International Journal of Pediatric Otorhinolaryngology 90 (2016) 156–159

Contents lists available at ScienceDirect

International Journal of Pediatric Otorhinolaryngology

journal homepage: http://www.ijporlonline.com/

Case Report

Multiple, delayed post-tonsillectomy bleedings in 11-year-old girl as a result of vascular abnormality and anastomosis. Case report

Beata Pucher [a, *], Jaroslaw Szydlowski [a], Wieslaw Smoczyk [b], Katarzyna Jonczyk-Potoczna [b], Michal Grzegorowski [a], Aleksandra Korytowska [c]

[a] Pediatric Otolaryngology Department, Poznan University of Medical Sciences, 60-572 Poznan, Szpitalna 27/33, Poland
[b] Department of Pediatric Radiology, Poznan University of Medical Sciences, 60-572 Poznan, Szpitalna 27/33, Poland
[c] Otolaryngology Department of Region Hospital in Poznan, 60-479 Poznan, Juraszow 7/19, Poland

ARTICLE INFO

Article history:
Received 5 June 2016
Received in revised form
15 September 2016
Accepted 16 September 2016
Available online 19 September 2016

Keywords:
Adenotonsillectomy
Post-tonsillectomy bleeding
Endovascular treatment
Vascular abnormality

ABSTRACT

Tonsillectomy and adenoidectomy are the most common surgical procedures in pediatric otolaryngology. The incidence of primary hemorrhage after tonsillectomy in children ranges from 0.38 to 6%. The prevalence of secondary bleeding occurs in 0.5%–9.3% cases [1]. Authors present a case of an 11-year-old girl who experienced 6 delayed, massive post-tonsillectomy bleedings as a result of presence of vascular malformation and the activation of collateral circulation as a result of the left ECA ligature.

1. Introduction

Tonsillectomy and adenoidectomy are the most common surgical procedures in pediatric otolaryngology. The incidence of primary hemorrhage after tonsillectomy in children ranges from 0.38 to 6%. The prevalence of secondary bleeding occurs in 0.5%–9.3% cases [1]. Primary bleeding is more dangerous because of risk of blood aspiration, oedema of the larynx and possibility of missing swallowing of blood, which leads to cardiac failure. According to different authors lethal post-tonsillectomy bleedings occur in 1 out of 3000, 10000 or 20000 tonsillectomies in the USA [2].

2. Case report

An 11-year-old girl was brought in with severe oral bleeding. She had undergone an adenotonsillectomy (AT) with use of cold dissection technique in the otolaryngology unit of another hospital 9 days earlier. The postoperative course was uneventful and she was discharged home the next day. During 2-month period after surgery she developed 6 episodes of delayed sudden, massive and life-threatening bleedings (on the 9th, 24th, 33rd, 37th, 53rd and 59th day after AT – Table 1).

The first hemorrhage appeared on the 9th day after surgery. Surgical intervention of the oropharynx revealed the possible site of bleeding below the left tonsillar fossa and required ligature of bleeding vessel. On the 24th day after the surgery massive hemorrhage occurred with clinical symptoms of hemorrhagic shock. In the operating room the ligature of the left external carotid artery (ECA) was performed. Then arteriography was performed and confirmed successful ligature of the vessel. The third hemorrhage occurred on the 9th day after the left ECA ligature. It was sudden but not massive. 4 days later another life-threatening bleeding occurred which required operative intervention and oropharynx packing. This time the possible site of bleeding was the region behind the tonsillar fossa on the right side. The neck MRI with contrast was performed and it showed an accessory vessel reaching mucosa of the right lateral wall of pharynx (Fig. 1). 53 days after AT the 5th hemorrhage occurred. The endoscopy revealed the presence of bleeding surface (Ø 20–30 mm) behind the right pharyngopalatine arch. The right carotid arteries angiography showed presence of collateral circulation from the right facial artery supplying the left side. The right vertebral artery selective angiography did not reveal any pathology. Then, super selective embolization of the right facial artery with the 14 cm long mechanical detachable

* Corresponding author.
E-mail address: bpucher@poczta.onet.pl (B. Pucher).

http://dx.doi.org/10.1016/j.ijporl.2016.09.021
0165-5876/

Table 1
The timeline of repeated bleedings after the AT in 11-year-old girl.

Day after the AT	Symptoms	Side of the hemorrhage	Surgical and diagnostic procedures performed
9th	Spitting blood during defecation	Below the left tonsillar fossa	Ligature of bleeding vessel Oropharynx packing
24th	Vomiting blood, Hemorrhagic shock	The left tonsillar fossa	Surgical revision and oropharynx packing Ligature of the left ECA, Arteriography
33rd	Spitting blood, Sudden but not massive	Behind the right tonsillar fossa	None
37th	Hemorrhagic shock	Behind the right tonsillar fossa	Surgical revision and oropharynx packing, Neck MRI
53rd	Not massive	Behind the right pharyngo-palatine arch	Endoscopy, Selective embolization of the right facial artery
59th	Vomiting blood, Hemorrhagic shock	Posterior wall of pharynx behind the left tonsillar fossa	Surgical revision and use of hemostatic tissue glue, Endovascular embolization of the left ascending cervical artery

