

Oral Surgery Management in Asperger Syndrome: A Case Report

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ABSTRACT

Asperger syndrome is a developmental disorder characterized by difficulties in social interaction and communication. Dental treatment of patients with Asperger syndrome could be challenging due to lack of communication and compliance. This case report described the dental treatment of a patient with Asperger syndrome. A surgeon should be aware of the problems associated with patients with Asperger syndrome and how these can interfere in the surgical treatment. Communication is the key to successful dental treatment in a patient with Asperger syndrome.

Key Words: Asperger Syndrome, oral surgery management, dental management

INTRODUCTION

Asperger syndrome is a behavioral disorder that is related to autism and is associated with abnormal social function and repetitive patterns of behavior without a decrease in intelligence or linguistic functionality.¹ American Psychiatric Association (APA) has recently inserted Asperger syndrome in the spectrum of Autism Spectrum Disorder (ASD).² ASD, including Asperger syndrome, have been by the presence of a “triad” of impairments: 1) social deficits; 2) repetitive/stereotypical behaviors and restricted interests; and 3) communication difficulties.^{3,4} Asperger syndrome is characterized as a social deficiency, limited interest, obligatory behavior with no verbal communication problem and no language delay, average or superior IQ, and difficulty in changing routines.^{2,5} The signs and symptoms include long engaging conversations by the individual with obsession or fixation to minute details or information, lack of or extreme eye contact, awkward body gestures, poor coordination and strange speaking patterns, eccentric or repetitive behavior, limited range of interests, difficulty understanding others’ facial expressions or tones as well as literal and sarcastic conversation, and lack of empathy or sensitivity toward others.¹

The rate of Asperger syndrome, individually or as a component of the autism spectrum, is not definitively known.⁶ Estimates from a variety of sources range from 0.67 to 48 to 10,000 children.⁶ A United States government survey (Centers for Disease Control and Prevention; CDC) indicates that the prevalence may even be as high as 1 in 50. The overall prevalence of Asperger syndrome has been estimated to 2-7 out of every 1,000, and it is 2-4 times more common in boys than girls.³

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The diagnosis of Asperger syndrome is more complicated than ASD because the major developmental red flags such as the failure to develop language before the age of 3 is, by definition, not present.¹ The diagnosis of Asperger syndrome is based on behavioral characteristics. In the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), it is included in the section of ASD, under the subcategory of pervasive developmental disorders.⁷ The diagnosis of Asperger syndrome requires at least two symptoms of social interaction impairments and one symptom of behavioral and interest restriction, normal cognitive functioning and absence of significant general delay in language.⁸ Asperger syndrome is often diagnosed belatedly at 11 years of age on average and in some cases during adulthood. The different risk factors which may affect early brain development have been identified, which genetic factors seem to play a predominant role but also specific environmental, and particularly perinatal, factors.²

Dentists face various problems during the treatment of these patients, such as a deficiency in communication and less compliance.⁹ For example, impaired communication can hinder the child to tell dentists if they are uncomfortable during treatment, hence limits the dentist's ability to use various basic behavioural guidance techniques during the treatment. Stereotypical and repetitive actions can also complicate dentists to safely and effectively provide oral care.⁴

Majority of studies point to poor oral hygiene in children and adults with ASD.¹⁰ The following factors can contribute to poor oral health in children with ASD: the effects of prescribed medications, such as psychotropic and antiseizure medications that can cause oral and dental complications; reduced saliva in the mouth, such as xerostomia (dry mouth); poor dietary habits; damaging oral habits such as bruxism; poor oral self-care; cognitive level; and oversensitivity to sensory stimuli.^{4,11} Poor oral hygiene has been associated with a higher caries prevalence

in primary and permanent dentitions of ASD children, the presence of generalized gingivitis, and periodontal disease.¹⁰ Different dental treatment options can range from argumentative communication, visual pedagogy, premedication, to general anaesthesia.⁹ The purpose of this case report is to describe the dental management of a patient with Asperger Syndrome who needed oral surgery and how the patient should be approached during the treatment through effective communication.

