The Journal of Laryngology & Otology

cambridge.org/jlo

A high-throughput tonsillectomy pathway using the BiZact™ device: a prospective service evaluation

Ayaaz Habib[1], Saibal Das[1], Narendra Siddaiah[2] and John Glore[1]

[1]Department of Ear, Nose and Throat, Bradford Royal Infirmary, UK and [2]Department of Anaesthesia, Bradford Royal Infirmary, Bradford, UK

Main Article

Ayaaz Habib takes responsibility for the integrity of the content of the paper

Cite this article: Habib A, Das S, Siddaiah N, Glore J. A high-throughput tonsillectomy pathway using the BiZact™ device: a prospective service evaluation. *J Laryngol Otol* 2026; **140**:790–792. https://doi.org/10.1017/S0022215126104770

Received: 12 March 2025 UTC
Revised: 30 March 2026 UTC
Accepted: 14 April 2026 UTC
First published online: 22 April 2026 UTC

Keywords:
ambulatory surgical procedures; haemorrhage; post-operative complications; tonsillectomy; waiting lists

Corresponding author: Ayaaz Habib; Email: ayaazhabib@yahoo.co.uk

Abstract

Objectives. This study aimed to evaluate outcomes of a high-throughput tonsillectomy pathway using the BiZact™ device and consider its applicability in National Health Service practice.
Methods. A prospective service evaluation was undertaken in a UK teaching hospital (April–July 2023). Fifty consecutive patients underwent BiZact™ tonsillectomy across five morning lists. Data included demographics, operative time, blood loss, post-tonsillectomy haemorrhage, pain and satisfaction.
Results. Fifty patients (15 male, 35 female; mean age 24.6 years) underwent surgery. Indications were recurrent tonsillitis (86 per cent), asymmetry (10 per cent) and tonsilloliths (4 per cent). Mean operative time was 5 minutes; blood loss less than 10 ml. No primary haemorrhage occurred. Secondary post-tonsillectomy haemorrhage occurred in 5/50 (10 per cent): 3/48 adults (6.3 per cent) and 2/2 adolescents; three required return to theatre. Of 33 patients completing follow-up, 70 per cent reported severe pain. Four (8 per cent) reattended for analgesia. Waiting time fell from ~40 weeks to ~two weeks.
Conclusion. BiZact™ enabled efficient list turnover but with higher post-tonsillectomy haemorrhage rates, likely reflecting a learning curve.

Introduction

Tonsillectomy is one of the most frequently performed ENT procedures. The operation can be carried out with a variety of techniques, from cold steel dissection with ties or bipolar haemostasis through to monopolar, bipolar and coblation devices. Each method has strengths and weaknesses, and debates continue about the balance of pain, bleeding risk and efficiency. Coblation, for example, is often reported to have a lower pain profile than bipolar, though results have not always been consistent.[1–3]

The BiZact™ device is a bipolar radiofrequency vessel-sealing and cutting instrument with an integrated blade, allowing simultaneous tissue division and haemostasis. It is designed to reduce blood loss and shorten operating time. Early studies have reported encouraging results, with low blood loss and short operative times and post-tonsillectomy haemorrhage (PTH) rates broadly in line with other "hot" techniques.[4–6] However, evidence from UK centres remains limited. In 2023, we trialled a high-throughput day-case pathway using BiZact™ to help reduce a long National Health Service (NHS) waiting list. This paper describes the outcomes of that service evaluation and reflects on the challenges of transferring such a model into routine NHS practice.

Methods

Between April and July 2023, five morning operating lists were run in a large teaching hospital, with 10 tonsillectomy patients scheduled per list. A single consultant ENT surgeon performed all procedures. Two consultant anaesthetists worked in rotation so that one could anaesthetise the next patient while the other recovered the previous case. This allowed for continuous turnover and efficient theatre use.

