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Diagnosis and management of persistent idiopathic facial pain following dental procedures: a retrospective study

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Abstract (J Korean Assoc Oral Maxillofac Surg 2025;51:269-277)

Objectives: Persistent idiopathic facial pain (PIFP) is a rare, chronic disorder affecting the oral and maxillofacial region, without obvious clinical or neurological deficit. This study aims to evaluate the various dental treatments associated with PIFP and the pharmacologic treatment outcomes.

Patients and Methods: This retrospective study included the patients with PIFP according to the definition of the International Classification of Headache Disorders (ICHD) 2018, who were treated from January 2020 to September 2024 at the authors' hospital. The inclusion criteria were that PIFP occurred after dental procedures without a history of trauma or any clinical cause for the pain. Patient's pain characteristics, location, triggering events, and response to related medications and treatments were investigated.

Results: A total of 21 patients were identified, and most patients were related to dental implant treatment (n=15, 71.4%). Most patients experienced pain in the molar region (n=20) and experienced radiating pain to distant areas (n=16). Surgical treatment for pain control of PIFP, such as implant removal, tooth extraction or prosthesis removal, was attempted for 16 patients. However, 93.8% of these patients did not show relief of pain. The use of medications resulted in a significant decrease in pain for 18 patients (85.7%). Among 18 patients, 12 patients received with a combined medication therapy. The responsiveness to these medications was found to be tricyclic antidepressants (100%), gabapentin (57.1%), pregabalin (55.6%), clonazepam (54.5%), and Serotonin-norepinephrine reuptake inhibitor (50%).

Conclusion: Since PIFP after dental treatment is highly related to dental implant treatment, differential diagnosis of the PIFP is important for patients who complain of persistent implant pain with no clear cause. Combined medication was effective in most patients with PIFP. Importance of the diagnosis of PIFP after dental treatment for pharmacologic management is emphasized.

Key words: Facial pain, Chronic pain, Dental implants, Differential diagnosis, Postoperative pain, Referred pain, Oral surgery

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I. Introduction

Persistent Idiopathic Facial Pain (PIFP) is a rare chronic pain disorder characterized by continuous pain in the oral and maxillofacial region without an identifiable cause[1]. Historically, it was referred to as "atypical facial pain"[2] and was first described by Fay[3] in 1932. In 2018, the International Classification of Headache Disorders (ICHD) defined PIFP as a chronic disorder that recurs daily for more than two hours per day over a period of more than three months, in the absence of a clinical neurological deficit[4]. Despite its recognition, PIFP remains a poorly understood and challenging condition to manage.

The estimated lifetime prevalence of PIFP is approximately 0.03%[5], with an incidence rate of 4.4 per 100,000 person-years[6]. The exact pathophysiology of PIFP has not yet been clearly identified[7]. Women are significantly more frequently affected than men, accounting for approximately 75% to 90% of cases[6]. Most cases are diagnosed between the ages of 30 and 60[1]. PIFP can be triggered by various dental procedures, including pain onset after dental implantation[8,9].

Managing PIFP remains a difficult part of treating oral and maxillofacial pain because there are no standard guidelines, and its pathology is not well understood. Despite progress in pain treatment and dental care, patients with PIFP often require a multidisciplinary approach, including both pharmaco-

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logical and psychological support. However, there is limited research on the effectiveness of different management strategies, especially when PIFP is caused by dental procedures.

This study aims to analyze PIFP triggered following dental treatment and to investigate the efficacy of various treatment modalities for pain management. Through a retrospective review of patient records, this research endeavors to identify potential risk factors, assess treatment efficacies, and contribute to the development of evidence-based management strategies for PIFP. This investigation serves as a continuation of previous research conducted by the authors' institution[10].

II. Patients and Methods

1. Patient selection

Patients were selected from those who visited Kyungpook National University Dental Hospital between January 2020 and September 2024. The inclusion criteria were based on the diagnostic criteria for PIFP as defined by the ICHD[4].(Table 1)

Additional inclusion criteria for this study were: (1) age >20 years; (2) availability of clinical records and radiological examinations, such as panoramic radiography and cone-beam computed tomography, and (3) pain triggered after dental treatment, including root canal therapy, tooth extraction, or dental implantation.

The exclusion criteria were: (1) direct evidence of nerve injury following dental treatment; (2) lack of follow-up data sufficient to evaluate treatment efficacy, (3) a history of trauma to the affected region that may contribute to pain development, and (4) other neuropathies defined according to ICHD-3 diagnosis such as trigeminal neuralgia and burning mouth syndrome (BMS)[4].

