

Clinical summary

Tonsillectomy using the BiZact™ device: A pilot study in 186 children and adults¹

Krishnan, Giri; Stepan, Lia; Du, Charles; et al. *Clinical Otolaryngology* 2018 44(3):392-396

Purpose of the study

This pilot study describes the BiZact™ tonsillectomy procedure and its outcomes in a multicenter Australian study involving both adult and pediatric patients.

Methods

Data was prospectively collected on consecutive patients who underwent BiZact™ tonsillectomy procedures across five centers in South Australia between January 2017 and December 2017. Intraoperative data collected included duration of tonsil resection, time to hemostasis, total surgical time, defined as time from tonsil gag up to gag release, and intraoperative blood loss. Minimal blood loss of approximately <1 mL was recorded when suction was not required and one gauze swab used. Between 1-10 mL was recorded when there was blood in the suction tubing but not in the canister and one blood-soaked gauze used. And >10 mL was recorded when there was blood in the suction canister or there were more than two blood-soaked gauzes. Postoperative outcomes included incidence of primary and secondary hemorrhage and pain scores using the "pain faces scale."

Surgical procedure

Once exposure was gained, a Dennis-Brown forceps grasp the superior pole of the tonsil. And the jaws of the BiZact™ device are used to incise the mucosa between tonsil tissue and soft palate superiorly. The device is activated to deliver energy to tissue, and an audible signal indicates that the cutting mechanism can be deployed to divide the sealed tissue bundle. The device is serially clamped and activated to divide the fascial tissue between constrictor and tonsil superiorly and laterally first, then medially and proceeding inferiorly with extra-capsular dissection. Following removal of tonsils, further hemostasis can be obtained, if required. A pair of non-toothed forceps can be used to grasp and lift bleeding tissue to allow the curved jaws of the BiZact™ device to clamp across the tissue. The device can then be activated to the tissue to stop bleeding – without deploying the cutting mechanism.

Results

Total tonsillectomy time was analyzed by subgroups, pediatric patients (age ≤15 y) and adult patients (ages ≥16 y). The median total operative time in the pediatric patient group was 4.8 minutes (range 2.75-13) and 5.6 minutes (range 1.5-26.5) among the adult patient group. BiZact™ tonsillectomy technique is associated with reduced intraoperative blood loss with <1 mL of blood loss observed in 71 (38.2%) cases and between 1 and 10 mL loss observed in 81 (43.5%) cases. There were only 5 (2.7%) cases where more than 10 mL of blood loss were observed. Complete pain score diaries over eight days were returned by 54 patients. The median pain score on day one was six (range 1-10). It peaked on day three at seven (range 3-10) before decreasing to five (range 0-10) on day eight. Incomplete patient reported pain diaries, 54 (29.0%), prevented robust analysis of pain outcomes.

Postoperative complications included eight (4.3%) secondary hemorrhages and no primary hemorrhages. There were two cases of grade C hemorrhage giving an overall return to theatre rate of 1.1%. The BiZact™ device tonsillectomy is a hot technique. And the postoperative hemorrhage rate of 4.3% in the current study ranks between the bipolar diathermy (3.9%) and coblation (4.4%) rates recorded in the National Prospective Tonsillectomy Audit.

Median total tonsillectomy time



Pediatric patients
(age ≤15 y)

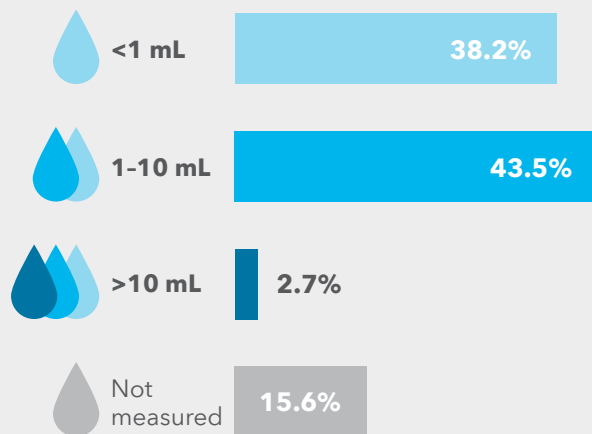
4.8 min
(range: 2.75-13 min)



Adult patients
(age ≥16 y)

5.6 min
(range: 1.5-26.5 min)

Intraoperative blood loss



Conclusions

This study is the first report of the surgical experience with the BiZact™ device and demonstrates feasibility. These findings suggest that BiZact™ tonsillectomy device allows for short operative time and minimal blood loss. There's a median total operative time of 5.3 minutes and almost 40% of patients had an estimated <1 mL of blood loss intraoperatively. The technique can be performed by a trainee under consultant surgeon supervision with comparable operating time and estimated blood loss in both adults (ages ≥ 16 y) and children (ages ≤ 15 y). Additional advantages of this device include ease of setup and incorporation of tissue sealing and cutting ability. BiZact™ tonsillectomy device is effective as demonstrated by outcomes in this pilot study.

References

1. Krishnan G., Stepan L., Du C., Padhye V., Bassiouni A., Dharmawardana N., Ooi E.H., Krishnan S. Tonsillectomy using the BiZact™: A pilot study in 186 children and adults. *Clinical Otolaryngology*. 2019 44:3 (392-396)

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