ORIGINAL ARTICLE

Differences in the tooth impaction characteristics between males and females nonsyndromic cleft lip and palate patients: a cross-sectional study

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ABSTRACT

Introduction: Nonsyndromic cleft lip and palate (nsCLP) refers to an abnormal gap in the upper lip and/or palate, without the presence of additional developmental abnormalities. The risk of tooth impaction in nsCLP-patients is greater than in patients without nsCLP. This research aimed to analyze the differences in the tooth impaction characteristics between males and females nsCLP-patients. **Methods**: Type of research is cross-sectional study. CLP by observing 64 panoramic radiographs as population, consisting of 28 males and 36 females with the chronological age of over 7 years. The sampling technique used was purposive sampling of tooth impaction and the number of samples are 14. Univariate analysis was performed to examine the data on tooth impaction characteristics. Bivariate analysis was performed to compare the tooth impaction characteristics between males and females. **Results**: The proportion of tooth impaction in males (28.57%) was greater than in females (16.67%). Tooth impaction generally affects one tooth. Maxillary permanent canines (64.71%) were the most frequently affected teeth. Most of the impacted teeth were located above the cemento-enamel junction, but less than half the length of the adjacent tooth root with unfavorable angulation<65^0 to the intercondylar line. There were no significant differences in the tooth impaction characteristics, including proportion (p-value=0.5557), number (p-value=0.0644), position (p-value=0.8273), and angulation (p-value=0.8248), between males and females nsCLP-patients. However, there was a significant difference in the type of impacted teeth (p-value=0.0000) between the two genders. **Conclusions**: There were no differences in the tooth impaction characteristics, including the proportion, number, position, and angulation, except for the type of impacted teeth, between males and females nsCLP-patients. A small proportion of nsCLP-patients was found to have one impacted tooth, with maxillary permanent canines being the most frequently affected teeth. Impacted teeth were commonly located in favorable positions, but with unfavorable angulation.

KEYWORDS

Tooth impaction, nonsyndromic cleft lip and palate, panoramic radiography

INTRODUCTION

Cleft lip and palate (CLP) is a congenital disorder that occurs due to improper formation of the baby's lips or mouth during pregnancy.[1] Cleft lip and palate can be classified as syndromic if the cleft is accompanied by other congenital abnormalities, or nonsyndromic if it is an isolated condition that is not accompanied by other congenital abnormalities.[2] The cleft can occur on one side (unilateral) or two sides (bilateral).[3] A cleft lip and palate is one of the most common congenital abnormalities.[4,5] The total incidence in the world is around 1-2 per 1,000 births, with the highest incidence in Asia at approximately 1 per 500

births.[3] Nonsyndromic cleft lip and palate (nsCLP) accounts for 70% of cases, while the remaining30% is syndromic.[6] The cause of cleft lip and palate is thought to be multifactorial, involving both genetic and environmental factors.[6,7]

Patients with CLP generally have aesthetic problems accompanied by various medical complications, such as craniofacial growth restriction (especially in the maxilla), difficulties in eating due to problems with mouth closure, swallowing, nasal regurgitation, hearing abnormalities due to palatal muscle disorders, and speech disorders.[6] A person who is able to socialize optimally, must have high confidence.[8] Meanwhile, individuals with CLP may have low self-esteem and experience obstacles when socializing.[9] Patients with CLP generally have an increased risk of dental abnormalities in terms of number, size, and position.[10,11] Dental abnormalities that are often found in patients with cleft lip and palate are agenesis, hypodontia, supernumerary, abnormal crown or root shape, impaction, and malposition. These abnormalities are more often found during the development of permanent teeth.[11]

Tooth impaction is a condition where there is an obstacle to tooth eruption, and based on clinical and radiographic examination, it is unlikely that the tooth will be able to erupt further.[10] Tooth impaction can occur due to inadequate arch length, insufficient space for eruption, obstacles from adjacent teeth, bone or surrounding soft tissue. Tooth impaction can lead to pathological conditions that require further treatment. Tooth impaction increases the risk of complications from periapical lesions, periodontal disease, temporomandibular joint disorders, root resorption of adjacent teeth, cysts, and tumors.[12]