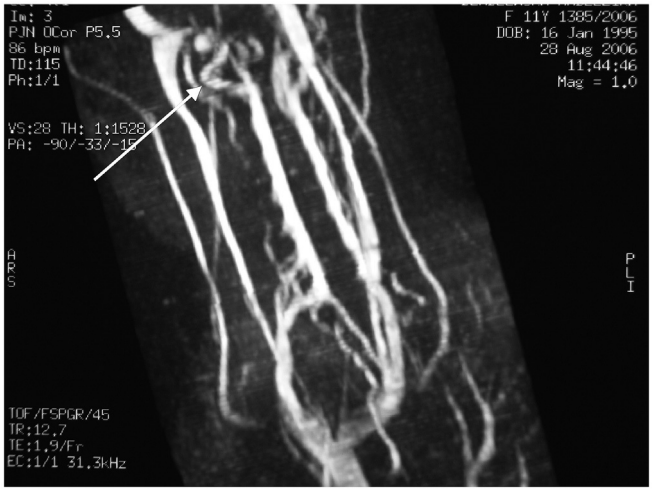

Fig. 1. The MRI - an accessory vessel (indicated by the arrow) reaching mucosa of the right lateral wall of pharynx.

system (MDS) with 10 soft coils was performed (Figs. 2 and 3). Two days after embolization the last hemorrhage took place. The girl developed hemorrhagic shock. The examination under general anesthesia identified the bleeding source on the left side, on the lateral posterior wall of pharynx, behind the tonsillar fossa. The left main neck arteries arteriography revealed presence of abnormal vascular malformation situated closely to the left tonsillar fossa (Fig. 4). It was supplied by 3 sources: the left ascending cervical artery (from thyrocervical trunk), the left vertebral artery and finally by the superficial artery from the left transverse cervical artery (from the thyrocervical trunk). Endovascular embolization of the left ascending cervical artery was performed (Fig. 5). Control angiography showed successful closure of the vessel. Then, surgical revision of the oropharynx was made with prevention of bleeding by use of the hemostatic tissue glue. Several control revisions of oropharynx with injection of hemostatic tissue glue were performed. Nearly 3 months after AT control arteriography of the cervical and vertebral arteries was performed and confirmed successful embolization of the right facial artery and left ascending cervical artery. It showed presence of highly developed muscular branches (of the left vertebral artery), which contrasted the left ECA and its branches (the collateral circulation). There was no presence

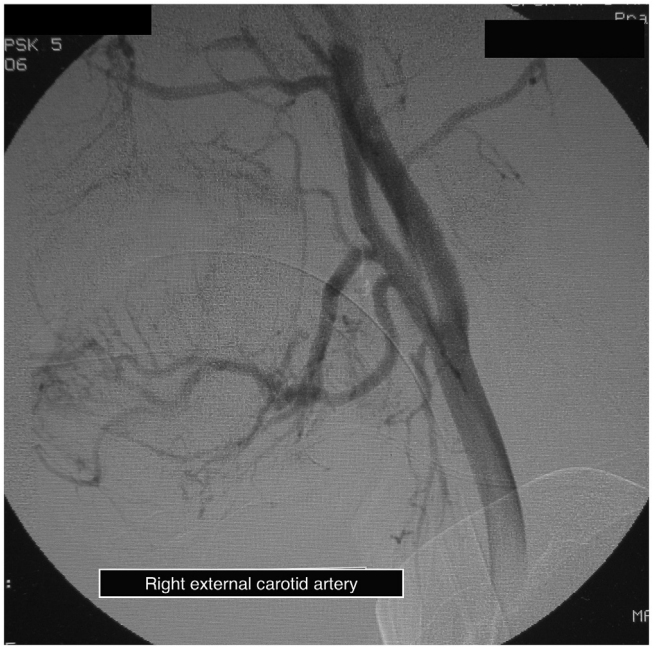

Fig. 2. The right external carotid artery arteriogram.

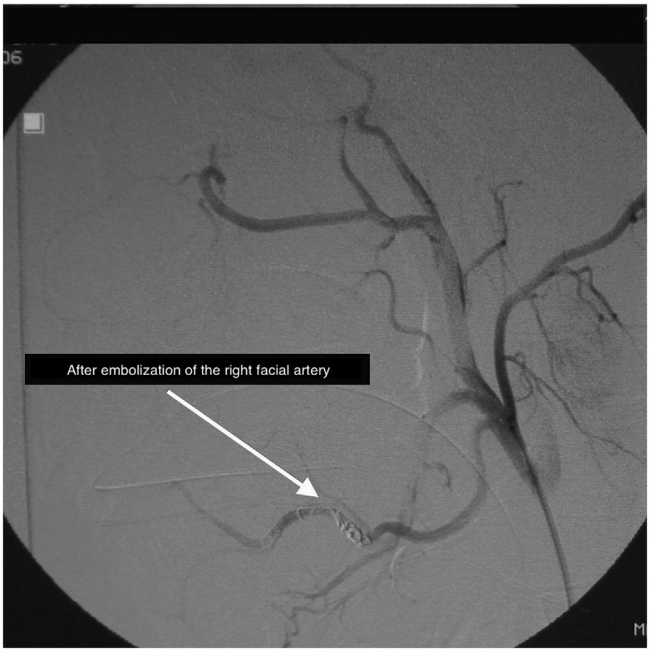

Fig. 3. After an embolization of the right facial artery.