

## Pitfalls of operative management of secondary post-tonsillectomy haemorrhage – a case report

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**Key-words.** Tonsillectomy; haemorrhage; bleed; emergency

**Abstract.** *Pitfalls of operative management of secondary post-tonsillectomy haemorrhage – a case report.* **Introduction:** The authors present a potential complication associated with the surgical management of post-tonsillectomy haemorrhage using absorbable cellulose haemostatic dressings. The article discusses the deficiencies of our current understanding of how best to manage this common and potentially life-threatening ENT emergency.

**Case report:** A 40-year-old man presented to Accident-and-Emergency with a post-tonsillectomy haemorrhage on the 7<sup>th</sup> postoperative day. The bleeding was managed surgically, with suturing of the faucial pillars incorporating a piece of Surgicel® into the closure. Two days later the patient experienced an episode of partial airway obstruction, due to a piece of dislodged haemostatic material, owing to failure of the closure.

**Conclusion:** The techniques used in the operative management of post-tonsillectomy bleeding are not formally evaluated or discussed in the current literature, and in some cases are unreliable or even potentially hazardous. Further discussion, research, and formulation of a more stepwise approach would be of considerable benefit.

### Introduction

A common challenge faced by ENT surgeons is the control of secondary post-tonsillectomy bleeding. In the current literature a number of studies have investigated the effect of different methods of tonsillectomy on the incidence of secondary bleeding. However, little evidence or discussion exists in the literature on the merits and pitfalls of the various techniques used in the surgical management of post-tonsillectomy haemorrhage itself.

The use of absorbable cellulose haemostatic dressings such as Surgicel® is widespread in general surgery, as well as head and neck surgery, for the control of minor bleeding at the operative site. Their properties mean that it is not usually necessary to remove packing material post-operatively. The aim of this article is to present a potential complication associated with the surgical management of post-tonsillectomy haemorrhage using absorbable cellulose haemostatic dressings, and discuss the deficiencies of our current understanding of how best to manage this common and potentially life-threatening ENT emergency.

### Case report

A 40-year-old man presented to Accident and Emergency, seven days following a tonsillectomy by bipolar diathermy. He had experienced a single bleeding episode from the operative site of around 100-150 ml. On admission there was no active bleeding, although a small bleeding point was visible in the left tonsillar fossa. The patient was haemodynamically stable with a normal haemoglobin level. He was admitted to the ENT ward for overnight observation, intravenous antibiotics and fluids.

Twelve hours following admission, the patient's bleeding recurred. He remained haemodynamically stable; however since the haemorrhage had failed to respond to conservative treatment, the patient was taken to the operating theatre. At operation, heavy bleeding from the left inferior pole could not be controlled with bipolar or suction diathermy, and efforts to control the bleeding point with ligatures were also unsuccessful. The tonsillar pillars were sutured together inferiorly on the left side with Vicryl®, incorporating a piece of Surgicel®

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packing into the closure. This brought about sustained haemostasis, and the patient was discharged from hospital the following day.

Two days after discharge, the patient presented to Accident and Emergency, complaining that while he had been asleep, a piece of 'fabric' had fallen into his airway, causing a thirty-second episode of severe choking and a sensation of airway obstruction. A piece of the packing material was eventually coughed out by the patient. On examination, it was evident that the suture had cut through the sloughy, friable tissue of the left tonsillar bed, causing the packing material to fall out of place. No further bleeding was evident, and the patient was reassured.

## Discussion

Secondary post-tonsillectomy haemorrhage is a common emergency presentation seen by ENT surgeons, affecting 2.5-4.1% of patients who undergo tonsillectomy.<sup>1</sup> Two retrospective studies have shown that adults are significantly more likely to be affected (3.9% vs 1.6% in one series), and that around 0.8% of all cases require a return to theatre.<sup>2,3</sup> One retrospective analysis reporting an overall secondary haemorrhage rate of 1.7% also found a significantly increased rate of bleeding complications in the winter months.<sup>4</sup> Serious complications requiring blood transfusion or ligation of the external carotid artery affected only 0.14% of adults in one large study, with only one fatal outcome (0.04%).<sup>3</sup> Nevertheless, the potential for serious haemodynamic instability and even death in this group of patients, along with the lack of guidelines and evidence-based techniques for their management, renders this a challenging presentation for otolaryngologists.

Bleeding which does not respond to conservative treatment or bipolar diathermy presents a particular problem, and is managed by various means. One such technique is the suturing together of the faucial pillars to bring about tamponade of the haemorrhage, with or without the interposition of an absorbable haemostatic dressing. This dressing is sometimes removed prior to discharge. Other techniques include suction diathermy, oropharyngeal packing, embolisation, and ligation of neck arteries.<sup>5,6</sup>

The use of absorbable haemostatic packing such as Surgicel® in cases such as this was described by Goodman in 1996 as an improvised technique,

which resulted in good haemostasis and the gradual disappearance of the packing material. The author states that in all cases, a suture is necessary to secure the pack to the tonsillar fossa, and alludes to the technique's widespread use in the UK.<sup>7</sup>

The presented case exemplifies two specific problems regarding this form of management of secondary post-tonsillectomy haemorrhage. Firstly, suturing the faucial pillars as a means of arresting bleeding is commonplace, but its efficacy is untested in the current literature, and is considered by many ENT surgeons an unreliable procedure. Indeed, due to the extremely poor quality of tissue at the post-operative site, it may be very difficult to achieve effective closure. Secondly, whilst the use of packing which is left *in situ* may be helpful in challenging cases, its benefits must be weighed against the potential risk of airway compromise, were the dressing to become dislodged prematurely.

A search of the literature in Medline and other available database sources using the terms "tonsillectomy", "post-tonsillectomy", "haemorrhage/hemorrhage", and "bleeding", yielded 134 articles in the English language. The vast majority of these articles discussed the risk factors for, and prevention of secondary haemorrhage. Only a few studies discussed the management of post-tonsillectomy haemorrhage; these mostly examined the efficacy of conservative measures such as hydrogen peroxide gargles and tranexamic acid, and criteria for return to theatre, rather than operative techniques.<sup>8-11</sup> One retrospective study of life-threatening post-tonsillectomy haemorrhage documented the range of techniques used in its management; however the authors did not examine the relative efficacy of each technique.<sup>8</sup> In addition, two other studies have described single techniques utilised in particular cases such as external carotid artery ligation, and application of vasoconstrictors with a patient-friendly "tonsil lolly".<sup>6,12</sup>

## Conclusion

It is evident that there is a lack of a reliable stepwise approach to the management of a secondary post-tonsillectomy haemorrhage, a common and potentially life-threatening ENT emergency. The ENT surgeon faced with this problem is likely to use whichever technique from his/her skill-set seems most appropriate at the time. Whilst controlled

research into a procedure which is by its nature a 'fire-fighting' exercise is challenging, patients and surgeons would benefit from a safer and more standardised approach to this problem.

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