

# Review of literature for stepwise management of post tonsillectomy hemorrhage

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## Introduction

Adenotonsillectomy is a common procedure that should be included in the basic training program of every otorhinolaryngologist. The main indication for these surgeries is recurrent infection associated with tonsil and adenoid hypertrophy, a common occurrence. Despite the easy technique, complications may be potentially serious. The most frequent and urgent complications are intraoperative and postoperative hemorrhage that can be primary or secondary. Primary hemorrhages tend to occur within 24 hours of surgery, but secondary hemorrhage has been reported up to 21 days after surgery.<sup>1</sup> Other less common complications include hematoma in the tonsillar bed, contamination of the surgical wound, severe edema of palate and/or uvula, adhesions in the tube area, and atlanto-occipital and temporomandibular joints luxation.<sup>2,3</sup>

In order to reduce risks for hemorrhage, preoperative tests should be conducted routinely and carefully history should be taken to assess possible signs and symptoms of coagulopathy,<sup>4,5</sup> as well as history of use of drugs that may increase the risks of bleeding, such as acetylsalicylic acid. Patients who had primary postoperative bleeding usually bleed more in the intraoperative period, corroborating the reports from Myssiorek and Alvi.<sup>6</sup> These observations suggest that the main cause of hemorrhage during the middle postoperative period is the difficult technique and hemostasis in some patients, possibly due to adhesions caused by previous inflammation and/or local hyper vascularization. Normal blood tests do not prevent patients from presenting postoperative bleeding, because not all coagulation abnormalities are diagnosed with the blood tests performed before surgery.

## Who to admit

All patients who complain of fresh bleeding from the throat, whether or not this has stopped when the patient presents, must be admitted for observation. A small, self-limiting bleed may often be a prelude to a larger bleed (a 'heralding bleed') within the next 24 hours.

## Assessment and recognition

- Bleeding can occur in the first 24 hours following the operation (primary), or later (secondary); patients with secondary bleeds frequently present between five and nine days after their procedure.
- The cause of secondary post-tonsillectomy bleeding is not clear—there may be infection of the post-op sloughy material in the tonsillar fossa.
- Some evidence suggests that the rate of secondary haemorrhage may be related to the technique used (e.g. cold-steel dissection versus coblation).
- Note that some patients will find it difficult to cope with post-tonsillectomy pain and that this is distinct from post-tonsillectomy bleeding.

- Patients will present with either a history of bleeding or with active bleeding from the tonsillar fossa (e).
- Parents of younger children may describe finding blood on the child's pillowcase or an episode of haemoptysis or hematemesis.
- Excessive swallowing may also be an indicator of ongoing bleeding in young children.
- In the day or two following a tonsillectomy, a child may vomit some old or altered blood. This may represent blood swallowed during or immediately after the operation, rather than ongoing bleeding. Nevertheless, these patients should still be assessed carefully.
- Examine the patient's throat for fresh bleeding. Remember that it is normal for the operative site to look yellow-white and sloughy after the operation.
- Try to localize the source—left or right, inferior or superior pole. If the patient is not actively bleeding, look for an old bleeding point or a blood clot in the tonsillar fossae.
- Color, pulse, blood pressure: pallor, pulse >100 and low BP are indications of continuing bleeding.
- Document everything clearly.

## Immediate and overnight management

- Airway first – it the patient up and encourage them to spit blood into a bowl.
- Suction should be available if needed.
- An atmosphere of calm helps –the patient is usually very distressed if they are actively bleeding.
- Insert large-bore IV access and send blood for CBC, PT/PTT, coagulation screen and group-and-save (urgent cross match if the bleeding is severe or the patient is unstable).

- v. Do not delay in calling for a paediatrician or paediatric anaesthetist if you cannot secure IV access in a child.
- vi. Frequent haemodynamic observations.
- vii. Nil by mouth.
- viii. Active IV fluid resuscitation.
- ix. IV antibiotics.
- x. IV analgesia.
- xi. Ice pack on the back of the patient's neck.
- xii. Tranexamic acid – there is no direct evidence in post-tonsillectomy bleed but there is strong evidence that it reduces the need for transfusion in surgical bleeding in general.<sup>7</sup>
- xiii. If not heavily bleeding: hydrogen peroxide gargles – this is made up from a 3% solution diluted in three parts of water before being given to the patient to gargle: they should not swallow. It can stop a slow bleed and may prevent re-bleeding (not evidence-based).
- xiv. When clot exists in the Tonsillar fossae, gentle removal is recommended.<sup>8,9</sup>
- xv. If one can see the bleeding point particularly after slowing down of the bleeding, having done the previous step, one can cauterize it with a silver nitrate stick.<sup>9</sup>
- xvi. Do not give any sedation.
- xvii. Reassure the patient and family at all times.
- xviii. Continuing bleeding is an indication to take the patient back to theatre.
- xix. Keep the patient nil-by-mouth even if the bleeding has recently stopped.

#### If the patient continues to bleed, or starts to bleed following admission

- a. Alert emergency theatre that the patient may need an urgent arrest of post-tonsillectomy bleed.
- b. If the bleed is very slow and the patient is stable, it may be possible to observe the patient for a period of time with hydrogen peroxide gargles and ice packs.
- c. If the bleeding is continuous or heavy, the patient will need to go to the operating theatre as soon as possible. This is a more controlled environment where the patient has a secure, definitive airway and one has definitive means to stop the bleeding.

#### If the bleeding is severe and the patient is awaiting transfer to theatre

- A. Consider applying topical adrenaline to the bleeding point to slow the rate of haemorrhage temporarily. Soak a dental roll or gauze with 1:10,000 adrenaline and apply it to the bleeding point, firmly held with Magill's forceps and with a tail of gauze held outside the mouth. This may not be possible if the patient has a strong gag reflex. Make sure the patient's head is tilted to the side and/or forwards to minimise the chance of inhalation.
- B. If inexperienced or unsure, seek experienced surgeon's help rather than attempting the above on your own. What the patient really needs is a secure airway and surgical intervention.

### Further management

- a. Patients can have regular hydrogen peroxide gargles and be monitored closely for bleeding.
- b. They should remain nil-by-mouth.
- c. After 24 hours without further haemorrhage, the risk of recurrence is lower. Patients are usually discharged at this point.<sup>9</sup>

### Refractory cases

Excessive bleeding following tonsillectomy may occur as delayed bleeding, abrupt and require immediate LECA (Ligation of External Carotid artery) and blood transfusion. Prior recurrent episodes of bleeding can be a warning sign. Anatomical vascular abnormalities have to be considered.<sup>10</sup>

Pseudo aneurysms are life-threatening, and besides rare, they should be considered in severe post tonsillectomy hemorrhage. The most common artery involved is the lingual, and in a very few cases the facial or linguo-facial trunk. In these cases of hemorrhage, arteriography is strongly recommended because it can be diagnostic and therapeutic at the same procedure.

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### Conflicts of interest

Author declares there are no conflicts of interest.

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