

Case report

Case report: Postoperative hemorrhage in the nasopharynx at two weeks following adenotonsillectomy

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Postoperative hemorrhage is an unlikely complication of adenotonsillectomy and occurs within several days following the procedure. We describe a patient with postoperative hemorrhage after adenotonsillectomy in nasopharynx at the postoperative 15th and 18th day. The study reveals that bleeding after adenotonsillectomy is an unlikely complication for the surgeon and patient, and requires extra experimental instruments such as endoscopy. Hence, it is best to observe the patient until blood levels stabilize and bleeding stops.

Key words: Adenoidectomy, tonsillectomy, adenotonsillectomy, epistaxis.

INTRODUCTION

Adenoidectomy, tonsillectomy, and adenotonsillectomy are the most common surgical procedures in otorhinolaryngology. One serious complication is postoperative hemorrhage (Younis and Lazar, 2002). The incidence of postoperative hemorrhage ranges between 0.1 and 20% (Williams, 1967; Liu et al., 2001). Post-adenoidectomy hemorrhage is less frequent than post-tonsillectomy hemorrhage (Arnoldner et al., 2008). Bleeding is classified as intraoperative, primary (occurring within the first 24 h), or secondary (occurring after 24 h). Most cases of primary bleeding are related to the surgical technique involved. However, cases of secondary bleeding can be due to various causes, most commonly, the loss of the surface eschar (Jeyakumar et al., 2008). Secondary hemorrhage usually occurs within 10 days but may also occur several weeks after surgery (Chowdhury et al., 1988; Swoboda et al., 1988; Windfuhr et al., 2003). Hemorrhage after the postoperative 10th day is often with tonsillar fossa bleeding (Windfuhr et al., 2002).

PATIENT AND METHODS

An eight year old boy presented to the emergency service with

bleeding from the mouth at 3.00 am. He had adenotonsillectomy (adenoid curettage and blunt dissection tonsillectomy) 15 days before. His blood tests before the adenotonsillectomy operation were as follows: haemoglobin level, 12.6 g/dl; hemotocrit, 37.5%; white blood cells, $7.3 \times 10^9/L$; thrombocytes, $332 \times 10^9/L$; prothrombin time, 12.7 s; INR (international normalized ratio) 0.88 Ratio; activated partial thromboplastin time, 29.3 s. His blood test results on the postoperative 1st day were: haemoglobin level, 12.0 g/dl; hemotocrit, 36%; white blood cells, $9.7 \times 10^9/L$; thrombocytes, $317 \times 10^9/L$. He took amoxicillin-clavulanate 400/28 mg po 2x1 and paracetamol 200 mg po 3x1 during the postoperative 10 days. He had postnasal bleeding, which stopped in 15 min spontaneously. In the blood tests, the haemoglobin level was 11.7 g/dl, hemotocrit was 35.1%, white blood cell was $9.2 \times 10^9/L$, thrombocytes was $374 \times 10^9/L$, prothrombin time 12.6 s, INR 0.86 ratio, activated partial thromboplastin time was 29.5 s. The arterial pressure was 110/70 mmHg and he had no fever (36.8°C). He was observed with flexible nasopharyngoscopy and there was no visible bleeding area in the nasopharynx and tonsillary fossae. He was looked after for 15 h in the emergency department, and observed hourly for postnasal bleeding. He had no bleeding throughout the observed time, his blood parameters did not decrease and he was sent home. The boy was admitted to the emergency department once more on the postoperative 18th day at 09.00 am. He had postnasal bleeding again. Blood test results were as follows: hemoglobin level, 10 g/dl; hemotocrit, 31%; white blood cells, $8.2 \times 10^9/L$; thrombocytes, $336 \times 10^9/L$; prothrombin time, 12.5 s; INR 0.88 ratio; and activated partial thromboplastin time, 29.6 s. The arterial pressure was 115/70 mmHg and he had no fever (36.7°C). The bleeding stopped within 10 min spontaneously. In the flexible nasopharyngoscopy, there were no visible bleeding areas. He was observed for four days in the hospital. On the first day, he was observed hourly for bleeding and on the other days, he was observed every 3 h. Blood

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Table 1. Blood parameters.