Patients were admitted on the day of surgery and underwent standard pre-operative checks including venous thromboembolism (VTE) risk assessment and, for female patients, pregnancy testing. Anaesthesia was delivered using a flexible laryngeal mask with blood pressure maintained at 90–100 mmHg. Post-operative analgesia included paracetamol, ibuprofen and codeine (oral morphine in patients under 16). Difflam™ mouthwash was prescribed for 7 days. Tonsillectomy was performed using the BiZact™ device in the peritonsillar plane. Haemostasis was confirmed before extubation. Patients were discharged the same day once recovery criteria were met.

© The Author(s), 2026. Published by Cambridge University Press on behalf of J.L.O. (1984) LIMITED.

Prospective data included demographics, indication, operative time, blood loss and post-operative haemorrhage. Primary haemorrhage was defined as bleeding occurring within the first 24 hours of the operation and secondary haemorrhage as any bleeding occurring 24 hours post-operatively requiring medical assessment, hospital presentation or intervention. A structured telephone follow-up was arranged at two weeks to document pain scores, diet, complications and satisfaction.

Results

Fifty patients underwent BiZact™ tonsillectomy: 15 men and 35 women (ratio 1:2.3). The mean age was 24.6 years (range 14–58). Indications were recurrent tonsillitis in 43 patients (86 per cent), asymmetrical tonsils in 5 (10 per cent) and tonsilloliths in 2 (4 per cent). Adults comprised 48/50 (96 per cent); two patients were aged 14.

Mean operative time was five minutes (range 4–11 minutes), with estimated blood loss under 10 ml. There were no cases of primary haemorrhage. Secondary haemorrhage occurred in 5/50 patients (10 per cent). Three were adults (3/48; 6.3 per cent), and two were adolescents (2/2). Four of the five bleeding events occurred in the first 25 cases. Three patients required return to theatre; two were managed conservatively.

Pain scores were available from 33/50 patients. Of these, 23 (70 per cent) reported severe pain (7–10), 7 (21 per cent) moderate pain (4–6) and 3 (9 per cent) mild pain (0–3). Four patients (8 per cent) reattended for stronger analgesia. One patient (2 per cent) reported nausea and vomiting. Mean time for resuming a normal diet was 3 days.

All respondents were satisfied with inpatient care. Three suggested the discharge leaflet should contain more information about analgesic side-effects and advice on further follow-up. The five intensive lists reduced average waiting time from about 40 weeks to two weeks.

Discussion

This service evaluation shows that BiZact™ can be used in a high-throughput pathway to treat large numbers of patients quickly and facilitate rapid turnover. Operative time and blood loss were consistently low, in keeping with previously published series.[4–6] Our average operating time of 5 minutes is similar to Falz *et al.*, who reported shorter procedures with BiZact™ compared to cold steel dissection.[6]

The most notable finding is the 10 per cent secondary haemorrhage rate, which is higher than in most BiZact™ cohorts. Krishnan *et al.* described a rate of 4.3 per cent in a mixed adult and paediatric population,[4] while Mao *et al.* reported 5.9 per cent across more than 1700 cases.[5] In our series, four of the five bleeds occurred in the first 25 patients, suggesting a learning curve effect. Mao *et al.* also identified surgeon experience as a predictor of haemorrhage, with higher rates seen in trainee cases.[5] This pattern supports the idea that early experience with the device may influence outcomes.

The adult haemorrhage rate in our cohort (6.3 per cent) overlaps with published ranges for other "hot" techniques such as bipolar or coblation, which typically sit between 4 and 7 per cent.[1–3] The two adolescent cases both bled, but this represents only two patients, and the apparent 100 per cent rate should be interpreted cautiously. Larger paediatric series, such as Krishnan *et al.*, report haemorrhage rates closer to 6 per cent.[4]

Pain outcomes were in line with expectations for hot techniques, with the majority reporting severe pain in the first two weeks. Coblation has often been described as less painful than bipolar, though systematic reviews suggest the evidence is inconsistent.[1–3] Our data cannot resolve this but highlight that analgesia remains a key challenge regardless of device.

