage, other methods of debridement like use of microdebrider, co-ablation, diathermy or laser application should be considered intraoperatively. Complete haemostasis should be achieved and ensured peri-operatively. Patients with risk factors should be kept under stringent observation

in the postoperative period. Also, since it is generally an outpatient procedure, the patient should also be made aware of the warning signs for the onset of complications.

CONCLUSION(S)

Adenoidectomy is a very common outpatient surgical procedure, and all its risks should be well-known to operating surgeons. Serious complications, though rare, should be anticipated and prevented wherever possible as they can be very distressing to patients, especially children. It is therefore imperative that physicians be well-versed with all the treatment options for immediate management in case a patient does present with complications.

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