A study conducted by Atoche et al.[13] found that tooth impaction was more common in CLP patients (17.2%) compared to that in normal patients (7.5%), with the prevalence in females (20.7%) being higher than in males (9.5%). According to Pradhan et al.[14] males (70.4%) had a higher incidence of tooth impaction than females (9.5%). In several studies, there are differences in the results of the prevalence of tooth impaction between male and female CLP patients.[13,14] Until now, the authors have not found any research related to the number of tooth impactions in each male and female CLP patient. Some literature suggests that maxillary canine is the most common type of impacted teeth in CLP patients.[7,15] However, various studies show varying results. A study in Mexico found that lateral incisors were the most commonly impacted teeth among the patients with cleft lip and palate (53.65%), followed by canines (19.51%), and central incisors (19.51%). It is suggested that the types of impacted teeth in patients with cleft lip and palate can vary widely.[13]

Patients with cleft lip and palate (CLP) require multidisciplinary long-term care, including orthodontic treatment.[11,12] The orthodontic treatment aims to achieve harmonious dental alignment and optimal occlusion.[16] For CLP patients, tooth impaction complicates the orthodontic treatment.[11,12] The position of impacted teeth affects the prognosis of orthodontic treatment. The prognosis worsens as the position of the impacted teeth moves further from the occlusal plane or have a more inclined angulation.[17] Korde et al.[18] conducted a study on the angulation of impacted teeth to the intercondylar line, and the results showed that generally, the angulation of impacted teeth in CLP patients causes the teeth to require orthodontic traction of impacted teeth. Until now, there has been no research on the differences in the position and angulation of impacted teeth in male and female CLP patients.

Clinicians must know the tooth impaction characteristics, including the proportion, number, type, position, and angulation of impacted teeth based on a panoramic radiography examination, so that they can correctly determine the diagnosis, treatment plan, and prognosis of orthodontic treatment for patients with CLP. To date, the number of studies focusing on the characteristics of tooth impaction in nsCLP patients is still limited. In Indonesia, no study has been conducted on the differences in the tooth impaction characteristics between males and females in nsCLP patients. Based on the description that has been presented,

the authors are interested in conducting a study on the differences in the tooth impaction characteristics between males and females nsCLP patients based on panoramic radiography examination. It is hoped that this research can help CLP management teams and clinicians develop baseline data so that the diagnosis, treatment plan, and prognosis of orthodontic treatment in nsCLP patients are more accurate. This research aimed to analyze the differences in the tooth impaction characteristics between males and females nsCLP-patients.

METHODS

This research used a quantitative cross-sectional comparative analysis study method to examine the characteristics of tooth impaction, including the proportion, number, type, position, and angulation of impacted teeth among male and female patients with nonsyndromic cleft lip and palate, based on a panoramic radiography examination. Data collection was carried out in the Dental and Oral Hospital of Padjadjaran University (RSGM UNPAD) and the Yayasan Pembina Penderita Celah Bibir dan Langit-Langit (YPPCBL) Bandung. The research and data processing were conducted at the Clinic of Orthodontic Specialist Dental Education Program, Faculty of Dentistry, Padjadjaran University (PPDGS Orthodontics FKG UNPAD) in Bandung.

The data was collected from May to June 2023. The study population consisted of all panoramic radiographs of nsCLP patients from RSGM UNPAD and YPPCBL who met the inclusion criteria, from 2018 – 2023. The sampling technique used in this research was total sampling. The inclusion criteria were panoramic radiographs of nsCLP patients in 2018 2023 with a chronological age of over 7 years and were impacted teeth. The exclusion criteria included any history of orthodontic treatment and a panoramic radiograph with diagnostically unacceptable quality, meaning it did not meet radiological standards for density, contrast, sharpness, detail and brightness, nor did it include anatomical structures suitable for clinical applications, making it impossible to interpret.