CASE REPORT

An 18-year-old male was referred to the Oral and Maxillofacial Department, Dr. Mohammad Soewandhie Hospital. The patient presented with a pain in the anterior lower teeth root from a motorcycle accident two years ago without a helmet. His anterior upper teeth avulsion and anterior lower tooth fracture were not treated after the accident. The patient has Asperger Syndrome since he was five years old. Patient is on anti-anxiety medication, Clobazam 10 mg once a day, and is seen regularly at the Paediatrics' Growth and Development Department, Dr. Soetomo Hospital.

On physical and extraoral examination (Figure 1), the patient was generally in good condition with normal vital signs. Intraoral examination presented gangrene on radix 31 and 33, necrotic and crown fracture on teeth 32, 41, 42 with negative vitality test, impacted lower wisdom tooth 38, unerupted lower wisdom tooth 48, no signs of anterior upper teeth, no oedema, no hyperaemia, and no tenderness (Figures 2 and 3).

Panoramic radiograph showed well-defined radiolucent surround with radiopaque at the apical tooth 32, 41, 42. There was gangrene radix 12, impacted lower wisdom tooth 38 mesioangular angulation, and impacted lower wisdom tooth 48 horizontal angulation (Figure 4).



Figure 1. Pre-operative extraoral photograph.



Figure 2. Pre-operative clinical image of maxilla showed no anterior upper teeth.



Figure 3. Pre-operative clinical image of mandible showed teeth root 31 and 33.



Figure 4. Panoramic radiograph at initial examination revealing radiolucency at the apical anterior lower teeth, gangrene radix 12, and impacted lower wisdom teeth 38 and 48.

The laboratory test presented a slight decreased in partial thromboplastin time (PTT). Other laboratory tests such as complete blood count, liver function test, renal function test, blood glucose test, serum electrolytes test, and hepatitis B surface antigen (HBsAg) presented normal results.

The patient was diagnosed with Asperger syndrome and was found to have a radicular cyst, multiple necrotic teeth, and impacted wisdom teeth which required surgical treatment. The patient was referred to a psychiatrist before the surgery. The psychiatric department confirmed no contraindication for the surgery, and at least one family member was suggested to accompany the patient. He was prescribed with anti-anxiety medication, Clobazam 10 mg once a day. Both the patient and family member were given informed consent forms and were informed of the risks of the surgery. Due to difficulties in social interaction and communication related to Asperger syndrome, family members were involved in communicating with the patient.

Before surgery, the patient was given prophylactic antibiotic, Cefazolin, intravenously. Patient was uncooperative. Surgical treatment such as anterior lower cyst enucleation, anterior lower teeth extraction, anterior upper tooth surgical extraction, and lower left and right odontectomy were performed under general anaesthesia. Multiple drugs (fentanyl, morphine, propofol, atracurium, ranitidine, ketorolac and dexamethasone) were administered intravenously during the perioperative period under general anaesthesia.

