

NAVIGATING POST-TONSILLECTOMY WATERS IN AUTISM: A TALE OF COMPLICATIONS AND TRIUMPH

Ahmad Husni SI^{1,3}, Armugum M¹, Adaikappan M¹, Rajan P^{1,2}, and Mohamad Yunus MR³.

¹Department of Otolaryngology, Head & Neck Surgery, Hospital Raja Permaisuri Bainun, Perak Malaysia

²Clinical Research Centre, Hospital Raja Permaisuri Bainun, Ministry of Health Malaysia, Ipoh, Malaysia

³Department of Otorhinolaryngology, Head and Neck Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia

Correspondence:

Saiful Islam Ahmad Husni,

Department of Otolaryngology, Head & Neck Surgery,

Hospital Raja Permaisuri Bainun,

Perak, Malaysia.

Email: saifulhusni92@gmail.com

Abstract:

Adenotonsillectomy (AT) is a common surgery performed in the field of otolaryngology. The most prevalent problems following AT are haemorrhage and breathing obstruction, although many individuals do not experience any subsequent difficulties. We would like to present a case of a child with autism spectrum disorder (ASD) who developed dysphagia and subsequent detrimental complications, including dehydration, after undergoing AT. This condition requires a multidisciplinary strategy to address the problem and provide special care and treatment for ASD children. By employing an all-encompassing strategy, the child demonstrated notable progress in her symptoms and was released after recuperation, with laboratory results returning to normal.

Keywords: Adenotonsillectomy, Autism, Dysphagia, Dehydration

Introduction

Tonsillectomy is a surgical procedure performed with or without adenoidectomy that completely removes the tonsil, including its capsule, by dissecting the peritonsillar space between the tonsil capsule and the muscular wall. On the other hand, autism spectrum disorder (ASD) is a disorder related to neurodevelopmental impairments, including persistent deficits in social communication, social interaction and repetitive patterns of behaviour. As the incidence of ASD increases, otolaryngologists are more likely to encounter patients from this population, especially for tonsillectomy procedures. Hereby, we report an important encounter of post-tonsillectomy complications in ASD patients and how a multidisciplinary approach is very important.

Case presentation

A 6-year-old girl with a known diagnosis of ASD under pediatric follow-up. She had a history of recurrent tonsillitis with febrile fits secondary to acute tonsillitis. As her tonsillitis episodes were becoming increasingly frequent and severe, a decision was made to proceed with a tonsillectomy in daycare settings at other tertiary hospitals.

Following the procedure, the child was discharged on the same day with syrup amoxicillin and suppository

paracetamol and was given an early appointment to review. Her parents decided to travel back to another state with a 2-hour journey. Unfortunately, the next day, she refused to eat at home, prompting her parents to bring her to the nearest tertiary hospital. Upon readmission, the patient was found to be 5% dehydrated due to poor oral intake post-tonsillectomy. Laboratory investigations revealed metabolic acidosis, hypoglycemia, and acute kidney injury (AKI).

Throughout the stay in the hospital, the child underwent three examinations under anaesthesia (EUA), during which a thick slough over the bilateral tonsillar fossa and bleeding from the posterior and superior part of the tonsil were noted. Hemostasis was achieved using bipolar cautery. The bilateral Fossa of Rosenmüller was clear, with no adenoid present, and the nasopharynx was also clear.

A multidisciplinary approach involving dietitians and the pediatric team were initiated. The patient was started on ryles tube feeding (210cc over 4 hourly) and received IV Augmentin for 12 days to manage the tonsillectomy-related complications effectively. Subsequently, the child underwent training with per oral intake mixed with ryles tube feeding.

The patient showed tremendous improvement in symptoms after all the management was initiated. She was

then discharged well after clinically showing improvement, along with normalized laboratory investigations.

Discussion

AT is a vital procedure in Otorhinolaryngology practice, especially in the paediatric population. According to the American Academy of Otolaryngology-Head and Neck Surgery, more than 530,000 of these procedures were done for children aged less than 15 years old in the United States in 2006 alone. Though it is routinely performed, complications such as bleeding and respiratory complications were deemed as the most common (1). Since AT is a common procedure, it is deemed that ENT surgeons will be more likely to encounter developmentally delayed children and ASD in routine practise. The standard guidelines for indication of tonsillectomy are divided into absolute and relative. Absolute indications include tonsillitis resulting in febrile convulsions, peritonsillar abscess not responsive to medical management, enlarged tonsils causing upper airway obstruction, severe dysphagia, sleep disorders and tonsils necessitating biopsy to define tissue pathology. Relative indications for AT include three or more infections per year despite receiving adequate medical therapy, chronic or recurrent tonsillitis in a carrier of Streptococcus not responding to Beta-Lactamase resistant antibiotics and unilateral tonsil hypertrophy suspected to be neoplastic.