A total of 66 panoramic radiographs of nsCLP-patients in RSGM UNPAD and YPPCBL from 2018–2023 were selected according to inclusion criteria, and 64 panoramic radiographs were obtained for use in the study. A total of two panoramic radiographs were excluded because they had poor radiographic quality and could not be interpreted. The sampling technique used was purposive sampling of tooth impaction and the number of samples are 14 female/male. The calibration of the panoramic radiograph observations was carried out inter-examiner by observing and measuring 5 samples, and the results were analyzed using the t-test. The results of the two measurements are consistent with the value of t = 1.00 and p-value = 0.1780. Each maxillary permanent tooth is traced on panoramic radiographs using tracing paper, a negatoscope, and writing tools such as 4H pencils and erasers. Observation of impacted maxillary teeth was carried out. A tooth is considered impacted if it has not yet erupted into the dental arch, even though a minimum of two-thirds of the root length has been formed.[19]

A tooth is considered unerupted if the tip of the crown of the tooth has not reached the cervical line of the normally erupted adjacent tooth.[20] The proportion of tooth impaction is the ratio of the total number of nsCLP-patients who had tooth impaction to the total sample examined. The impacted tooth's position is evaluated and scored as follows: (1) the crown tip of the impacted tooth is at a height above the cemento-enamel junction but less than half the root length of the normally erupted adjacent tooth; (2) the crown tip of the impacted tooth is at a height between half the root length and the apical limit of the root of the normally erupted adjacent tooth; and (3) the crown tip of the impacted tooth is at a height beyond the apex of the root of the normally erupted adjacent tooth. The angulation of the impacted tooth is determined by measuring the angle between its long axis and the intercondylar line.

The intercondylar line is the horizontal line connecting the most superior points of the right and left condyles.[21] Tooth angulation is classified into two categories : (1) ≥ 65^0 (favorable), and (2) < 65^0 (unfavorable). The results of the observations and measurements were then recorded on the data sheet. The collected data was subsequently entered into the Microsoft Excel program using Megastat ver. 10.4. Univariate analysis was performed to examine the characteristic of tooth impaction , including the proportion, number, type, position, and angulation of impacted teeth in nsCLP patients, based on a panoramic radiography examination.

Using a panoramic radiography examination, a bivariate analysis was performed to compare the characteristics of tooth impaction among nsCLP patients. The analysis included various statistical tests, including the z-test to compare the proportion and type of impacted teeth, the t-test to compare the number of impacted teeth, and the Mann-Whitney test to compare the position and angulation of impacted teeth.

RESULTS

This study involved 64 panoramic radiographs of patients with nonsyndromic cleft lip and palate in RSGM UNPAD and YPPCBL, whose ages ranged from 7 to 25 years old.

Table 1. The sample distribution based on gender and the type of nonsyndromic cleft lip and palate.

Gender	Bilateral Cleft		Unilateral Cleft				Total	
			Right		Left			
	n	%	n	%	n	%	n	%
Male	6	9.38	5	7.81	17	26.56	28	43.75
Female	10	15.63	4	6.25	22	34.38	36	56.25
Total	16	25.00	9	14.06	39	60.94	64	100.00

* n: Frequency; %: Percentage

Table 1 shows the sample distribution of panoramic radiograph based on gender and the type of nonsyndromic cleft lip and palate in RSGM UNPAD and YPPCBL. According to the data presented in Table 1, most of the panoramic radiographs were taken by female patients, accounting for 36 (56.25%), while the remaining 28 (43.75%) were taken by male patients. According to the type of nonsyndromic cleft lip and palate, unilateral clefts (75.00%) were found to be more frequent than bilateral (25.00%), with most of the unilateral clefts occurring on the left side (60.94%). The left unilateral cleft is the most common type of cleft found in both males and females.

Table 2. Comparison of impacted teeth proportion according to gender

Impacted Teeth	Male		Female		n = 64		p-value
	n	%	n	%	n	%	
Impacted	8	28.57	6	16.67	14	21.88	0.5557
No Impacted Teeth	20	71.43	30	83.33	50	78.13	
Total	28	100.00	36	100.00	64	100.00	

* n: Total sample

Table 2 shows the proportion of impacted teeth based on gender. According to the results presented in Table 2 above, the impacted teeth were found in 14 samples, consisting of 8 females and 6 males. Impacted teeth were found in 14 (21.88%) of the 64 samples studied. The proportion of impacted teeth was 8 (28.57%) out of 20 in the males, higher than 6 (16.67%) out of 36 in the females. The results were analysed using the z-test, but there was no significant difference between males and females (p-value = 0.5557).

Table 3. Comparison of the impacted teeth number according to gender

Gender	n	Mean	SD	p-value
Male	8	1.38	0.52	0.0644
Female	6	1	0	

*SD : Standard Deviation

Table 3 describes the number of impacted teeth according to gender. It illustrates the average number of teeth in each affected patient. The mean number of teeth was 1.38 in the 8 males studied, and the mean number of teeth (1) was found in the 6 females studied. The results were analysed using the t-test, and there is no significant difference between the number of impacted teeth in males and females (p-value = 0.0644).

