

**HEMOSTASIS WITH SURGICEL FOR  
TONSILLECTOMY: A PILOT STUDY****Abdulmohsen E Hussain\* & Yaseen H Ali<sup>#</sup>**\*MB, FRCS-Canada. <sup>#</sup>MB, DOHNS Department of Otolaryngology, Head and Neck surgery, Zain and Al-Sabah Hospitals, State of KuwaitCorresponding to: Abdulmohsen E Hussain. P.O.Box: 3764. Mishref. 40188. Kuwait. Phone: 965-9000 436.Fax: 965 5376885  
e-mail: q8ent@hotmail.com**Abstract**

This study aimed to evaluate the use of surgicel as the primary hemostasis method in tonsillectomy. It is a cross-sectional prospective study included 211 patients who underwent tonsillectomy alone or with conjugation with adenoidectomy over a period of 4 years in a tertiary centre. The surgeon used cold steel dissection and surgicel as primary Hemostasis technique. There was no post-tonsillectomy hemorrhage in this study, giving a 0% risk of post tonsillectomy bleeding. It is concluded that the use of surgicel is a valid technique to achieve hemostasis in tonsillectomy. Larger number of patients has to be operated on using this technique in order to validate the comparison between our technique and techniques currently used.

**Introduction**

Tonsillectomy is one of the most common surgical procedures performed in the world<sup>1</sup>. Various techniques have evolved over the years, but the percentage of post tonsillectomy hemorrhage is still almost the same and is considered as the most significant complication<sup>1,2</sup>. Post tonsillectomy hemorrhage has been divided into primary (in the first 24 hours) and secondary (after 24 hours), with the first being the most serious of the two<sup>3</sup>. Granell<sup>4</sup>, et.al, reported that 2.9% of children had to return to the operating room for control of major bleeding and Windfuhr<sup>5</sup>, et.al, also reported an overall 1.5% Post tonsillectomy hemorrhage rate in his retrospective review, while Nicklaus<sup>6</sup>, et.al, reported a primary hemorrhage rate of 1.4% and all of the cases occurred within 75 minutes after surgery.

However, bleeding can occur at any time, and up to 10 days after the

surgery, where during this period none of the techniques discussed in the literature were able to give an overall zero percent of post-tonsillectomy hemorrhage.

**Material and Methods**

Four years prospective continues non-randomized study was done at a tertiary care center involving a total of 211 consecutive patients. All the patients underwent tonsillectomy (with or without adenoidectomy). The technique was uniform to all the patients of various ages, operated by the same surgeon using cold steel dissection. The procedure was done under general anesthesia with the patient lying in the rose position. A Davis-Boyle mouth gag was used to keep the mouth open and was supported with Draffin Bipodes. The mucosa is then incised using Woods tonsil scissors. The tonsils were dissected using a Gwynne Evans dissector until reaching the lower pole which is crushed using a

Negus tonsil artery forceps before being cut with same pair of scissors mentioned above. 5cm x 7.5cm sheet of Surgicel (Ethicon, Neuchatel, Switzerland) was cut in half, and each half was then placed into the tonsillar fossae for homeostasis and left there. The mouth gage is then relaxed for three minutes, the oro-pharynx is re-inspected for evidence of bleeding and the procedure is terminated then<sup>7</sup>. All the patients were discharged at same day except cases documented as obstructive sleep apnea (OSA) and aged less than 3 years, as they were kept in the hospital for 24 hours after surgery, as recommended by statham study. The patients and their families were given specific instructions upon discharge to present to our emergency department if they had any concerns or problems prior to their scheduled out patient follow up for 2 weeks after the operation.

## Results

In this study, there were no recorded cases of post tonsillectomy hemorrhage over the 4 years period giving a 0% incidence of post tonsillectomy hemorrhage. Of the 211 patients involved in this study, 166 (78.6%) were in the pediatric age group aging under 15 years. Furthermore, there were more males involved forming almost 60% of the total patient population compared with almost 40% for the females. The indications were divided into 3 main categories with 127 patients having obstructive sleep apnea (OSA) and forming 60.1% of the total operated cases. Recurrent and chronic tonsillitis cases came in second place with 82 patient forming 37.9%. Only 2 patients were operated on for lymphoma. One hundred thirty four patients (63.5%) had tonsillectomy with adenoidectomy, and 77 patients (38.5%) had tonsillectomy alone.

A total of 185 out of 211 (87.67%) patients were discharged on the same day of surgery except for 26 patients under 3 years and diagnosed with OSA forming (12.3%) of the operated cases, with a dominant male proportion of 20 out of 26 (76.9%). All the 211 patients were again re-examined after two weeks, by the same surgeon in the outpatient department. We have observed that in a large number of the cases, the patients have reported either swallow the surgicel or spit it out. In the rest of the cases, we noticed that the surgicel was either completely or less frequently semi-dissolved in the tonsillar fossae. No aspiration of the surgicel was recorded.

## Discussion

Episodes of post tonsillectomy hemorrhage are still unpredictable and potentially life threatening. The exact incidence is very difficult to determine as the hemorrhage rate in the literature reaches as high as 20%<sup>9</sup>. The main objective of this study was to evaluate the use of surgicel as a primary method for hemostasis in tonsillectomy. Variations in technique usually revolve around the method of dissection which involves cold knife, hot knife with monopolar cautery, ultrasonic scalpel, microscopic bipolar cautery, temperature controlled radiofrequency tonsil reduction & Coblation, and the methods of homeostasis which includes cautery, chemical, laser, or suture and ties<sup>10</sup>. The use of cold dissection for tonsillectomy and surgicel alone for hemostasis reduces the trauma to the tissue and the rate of post tonsillectomy hemorrhage. This means that the patient could leave the hospital earlier, has less pain, can go back to his normal activities and probably reduction in the overall cost on the health care system.

This however still needs to be proven. Surgicel is a sterile absorbable knitted

fabric prepared by controlled oxidation of regenerated cellulose, it has been used for hemostasis in many other surgical specialties such as neurosurgery, urology, cardiac surgery, plus in other areas of head & neck surgery such as in thyroidectomy. However, as we searched the literature, we could not find any paper describing the use of surgical as primary haemostatic agent in tonsillectomy. It has been only used in the control of post tonsillectomy hemorrhage. When comparing the rate of post tonsillectomy hemorrhage using this technique to the rates published in the literature using various other techniques, we found that the rate of hemorrhage and re admission was zero and is less than most of what has been published. Some may argue that cold steel tonsillectomy is a technique with

low bleeding rate to start with but we believe that you can make this technique with even a lower bleeding rate if used with surgical for primary Hemostasis.

### Conclusion

Post tonsillectomy hemorrhage creates anxiety, prolongs morbidity, and increases health care cost. Preventing this complication is clearly in the best interest of both patient and surgeon. The use of surgical as has been demonstrated by this study might have a role in achieving hemostasis after tonsillectomy and reducing post tonsillectomy hemorrhage. Larger number of patient however has to be operated on in order to make valid comparisons between this technique and the current techniques practiced.

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