The wider strength of this project lies in service delivery. By alternating anaesthetists and structuring the list for rapid turnover, waiting times were cut from 40 weeks to just two weeks for the treated group. This is an important proof-of-concept showing what can be achieved with careful planning. However, the model depended on agency nursing staff and the presence of a manufacturer representative. For adoption within a fully NHS pathway, the essential requirements would be protected theatre time, reliable recovery capacity and training for permanent staff in device use. In addition, patient feedback highlighted the need to strengthen post-operative information, particularly regarding analgesic side-effects and follow-up arrangements. Incorporating this into the revised leaflets will be an important part of pathway refinement.

Limitations include the small sample size, incomplete follow-up for pain scores and absence of a comparator group from the same centre. Timing of bleed presentations was not systematically recorded. These gaps limit the strength of conclusions. Nevertheless, this series provides useful UK data and suggests that outcomes improve with operator experience. A contemporaneous comparison with cold steel and bipolar haemostasis within the same unit is planned as the logical next step.

- Tonsillectomy outcomes vary by technique; coblation may reduce pain but bleed rates are mixed. This paper adds UK data on BiZact™, showing very short operative times and minimal blood loss
- BiZact™ is reported internationally with 4–6 per cet secondary bleed rates. Our data reported a higher early rate (10 per cent), suggesting a learning-curve effect
- Adult outcomes with BiZact™ are comparable to other hot methods. This paper notes both adolescent cases bled, though numbers are very small
- High-throughput theatre models can address NHS waiting lists. We demonstrated a reduction in waiting times from ~40 weeks to ~two weeks using an alternating-anaesthetist pathway
- Patient information is key. It is important to provide information leaflets which include medication side effects and follow up arrangements

Conclusion

The BiZact™ device, in addition to theatre set-up, enabled efficient, high-volume tonsillectomy lists that substantially reduced waiting times. Operative efficiency and blood loss were excellent. Secondary haemorrhage rates were higher than expected, reflecting a learning curve. Larger prospective series with a contemporaneous comparator are needed before NHS-wide adoption.

References

1 Pynnonen M, Brinkmeier JV, Thorne MC, Chong LY, Burton MJ. Coblation versus other surgical techniques for tonsillectomy. *Cochrane Database Syst Rev* 2017;**8**:CD004619

2 Alsaif A, Alazemi M, Kahlar N, Karam M, Abul A, Al-Naseem A, *et al.* Tonsillectomy outcomes for coblation versus bipolar diathermy in adults: systematic review and meta-analysis. *Ear Nose Throat J* 2023;**102**:NP183–91

https://doi.org/10.1017/S0022215126104770 Published online by Cambridge University Press

3 Karam M, Abul A, Althuwaini A, Almuhanna A, Alenezi T, Aljadi A, *et al*. Coblation versus bipolar diathermy haemostasis in paediatric tonsillectomy: systematic review and meta-analysis. *Cureus* 2022; **14**:e23066
4 Krishnan G, Stepan L, Du C, Padhye V, Bassiouni A, Dharmawardana N, *et al*. Tonsillectomy using the BiZact™: a pilot study in 186 children and adults. *Clin Otolaryngol* 2019;**44**:392–6
5 Mao B, Woods CM, Athanasiadis T, MacFarlane P, Boase S, Joshi H, *et al*. BiZact™ tonsillectomy: predictive factors for post-tonsillectomy haemorrhage from a 1717-case series. *Clin Otolaryngol* 2023;**48**:672–9
6 Falz H, von Lücken H-J, Münscher A, Möckelmann N. A comparative study of BiZact™ tonsillectomy versus cold steel dissection in adults: operating time, intraoperative blood loss, postoperative bleeding rate and pain. *Clin Otolaryngol* 2024;**49**:299–305

https://doi.org/10.1017/S0022215126104770 Published online by Cambridge University Press