Post-Operative Haemorrhage: Conventional Tonsillectomy by Scalpel/Snare Versus Tonsillectomy by Applying Knot at Lower Pole Pedicle

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Abstract

Background: To evaluate whether applying a knot at lower pole during tonsillectomy reduces post-operative haemorrhage.

Methods: In this descriptive study 200 patients who were diagnosed cases of recurrent acute tonsillitis were enrolled. They were divided into two groups, each of 100 patients. In one group tonsillectomy was done by conventional scalpel/snare method. In second group tonsillectomy was done by applying knot at lower pole.

Results: Recurrent acute tonsillitis was most common indication for tonsillectomy (n=185, 92%). Lower pole was most common site for post tonsillectomy haemorrhage (n=15, 8%). There was reduced incidence of post-operative haemorrhage in second group(6%) versus 32% in first group.

Conclusion: Post-operative haemorrhage is significantly low if a knot is applied at lower pole pedicle, during tonsillectomy.

Key Words: Tonsillectomy, Haemorrhage

Introduction

Tonsillectomy is the one of the commonest procedures performed in the world.1 The incidence of post operative haemorrhage is as high as 20% Mortality rates vary from one in 12,000 to one in 75,000. The risk factors for post tonsillectomy haemorrhage are older age, a history of chronic tonsillitis, excessive intraoperative blood loss and elevated post operative mean arterial pressure.1-4 Nowadays different methods are used for tonsillectomy like blunt dissection, electrocautery or lasers. These are done in a more controlled environment. Haemostasis can be achieved by different methods like ligatures, diathermy or laser coagulation of the bleeding vessels.5

The palatine tonsils receive their blood supply mainly from lower pole through tonsillar branch of dorsal lingual artery, the ascending palatine artery and tonsillar branch of facial artery. Additional contributory blood supply comes through ascending pharyngeal artery and lesser palatine artery at upper pole. Due to this fact haemorrhage is more commonly seen at lower pole.6

Haemorrhage after tonsillectomy is still the most common complication. Post operative haemorrhage can be graded from Grade I to IV. Grade I(Spontaneous cessation),Grade II(requiring infiltration anaesthesia), Grade III(Treatment under general anaesthesia),Grade IV(Ligature of external carotid artery and Grade V(Lethal outcome).4

Patients and Methods

The study was carried out in ENT department of Benazir Bhutto Hospital, Rawalpindi from September 2010 to December 2011. Two hundred patients with recurrent attacks of acute tonsillitis were enrolled. Those with associated diseases like bleeding disorders or other ENT problems were excluded from the study. Patients were divided in two groups each containing 100 patients by random selection. All patients were operated under general anaesthesia.

Tonsillectomy was started in conventional way from upper pole by giving incision with scalpel no.15. Tonsil was separated from capsule by dissection method till lower pole. In first group conventional method of tonsillectomy was adopted and tonsils were removed by tonsil cutting snare. Haemostasis was secured. In second group the lower pole pedicle was clamped by curved artery forcep and tied with 2/0 chromic. The pedicle was cut by scissors above the knot and after ensuring haemostasis a pillar to pillar stitch was applied near lower pole of tonsillar fossa(Figs 1 &2).

Success rate was assessed in terms of decreased post operative haemorrhage. Patients were discharged on 2nd post operative day with proper counseling and advised to report directly to ENT department in case of any bleeding from nose or mouth. No NSAIDs were advised after surgery and only paracetamol was prescribed for pain relief.
Results

Among 200 patients 60% were males with male to female ratio of 1.5:1. Age of the patients ranged from 3 to 50 years (Table 1) Recurrent attack of acute tonsillitis was most frequent indication for tonsillectomy accounting for 92% cases. Upper airway obstruction was second most common indication accounting for 5% of patients.

<table>
<thead>
<tr>
<th>Age group</th>
<th>No(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto 12 years</td>
<td>50 (25)</td>
</tr>
<tr>
<td>More than 12 years</td>
<td>150 (75)</td>
</tr>
</tbody>
</table>

Majority of the patients presented on day 1 (84%) with post operative haemorrhage. Post operative haemorrhage was seen more in adults (73% above 15 years). In first group 32 patients (32%) presented with post operative haemorrhage. The second group had a considerably decreased rate of post operative haemorrhage (6%). There was less post operative morbidity and patients were discharged earlier in second group (Table 2).

Table 2: Scalpel/Snare vs Knot technique

<table>
<thead>
<tr>
<th>Procedure</th>
<th>No haemorrhage</th>
<th>Post operative haemorrhage</th>
<th>Total procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Grade I</td>
<td>Grade II</td>
</tr>
<tr>
<td>Scalpel/Snare</td>
<td>68</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Scalpel/Knot</td>
<td>94</td>
<td>04</td>
<td>02</td>
</tr>
<tr>
<td>Total</td>
<td>162</td>
<td>19</td>
<td>12</td>
</tr>
</tbody>
</table>

Discussion

Different methods are used for tonsillectomy like dissection tonsillectomy is done by blunt, laser or diathermy. Post operative haemorrhage in tonsillectomy can be primary, reactionary or secondary. Primary is at the time of surgery, reactionary occurs within the first twenty-four hours and secondary takes place after 24 hours of operation.

It has been seen that primary post tonsillectomy haemorrhage is mainly due to technical error, while delayed haemorrhage is due to post operative factors. The retraction devices used during tonsillectomy exert pressure directly at the palatal arch and indirectly on palatoglossal muscles, palatopharyngeal muscles, glossopharyngeal muscles and superior constrictor muscles of pharynx. The retractor is relaxed before anesthesia reversal for 2-3 minutes so that if any bleeding starts from low-pressure and small-caliber arterial vessels they may be reexamined and managed. Same technique was used in the present study to minimize the post operative haemorrhage.

Post operative use of NSAID is associated with a greater tendency of post operative haemorrhage. So in our study we did not use NSAID post operatively and only paracetamol was advised for pain relief to minimize the post operative haemorrhage. A history of quinsy is not associated with increased incidence of post operative haemorrhage.

In the West tonsillectomy is done mostly in children because the parents take tonsillectomy as a routine procedure. The reported incidence of post operative haemorrhage in developed world varies from 2-4%. In our set up the parents are more reluctant for surgery of their children and the general practitioners and paediatricians also emphasize more on conservative management of childhood chronic tonsillitis. This is the reason that otitis media with effusion (OME) is more common in Caucasian
children as depicted in the study done by Rushton and colleagues.\textsuperscript{12}

There was a significantly higher incidence of postoperative haemorrhage in adults in our study. In adults with recurrent tonsillitis, adhesions and neovascularisation develops in the peritonsillar plane. There is more trauma to tonsillar bed during dissection and it leads to more chances of infection leading to postoperative haemorrhage.\textsuperscript{9,13}

\textbf{Conclusions}

1. It is imperative to operate patients with tonsillitis, in an earlier age
2. Post tonsillectomy haemorrhage can be circumvented with better operative techniques.

\textbf{References}