Table 4. Comparison of the impacted teeth type according to gender

Type of Impacted Teeth	Gender				n = 17		p-value
	Male		Female				
	n	%	n	%	n	%	
Central Incisor	0	0.00	0	0.00	0	0.00	0.0001
Lateral Incisor	4	36.36	1	16.67	5	29.41	
Canine	7	63.64	4	66.66	11	64.71	
First Premolar	0	0.00	0	0.00	0	0.00	
Second Premolar	0	0.00	1	16.67	1	5.88	
First Molar	0	0.00	0	0.00	0	0.00	
Second Molar	0	0.00	0	0.00	0	0.00	
Total	11	100.00	6	100.00	17	100.00	

*N = 17

Table 4 shows the type of impacted teeth according to gender. Canine teeth were the most common type of impacted teeth found in this study (64.71%). The most common type of impacted teeth found in males were canines, 7 (63.64%), followed by lateral incisors, 4 (36.36%). The most common type of impacted teeth found in females were canines, 4 (63.66%), followed by lateral incisors, and second premolars, with the same number of 1 for each type of tooth (16.67%). In this study, other types of teeth were not found to be impacted. The results were analysed using the z-test, and there is a significant difference between the type of impacted teeth in males and females (p-value = 0.0000).

Table 5. Comparison of impacted teeth position according to gender

Type of Impacted Teeth	Position of Impacted Teeth (n)						Total (n)	p-value
	M			F				
	G1	G2	G3	G1	G2	G3		
Lateral Incisor	4	0	0	1	0	0	5	0.8273
Canine	3	4	0	3	0	1	11	
First Premolar	0	0	0	0	0	0	0	
Second Premolar	0	0	0	0	1	0	1	
Total	7	4	0	4	1	1	17	

*M: Male; F: Female; G: Group

Table 5 shows the positions of the three types of impacted teeth found in this study. Most of the impacted lateral incisors, canines, and second premolars in males and females were in position 1 (the crown tip of the impacted tooth is at a height above the cemento-enamel junction but less than half the root length of the normally erupted adjacent tooth), followed by position 2 (the crown tip of the impacted tooth is at a height between half the root length and the apical limit of the root of the normally erupted adjacent tooth), and position 3 (the crown tip of the impacted tooth is at a height beyond the apex of the root of the normally erupted adjacent tooth).

All of the impacted lateral incisors (5) were in position 1. In males, impacted canines were found to be mostly in position 2, whereas in females, they were in position 1. Impacted second premolars were only found in females in position 1. The results were analysed using the Mann-Whitney test, and there was no

significant difference between the positions of impacted teeth in males and females (p-value = 0.8273).

Table 6. Comparison of impacted teeth angulation according to gender

Type of Impacted Teeth	Angulation of Impacted Teeth (n)				Total (n)	p-value
	M		F			
	G1	G2	G1	G2		
Lateral Incisor	1	3	0	1	5	0.8248
Canine	1	6	0	4	11	
First Premolar	0	0	0	0	0	
Second Premolar	0	0	0	1	1	
Total	2	9	0	6	17	

*M: Male; F: Female; G: Group

Table 6 shows the angulation of impacted teeth according to gender. Most of the impacted teeth were found to have unfavorable angulation (group 2). A total of 1 lateral incisor and 1 canine tooth, which were found to be impacted in male, had a favorable angulation (group 1). Females had unfavorable angulation of all impacted teeth (group 2). The results were analysed using the Mann-Whitney test, and there was no significant difference between the angulation of the impacted teeth in males and females (p-value = 0.8248).

Table 7. Comparison of impacted canine angulation according to gender

Gender	Impacted Canine	Mean (^{0})	SD	p-value
Male	7	51.0	15.56	0.0970
Female	4	25.5	35.06	

Table 7 shows the mean angulation of impacted canines according to gender. In males, the mean angulation of impacted canines was 51.0^0, and in females, it was 25.5^0 to the intercondylar line. The mean angulation of impacted canines in females is more unfavorable than that of males. The results were analysed using the Mann-Whitney test, and there was no significant difference between the angulation of the impacted canine in males and females (p-value = 0.0970).