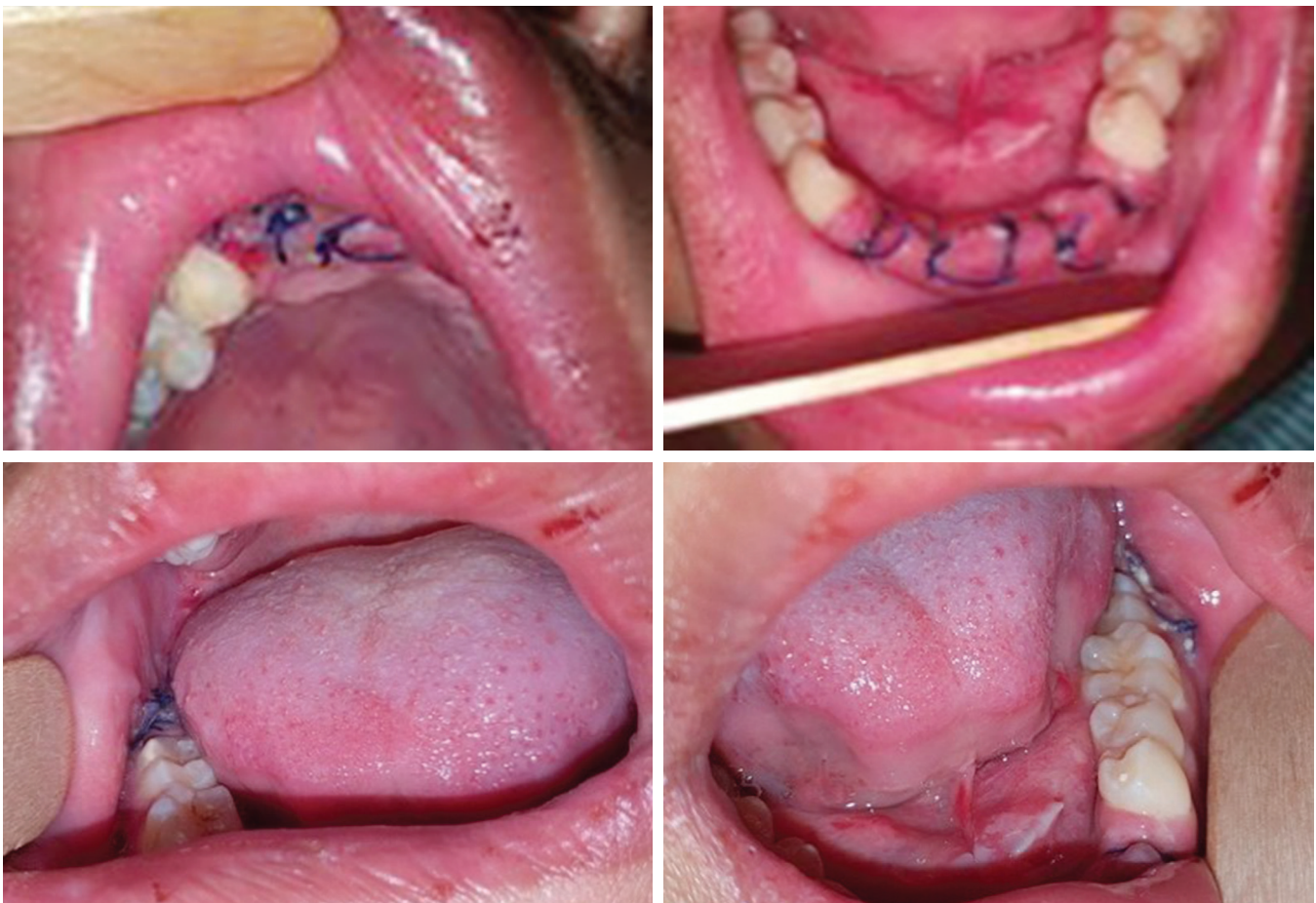


Figure 5. Post-operative photograph H+1.

The patient's condition improved during the post-operative period (Figure 5). He was given adequate nutrition and were on the following medications: Claneksi™ (Co-amoxiclav) for bacterial infection; Antrain™ (Metamizole sodium) for pain and fever; and Ondansetron to prevent nausea and vomiting. The patient demonstrated positive response to the treatment on the seventh and fourteenth day after the surgery. Surgical wound closing was observed well with no dehiscence.

DISCUSSION

Asperger syndrome (AS) is a serious and chronic neurodevelopmental disorder that is characterized by significant and severe difficulties in social interaction along with restricted and repetitive patterns of behavior and interests, as in autism. In contrast to autism, verbal cognitive skills are often an area of strength, and the individual may exhibit the profile of nonverbal learning disability.¹²

During the clinical examination, speech and tongue problems were observed. The patient was reluctant to have eye contact with the dentist and was inattentive. The patient suffered from pain due to trauma caused by a motorcycle accident in the past. Dental surgery to prevent future dental anxiety was indicated.

Volkmar *et al.* reported that Asperger syndrome patients may have a lower pain threshold for some qualities of pain.¹² Venkat *et al.*, wrote that due to the communication abnormalities that commonly affect patients with ASD, the pain caused by dental damage may manifest as change in behaviour or poor oral intake.¹¹

The use of general anaesthesia is the most viable option in treating autistic children requiring extensive dental treatment.

