

An aberrant artery as a cause of massive bleeding following adenoidectomy

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Abstract

Bleeding following adenoidectomy is a rare complication of this surgical procedure, and usually occurs in the first post-operative hours. In almost all cases it is related to adenoid remnants. Removal of these remnants under a second general anaesthetic is the treatment of choice. We report a case of massive bleeding three days following adenoidectomy related to the injury of an aberrant ascending pharyngeal artery during adenoidectomy performed elsewhere. Signs of manifest shock necessitated an immediate ligation of the external carotid artery and its individual branches. The post-operative course was uneventful. Two years later the boy underwent tonsillectomy without complications.

Key words: Adenoidectomy; Haemorrhage; Surgical Procedures, Operative

Case report

Unusual massive bleeding occurred immediately after adenoidectomy had been performed in a four-year old boy elsewhere. Haemostasis was secured by using electrocautery and the patient was discharged uneventfully 24 hours later. Massive bleeding started at home three days after surgery and the boy was referred to our clinic with signs of haemorrhagic shock (pale, tachycardia, hypotension). No bleeding was noted in the emergency room but the concentration of haemoglobin was 5.8 g/dl. The boy received a blood transfusion and was admitted.

On the ward, the boy vomited and aspirated fresh blood. He was immediately transferred to the operating theatre and was intubated without problems. The anaesthetic was administered through the already installed intravenous line. Endoscopic examination under general anaesthesia did not identify a source of bleeding but a lesion was seen on the right side of the nasopharynx due to the previously performed coagulation. The nasopharynx was packed for safety reasons. After extubation abrupt bleeding started again causing signs of cardiovascular collapse (bradycardia, mydriatic pupils). Fortunately, this happened in the operating theatre whilst the whole staff were still present. The otolaryngologist used a rigid suction tube to remove fresh blood from the oropharynx making re-intubation possible and intravenous drugs were used to provide general anaesthesia. After a larger pack was placed in the nasopharynx further massive bleeding started. Immediately an ipsilateral ligation of the external carotid artery at its origin at the carotid bifurcation was performed and all its accessible branches were individually ligated. The boy received another blood transfusion and the concentration of haemoglobin was 11.7 g/dl the day after surgery. After an uneventful post-operative episode the boy was discharged 11 days after surgery. Two years later a tonsillectomy was performed without complications.

Discussion

The standard procedure of adenoidectomy is to remove the adenoids with a curette or an adenotome or occasionally with cautery, LASER, or power-assisted instruments (instruments using an endoscopic shaver system with a bendable blade) under general anaesthesia.^{1–3} Bleeding following adenoidectomy is considered to be rare with a varying incidence rate of between 0.1 per cent⁴ and 1.9 per cent⁵ with a mean percentage of about 0.4 per cent.^{6,7} Post-operative haemorrhage usually occurs within 24 hours and is readily treated by re-curettage of the nasopharynx under general anaesthesia to remove adenoid remnants or electrocautery of bleeding vessels under direct or indirect visualization. Some authors have reported a high percentage of blood transfusions but this may be related to the time of the publication.⁸ Due to the risk of potential viral contamination (Hepatitis B and C; human immunodeficiency virus (HIV)) blood transfusions should be indicated only in those cases when they are unavoidable.

In the literature there is no controversy about the safety of adenoidectomy as a day-case procedure.^{9,10} To our knowledge there exists only one report of a case with a lethal outcome.¹¹

Severe bleeding following adenoidectomy may be related to the injury of an artery; this has been described for tonsillectomy.^{12,13} Blood supply of the upper two thirds of the pharynx is provided mainly by the ascending pharyngeal artery, which is in approximately 80 per cent of patients either a branch of the external carotid artery or the common trunk of this vessel and in 20 per cent originates from another artery.¹⁴

It is very likely, that the ascending pharyngeal artery had been injured during curettage of the nasopharynx since the surgeon, who had performed the adenoidectomy, later informed us about the possible existence of an 'aberrant vessel' which he had identified at the end of the operation as the possible source of the unusually massive

bleeding. Due to contracture of muscular fibres of the vessel, bleeding stopped spontaneously but occurred several times three days following surgery. This has been described to be typical of arterial injuries.¹² Since nasopharyngeal packing failed to treat this life-threatening bleeding, immediate surgical dissection of the internal and external carotid artery and the bifurcation with subsequent ligation of the external carotid and all its branches that could be identified was in this case the method of choice. Angiography and embolization of the offending vessel is an alternative method of treatment but is indicated only in those cases in whom symptoms of haemorrhagic shock are absent.

Conclusion

Palpation of the nasopharynx prior to adenoidectomy is mandatory not only to exclude an existing tumour in this delicate region of the skull base (e.g. angiofibroma) but also to detect the prevalence of an aberrant vessel. Direct visualization is advisable in these cases to decide whether to perform adenoidectomy under direct vision or to postpone surgery and request imaging, computed tomography (CT) or magnetic resonance imaging (MRI) or angiography in cases of doubt. If massive bleeding occurs, ligation of the external carotid artery should immediately be performed and consideration given to the variety of the origin of the ascending pharyngeal artery. In case of recurrent, but less massive bleeding angiography should be indicated to exclude a possible aneurysm and detect the source of bleeding. Selective embolization of a bleeding vessel is comparable to surgical treatment in those cases without manifest signs of haemorrhagic shock.

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