DISCUSSION

A study on 64 panoramic radiographs of nonsyndromic cleft lip and palate(nsCLP) patients in RSGM UNPAD and YPPCBL showed that most of the samples were female (56.25%), while the rest were male (43.75%) (Table 1). This study confirmed Namdar et al.'s finding that females had more nonsyndromic clefts than males. Several studies that focused on the prevalence of nsCLP showed different results from this study. Nonsyndromic cleft lip and palate were generally found to be more common in males than females.[13,15,23] This difference may be due to variations in the population studied.[23]

Cases of unilateral nsCLP are more common than bilateral cases, with the majority occurring on the left side.[15,23,24] This study found similar results: with unilateral clefts were found to be more frequent than bilateral clefts, and the majority of unilateral clefts occurred on the left side. The left unilateral cleft was the most common type of cleft found in both males and females. Clefts are more common and occur on the left side, which is not yet fully known. Some researchers suspect that genetic variation and brain dominance have an influence on facial development, which affects the occurrence of clefts on the left side.[25]

The results of this study showed that the proportion of impacted teeth in nsCLP patients was 21.88% (Table 2). These results show a higher number than the research done by Reina[24] (3.8%) and Huda et al.[26] (17%). The proportion of impacted teeth in males was higher than in females, but the difference was not statistically significant. The incidence of impacted teeth was also found to be more common in male patients with cleft lip and palate (CLP) compared to female

patients in the study of Antunes et al.[7] and Pradhan et al.[14] A study conducted by Atoche et al.[13] showed different results, with a higher prevalence of impacted teeth in female CLP patients. This variation can occur because of race differences in the population studied.[23]

The number of impacted teeth in each male and female CLP patient did not show a significant difference (Table 3). The results showed an agreement with a study conducted by Luis et al.[27] in normal male and female patients. Luis et al. found that there was no significant difference between the mean number of impacted teeth in normal male and female patients. Until now, no study has compared the number of impacted teeth in male and female CLP patients; therefore, the results found in this study cannot be compared.

In this study, canines were the type of maxillary permanent teeth most commonly found to be impacted, followed by lateral incisors and second premolars (Table 4). Similar results were found in studies conducted by Jamilian et al.[15], Lasota et al.[11], and Antunes et al.[7] with the maxillary canines being the most commonly impacted teeth found in CLP patients. Patients with CLP generally have a narrow maxilla. This results in insufficient space for the canines eruption, as the canines are the last teeth to erupt in the anterior region.[11] Canines have a long eruption path from the site of tooth germ formation to its final position in the occlusal plane. Alveolar bone has a significant impact on tooth eruption process. CLP patients do not have sufficient alveolar bone in the cleft area to accommodate the eruption of the canines. This causes many incidents of impacted canines in CLP patients.

The maxillary lateral incisors serve as a guide in the canine eruption.[17] Agenesis of the lateral incisors is commonly found in nsCLP patients. Several studies have shown that in cases with agenesis of the lateral incisors, there is an increased risk of impacted canines. Agenesis, microdontia, and malposition of the lateral incisors that occur around the cleft area in nsCLP patients are associated with malposition or impaction of the maxillary permanent canines.[7]

Bone graft procedures can be performed at the age of 8-10 years, before the permanent canine teeth erupt and the roots have formed at least two-thirds of the root length, to allow the canine eruption.[17] A bone graft procedure, maxillary expansion, or extraction of retained primary teeth can reduce the risk of impacted maxillary canines.[10]

The results of this study indicate that there are significant differences between the type of impacted teeth in males and females. This difference may be due to the fact that impacted second premolars were found only in females. This finding is in accordance with the statement of Lasota et al.[11] that tooth impaction in nsCLP patients can impact the lateral incisors, canines, and premolars. Impacted maxillary premolars can be caused by disturbances in tooth eruption sequence, premature loss or persistence of primary molars, and abnormal positions of the permanent premolar germs.[28]

Most of the impacted lateral incisors, canines, and second premolars in males and females were found to be in position 1, followed by position 2, and position 3 (Table 5). The results of this study indicate that most of the impacted teeth were in a favorable position, with a height above the cemento-enamel junction but less than half the root length of the adjacent teeth.[20,29] Most of the impacted teeth in this study were in a position where they could erupt into the arch if space was available, with a good prognosis.[29] Korde et al.[18] found similar results in their study with the majority of impacted teeth in CLP patients being in position 1, followed by position 2, and position 3. In studies conducted by Fekonja[18] and Turaihi[29] in normal patients, similar results were found.