In this case, the child had a history of recurrent tonsillitis with febrile fits secondary to acute tonsillitis and was indicated for an AT. However, the dilemma faced in this case was the complicated management of the post-AT complications (post-tonsillectomy bleeding and poor oral intake) in an ASD child and extended hospital stay, which raises the question of whether AT is definitely required in a child with underlying conditions such as ASD.

Based on the American Psychiatric Association's Diagnostic and Statistical Manual, Fifth edition (DSM-5), ASD is characterized by persistent deficits in social communication and restricted social interaction across various contexts, and they often have repetitive patterns of behaviour, interest or activities. Since ASD has different variations, thus routine care for ASD patients can be variably complex and will depend on multiple factors. The availability of access to appropriate care professionals and support systems has a major influence on the general health of this type of patient (2). Many studies, for example, based on randomized Childhood Adenotonsillectomy Trials (CHAT) by Marcus et al. (3), reported improvements in cognitive function, behavior and learning after AT, supporting the reason for one of the procedures that are important in ASD.

As they tend to have highly unusual clinical presentations, having a preoperative is unique to them and will challenge the surgical team. In terms of oral surgery needs, these types of patients likely cannot comply with routine outpatient care and often need sedation or general anaesthesia for better-controlled environments under comprehensive care. Preparing for an operation for

this group study needs proper planning and navigation from pre-operative, intraoperative and post-operative care. A study by Kou et al. (4) involving 7,386 youngsters who underwent AT, with 2138 (5.7%) of them being diagnosed with a mental health problem, found that children who have mental health issues, particularly those with developmental delays, experience more frequent complications, more extended hospital stays and higher rates of readmission compared to children without mental health disorders. Hence, a preoperative counselling session must be initiated for ASD children to prepare both the patient and the family.

A study done by Swartz et al. in 2017 developed an individualised plan depending on autism spectrum severity level and preoperative sedation (5). This study involved a multidisciplinary team consisting of patients' caregivers, PAC nurses, Child Life Specialists and anaesthesiologists. Family members were contacted by telephone, a PAC visit with nursing alone or a PAC visit with an anesthesiologist. Each patient was documented in the specific plan, which involved the documentation of severity level, cognitive level, methods of communication, motivators, sensory challenges and stressors. On the day of surgery, each patient was reassessed, and a perioperative plan was finalized, including the method of administration of preoperative sedation. The result found that cooperation was greatest in severity level 1 (98%) of ASD patients, Asperger's (93%) and somewhat less (85%) in patients in severity Level 2 and 3. Satisfaction among caregivers resulted in 98% total satisfaction. ASD child may be unable to tolerate even slight changes in their fixed daily routine with hospital visits, and anticipation of surgery may produce "meltdown" behaviours. Thus, having a proper individualised plan helped them prepare better for surgery. A similar study also suggests an intraoperative plan based on the anaesthesiologist side, involving analgesia, fluids and anti-nauseants if clinically warranted with the aim goal of early discontinuation of intravenous catheters and monitoring devices. This is important to prevent ASD children postoperatively having increased anxiety seeing unfamiliar devices and environments.

Haemorrhaging and respiratory impairments are the predominant consequences associated with AT. Post tonsillectomy haemorrhage (PTH) is a significant and widely recognised consequence following AT. Primary PTH typically develops within the first 24 hours after surgery, with a risk of developing these complications ranging from 0.5% to 4.5%, as reported by Graziela De Luca et al. (1). Local study by Farah and Goh (6) conducted in 2020 studied about post-operative complications of tonsillectomy in 259 children showed that 90% patients had no complications after AT, only two individuals (1.4%) suffered post tonsillectomy hematoma and one (0.7%) developed a respiratory problem that cleared with nebulized beta agonist. In this study, AT was recommended for children with recurrent tonsillitis and sleep-disordered breathing.