Parameters	Preoperative	Postop 1st day	Postop 15th day	Postop 16th day	Postop 18th day	Postop 19th day	Postop 20th day	Postop 21st day	Normal values
WBC	7.3 ×10 ⁹ /L	9.7 ×10 ⁹ /L	9.2 ×10 ⁹ /L	9.1 ×10 ⁹ /L	8.2 ×10 ⁹ /L	10 ⁹ /L	10 ⁹ /L	10 ⁹ /L	5.0-12.0 ×10 ⁹ /L
HG	12.6 g/dl	12.0 g/dl	11.7 g/dl	11.5 g/dl	10 g/dl	10 g/dl	10.1 g/dl	10 g/dl	12.0-15.0 g/dl
HTC	37.5%	36.1%	35.1%	35%	31%	31.2%	31%	31%	35-49%
PLT	332 ×10 ⁹ /L	317 ×10 ⁹ /L	374 ×10 ⁹ /L	369 ×10 ⁹ /L	336 ×10 ⁹ /L	330 ×10 ⁹ /L	337 ×10 ⁹ /L	334 ×10 ⁹ /L	150-400 ×10 ⁹ /L
aPTT	29.3 s	-	29.5 s	-	29.6 s	-	-	-	26-40 s
PT	12.7 s	-	12.6 s	-	12.5 s	-	-	-	11.5-15.5 s
INR	0.88 R	-	0.86 R	-	0.88 R	-	-	-	0.9-1.3 R
Bld. time	1'30"	2'00"	1'00"	1'00"	2'00"	1'00"	1'00"	1'30"	1-5 m
Coa. time	6'30"	5'30"	5'00"	5'30"	5'30"	5'30"	6'30"	5'30"	5-10 m

Postop: Postoperative, WBC: white blood cell, HG: haemoglobin, HTC: hemotocrit, PLT: thrombocytes, aPTT: activated partial thromboplastin time, PT: prothrombin time, INR: international normalized ratio, Bld. time: Bleeding time, Coa. time: coagulation time.

was taken from him for hemogram routinely every day. Haemoglobin, hemotocrit and platelet levels did not decrease (Table 1) and he was discharged.

DISCUSSION

Many techniques have evolved in the removal of tonsils, including blunt dissection, guillotine excision, electrocautery, cryosurgery, ultrasonic removal, laser tonsillectomy, and monopolar and bipolar diathermy dissection (Younis and Lazar, 2002). We have performed adenoid curettage and blunt dissection tonsillectomy.

The serious complication of adenotonsillectomy is postoperative hemorrhage (Younis and Lazar, 2002). The incidence of postoperative hemorrhage ranges between 0.1 and 20% (Williams, 1967; Liu et al., 2001) In a study by Arnoldner et al. (2008), regarding the incidence of postoperative hemorrhage over 13 years, there was a trend towards a higher incidence in the second half of the period (2.28% in 2000 to 2006) than in the first half (1.26% in 1994 to 2000). They conclude that the surgical technique remained unchanged over the years, and a possible

explanation of this finding could be the changing generation of surgeons. Whereas the surgeons performing tonsillectomies in the first half of the period hemostasis made by suture ligations and simple pressure on the tonsillar fossa. This might have contributed to an inappropriately excessive use of bipolar diathermy and hence an increase in hemorrhage incidents. This hypothesis is backed up by the results of the National Prospective Tonsillectomy Audit, in which any use of electrosurgical means increased the rate of postoperative hemorrhage. Furthermore, there was evidence of a "dose-response" relation between diathermy and hemorrhage rate, suggesting that diathermy should be used with caution to minimize the amount of damage to the surrounding tissue and to decrease the hemorrhage rate (Arnoldner et al., 2008; Lowe et al., 2004). Postoperative bleeding following adenotonsillectomy is related with the age of patient (>11 years), a history of chronic infection, a large intraoperative blood loss (>50 ml), postoperative hypertension (mean arterial pressure >100 mmHg) and dissection by bipolar diathermy (Myssiorek et al., 1996; Lee et al.,

2004). In our patient, none of these risk factors had been secondary hemorrhage (postoperative > 24 h). It is usually occurs in 10 days but may occur several weeks after surgery (Chowdhury et al., 1988; Swoboda et al., 1988; Windfuhr et al., 2003). In the study of Windfuhr and Chen (2003), 14579 patients were treated with adenoidectomy with or without tonsillectomy. The postoperative adenoidectomy bleeding was 0.21% and the latest bleeding occurred on the 6th postoperative day (Windfuhr et al., 2003). In the study of Arnoldner et al. (2008), 8388 patients were evaluated after tonsillectomy with or without adenoidectomy. Postoperative adenoidectomy bleeding was 0.35% and the latest bleeding occurred on the 7th postoperative day (Arnoldner et al., 2008). Our patient had bleeding from the nasopharynx on the postoperative 15th and 18th days.

Conclusion

Bleeding after adenotonsillectomy is an unlikely complication for the surgeon and patient.

Especially, it is hard to find the reason of

bleeding from the nasopharynx and requires extra experimental instruments such as endoscopy. Bleeding may occur on several postoperative days. It is best to observe the patient until blood levels stabilize and bleeding stops.

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