This study found no significant difference between the positions of impacted teeth in male and female nsCLP patients. Research conducted by Alhammadi et al.[30] in normal patients found different results with the position of impacted teeth for males generally further from the occlusal plane than females. This indicates

that there is a difference in tooth position between males and females in nsCLP and normal patients.

The angulation of the impacted tooth can be evaluated by measuring the angle between its long axis and the median line, or the intercondylar line.[18] Patients with CLP generally have a skeletal median line deviation, which complicates the measurement of the angulation of the impacted tooth to the median line. The measurement of impacted tooth angulation to the intercondylar line is considered to be the most reliable method to determine the angle of impacted tooth. Nonetheless, angle changes may occur over an extended period as a result of the changes in the condyle; therefore, periodic observation is needed to evaluate the changes possibility in the angulation of the impacted teeth.[31]

Impacted tooth angulation affects the prognosis for orthodontic treatment. Most of the impacted teeth found in this study had an angulation less than 65° to the intercondylar line (Table 6). This indicates that the majority of the impacted teeth identified in this study exhibited an unfavorable angulation, making them unsuitable for the arch retraction.[21] Only one impacted lateral incisor and one impacted canine, both in males, had an angle greater than or equal to 65°. In contrast, all impacted teeth in females exhibited unfavorable angulation. The lesser the angle formed between the intercondylar line and the long axis of the impacted tooth, the worse the prognosis for the tooth being retracted into the arch.[32]

This study found that the mean angle formed between the long axis of impacted canines and the intercondylar line in both males and females was less than 65° and unfavorable to be retracted into the arch (Table 7). In females, the mean angle of the impacted canine teeth to the intercondylar line was smaller than in males, although this difference was not significant. The results of this study indicated that there was no significant difference between males and females in terms of the angulation of impacted teeth, although the angulation in females was found to be mostly unfavorable compared to males. To date, no study has compared the angulation of impacted teeth in nsCLP-patients with the results of this study; however, several studies in normal patients have yielded varying results.

A study conducted by Al Abdallah et al.[33] in normal patients found similar results to this study: the angulation of impacted teeth in females is more unfavorable than in males. This finding indicates that there is a possibility that x-linked genetic factors influence the prognosis of impacted teeth. This suggests that if the tooth impaction is found in a female, then there is a possibility that the tooth will have a more unfavorable angulation and be more difficult to retract into the arch.[33] Several other studies have shown different results. Alhammadi et al.[30] and Baidas et al.[34] found that the angulation of the impacted teeth in normal males is more unfavorable than in females. This difference shows that there is variation in the angulation of the impacted teeth between males and females in nsCLP and normal patients.

Based on a panoramic radiography examination, the tooth impaction characteristics of nsCLP patients showed that a small proportion had one impacted tooth, most commonly in the maxillary permanent canines, followed by lateral incisors, and second premolars. These teeth were located in a favorable position, but had an unfavorable angulation to be retracted into the arch. The results of this study indicate that patients with nsCLP generally have an increased risk of tooth impaction.

The limitation of this study is that the tooth impaction characteristics, including the proportion, number, type, position, and angulation of impacted teeth in patients with nsCLP, were determined based on a two-dimensional radiographic examination: panoramic radiography. This study also only involved nsCLP patients in RSGM UNPAD and YPPCBL Bandung City. The authors suggest that further research with a three-dimensional radiographic examination method should be

conducted on all nsCLP-patients in Indonesia. This will provide a more accurate interpretation of the tooth impaction characteristics of nsCLP patients.

CONCLUSION

There were no differences in the tooth impaction characteristics, including proportion, number, position, and angulation, except for the type of impacted teeth, between males and females nsCLP-patients, as observed through a panoramic radiography examination. The implication of the research underscores the importance of diagnosing impacted teeth as early as possible in nsCLP patients. Early diagnosis allows for the initiation of preventive and interceptive treatment thereby, reducing the complexity of the case and potentially avoiding the need for termination or invasive procedures.

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