In another study by Printz et al. in 2019 regarding morbidity after tonsillectomy for ASD children, they tend to have a

longer length of stay compared to children without ASD (7). Fewer medications were given to ASD child probably due to communication challenges, and the author suggested that a few doses of analgesics post-operatively could contribute to shorter LOS and, hence, lower the cost of treatment. A standard regiment of analgesic dosing would optimize pain control and may reduce post-operative dehydration. An interesting approach was reported by Seid et al. (8), whereby the article suggested that parents or caretakers be used as consultants and experts regarding a child's peculiar. In most daycare surgery centers, children are often placed together in a common recovery room. Placing an ASD child in a smaller, quieter isolation room with a caretaker will definitely help to reduce the amount of new stimuli and help reduce the disruption to the child's routine. The article suggested facilitating discharge with the importance of parents' education for proper management at home by letting the parents become the child's consultant. In our case, the child was discharged home, and the parents decided to travel 200 kilometres from the initial hospital to the other state. This probably disrupts the child's routine activities as they are travelling to other uncommon environments and, unfortunately, were admitted to other different tertiary hospitals, which may contribute to worsening post-operative complications, as in this case, dysphagia.

Conclusion

In conclusion, hospitalization exposes children with ASD to many unfamiliar medical equipment and uncomfortable environments. The painful procedure, as in our case, AT complicated with dysphagia postoperatively, will exacerbate behavioural difficulties and increase the risk of complications. A familiar environment with parents or caretakers as the child consultant, equipped with trained staff in ASD child handling and other multidisciplinary teams, will provide support in improving the care of ASD child preparing for the procedure.

Acknowledgement

The completion of this case report could not have been possible without the help of the Otorhinolaryngology team at Hospital Raja Permaisuri Bainun (HRPB) Ipoh and other staff. Their contributions are much appreciated and acknowledged.

I also would like to give my gratitude to the JUMMEC team for accepting this case report in their prestigious journal.

Competing interests

The authors declare that they have no competing interests.

Ethical Clearance

We obtained verbal approval from the parents regarding the usage of the patient as a subject in this case report. No photography was taken to include in this case report.

Financial support

The authors declared that no financial support was used for this case report.

References

1. De, G., Pachêco-Pereira, C., Secil Aydinoz, Bhattacharjee, R., Tan, H.-L., Kheirandish Gozal, L., Flores-Mir, C., & Gozal, D. Adenotonsillectomy Complications: A Meta analysis. 2015; 136(4):702–718.
2. Lai B, Milano M, Roberts MW, Hooper SR. Unmet dental needs and barriers to dental care among children with autism spectrum disorders. *J Autism Dev Disord*. 2012; 42(7):1294-1303.
3. Marcus, C. L., Moore, R. H., Rosen, C. L., Giordani, B., Garetz, S. L., Taylor, H. G., et al. A Randomized Trial of Adenotonsillectomy for Childhood Sleep Apnea. *New England Journal of Medicine*. 2013; 368(25):2366–2376.
4. Kou, Y.-F., Wang, C., Shah, G. B., Mitchell, R. B., & Johnson, R. F. Tonsillectomy Outcomes among Children with Mental Health Disorders in the United States. *Otolaryngology–Head and Neck Surgery*. 2020; 162(5):754–760.
5. Swartz, J. S., Amos, K. E., Brindas, M., Girling, L. G., & Ruth Graham, M. Benefits of an individualized perioperative plan for children with autism spectrum disorder. *Pediatric Anesthesia*. 2017; 27(8):856–862.
6. Farah Liana Lokman & Bee See Goh. Paediatric Adenotonsillectomy: Its Safety and Outcome in a Malaysian Tertiary Medical Center. *Indian Journal of Otolaryngology and Head & Neck Surgery*. 2020; 74(S2):1050–1055.
7. Printz, J. N., Mirkin, K. A., Hollenbeak, C. S., & Carr, M. M. Morbidity after tonsillectomy in children with autism spectrum disorders. *American Journal of Otolaryngology*. 2019; 40(5):667–672.
8. Seid, M., Sherman, M., & Seid, A. B. Perioperative psychosocial interventions for autistic children undergoing ENT surgery. *International Journal of Pediatric Otorhinolaryngology*. 1997; 40(2-3):107-113.