In the case presented, the patient needed to undergo surgery under sedation or general anaesthesia. A study by the Pediatric Sedation Research Consortium reported a low but persistent rate of potential sedation-induced life-threatening events, such as apnea, airway obstruction, laryngospasm, pulmonary aspiration, desaturation, and others, even when the sedation was provided under the direction of a motivated team of specialists.¹³ Considering that the dental treatment was time-consuming, it was decided that the surgical procedure would be performed under general anaesthesia.⁹ According to Chandrashekhar and Bomrangoudar, the management of autistic patients under general anaesthesia is effective, and will help them tolerate conventional treatment.¹⁴ Based on another study conducted by Stein *et al.*, diagnosis of ASD is one of the most frequent profile traits for the utilization of advanced behavioural strategies, such as the use of general anaesthesia, which has been reported to be utilized from 18% to 37%.⁴

A study from Loo *et al.* showed that the advanced behaviour guidance techniques that are used often during dental treatment of ASD patients, from most to least

commonly employed strategies: general anaesthesia; protective stabilization; and conscious sedation.¹⁵

During dental treatment under general anaesthesia, the need for Propofol (an anaesthetic) was found to be greater among patients with autism than those with intellectually impaired controls.¹⁶ Gandhi and Klein considered general anaesthesia as a generally safe procedure.¹⁰ It is noteworthy that adverse events related to its use in patients with autism such as significant disruptive behavior and postoperative vomiting that delays discharge were reported. Rarely were fatalities, and extensive post-operative bleeding from patient manipulation of surgical sites were reported.¹⁰ Stein *et al.* reported that general anaesthesia can be dangerous due to adverse drug interactions, and that the cost may be prohibitive for underinsured families, affecting the frequency for dental prophylaxis.⁴

In the case presented, the psychiatrist suggested that the patient be assisted to the dental therapy by a family member as the patient was fearful. Loo *et al.* suggested that this was one of the strategies on basic behavioral management that can be utilized for patients with ASD, including the presence of a parent or aide. Other strategies include communication such as the use of tell-show-do technique; the use of short, clear commands, and verbal reinforcements; pharmacological intervention such as sedation; and immobilization techniques such as use of restraint and protective stabilization.^{4,9,10,15,17} Although the treatment was performed under general anaesthesia, local anaesthesia was considered as an alternative with a combination with other basic behaviour management strategies.

According to Loo *et al.*, it is feasible for a short visit and minimized sensory stimuli.¹⁵ For example, tell-show-do is a basic and effective exposure therapy and is a way to introduce dental instruments, equipment, or procedures to a patient. For individuals with limited verbal communication, use pictures or objects to explain what will occur. Some individuals will benefit from practicing certain aspects of a procedure before experiencing them in a dental office.¹⁴ One of the most effective approaches to reduce dental anxiety is by providing accurate and detailed explanations and information on what will happen and the experiences the patient will expect. Thus, the dentist should carefully explain to the patient what he or she is about to undergo and what it may feel like, in addition to slowing down the pace of speech to facilitate better comprehension.¹⁶ However, according to Gandhi and Klein, these techniques may not always be successful in patients with ASD in which expressive and receptive language deficits can negatively impact the utilization of these techniques.¹⁰

Drug interactions were closely monitored during the pre-, intra- and post-operative periods. The patient consumed Clobazam, a benzodiazepine, used in combination with other medications, which has a sedative effect. This drug interacts with other antiseizure medications and causes adverse effects. Efficacy in some patients is limited due to

the development of tolerance.¹⁸ Many patients develop some tolerance with this drug, and abrupt discontinuation of the drug can cause a withdrawal syndrome such as behavioral disorder, tremor, anxiety, dysphoria, insomnia, convulsions, psychosis.¹⁹ Close monitoring of the medications and their potential drug interactions should be considered in a dental surgical treatment plan.

The limitations of this case report are the possibility of inaccuracies on parental reports of the patient's behaviour in a different dental setting and/or procedure. The patient may behave differently during oral prophylaxis, restorative procedure or extraction, which have not been observed in this case.

CONCLUSION

In treating patients with Asperger Syndrome, the oral and maxillofacial surgeon should be aware of the problems associated with this condition and how these can interfere with the surgical treatment. Close interactions between patients, parents, and surgeon will result in the best treatment decisions.

Statement of Authorship

All authors participated in data collection and analysis, and approved the final version submitted.

Author Disclosure

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