2. Analysis methods

In the selected subjects, the following data were collected: demographic and clinical information, dental treatment site, and specific pain-triggering events. The pain location was modified from other reports[10-12] and classified into three types: (1) Localized pain, pain confined to the gingiva or alveolar bone at the dental treatment site. (2) Regional pain, pain occurring near the treatment site, following the trigeminal nerve territory. (3) Distant pain, pain experienced in areas distant from the treatment site, such as the head and neck.

Additionally, the types of pain control and treatment outcomes were documented. The response to pain control was categorized into three groups: (1) Effective, significant symptom improvement after treatment or when the patient expressed satisfaction with the current medication and declined further treatment. (2) Partially Effective, initial symptom improvement following treatment, but with reduced efficacy over long-term follow-up or when the patient sought additional treatment due to persistent discomfort. (3) Ineffective, some symptom relief, but with persistent pain severe enough to interfere with daily life, leading the patient to seek further treatment. These treatment response categories were adapted and modified from previous research to better assess treatment outcomes in PIFP patients[10,12].

This study was approved by the Institutional Review Board (IRB) of Kyungpook National University Dental Hospital (IRB number KNUDH-2025-04-05-00).

III. Results

A total of 21 patients were classified as having PIFP based on the selection criteria. All the patients were transferred to our department from local clinics after undergoing dental treatment for pain relief. The mean age of the patients was 61.0±11.1 years, with a higher prevalence in females (n=14) compared to males (n=7). All patients showed continuous pain with an average duration of 36.7±40.1 months. Among these patients, 20 reported experiencing pain in the molar region. The primary pain-triggering events were identified as

Table 1. Diagnostic criteria of persistent idiopathic facial pain by International Classification of Headache Disorders (ICHD) 2018

A. Facial and/or oral pain fulfilling criteria B and C
B. Recurring daily for >2 hours/day for >3 months
C. Pain has both of the following characteristics:
1. Poorly localized and not following the distribution of a peripheral nerve
2. Dull, aching, or nagging quality
D. Clinical neurological examination is normal
E. A dental cause has been excluded by appropriate investigations
F. Not better accounted for by another ICHD-3 diagnosis.

Data from the article of Headache Classification Committee of the International Headache Society. (Cephalalgia 2018;38:1-211)[4].

Table 2. Demographic characteristics of PIFP patients in this study

Patient No.	Age/sex	Related tooth/implant	Characteristics of pain				
			Triggering event	Duration (mo)	Description	Location of pain	Other problem
1	70/F	1 implant (#15i)	I	4	Dull, gnawing	L, R, D	
2	76/F	3 implants (#34-36i)	I	13	Dull, gnawing, aching	L, R, D	
3	53/M	1 implant (#26i)	I	33	Dull, intermittent, stabbing	L, R, D	
4	73/F	4 implants (#32i, 33i, 42i, 43i)	I	37	Tingle, burning	L, R	Depression, sleep disorder
5	61/F	3 implants (#45-47i)	I	4	Tingle, swelling	L, R, D	Hypothyroidism
6	71/F	2 implants (#36-37i)	I	190	Dull, stabbing	L	Hypothyroidism
7	56/F	1 implant (#37i)	I	39	Tightening	L	
8	76/F	1 implant (#36i)	I	24	Dull, gnawing	L, R	Depression
9	59/F	2 implants (#26i, 27i)	I	45	Dull, gnawing	L, R	
10	70/F	2 implants (#16i, 17i)	I	14	Dull, burning	L, R, D	
11	59/M	1 implant (#16i)	I	6	Dull, burning	L	
12	65/F	1 implant (#47i)	I	53	Dull, gnawing	L	
13	60/M	3 implants (#15-17i)	I	42	Dull, tightening	L, R, D	Sleep disorder
14	54/F	1 implant (#46i)	I	67	Dull, gnawing	L	Headache
15	69/F	3 implants (#34-36i)	I	5	Dull, gnawing	L, R, D	
16	67/F	2 tooth (#35, 36)	E	42	Dull, gnawing	L, R, D	
17	64/M	1 tooth (#16)	E	65	Dull, gnawing, tightening, tingle	L, R	
18	47/M	1 tooth (#27)	E	24	Dull, gnawing, tingle	L, R, D	
19	46/M	1 tooth (#17)	E	8	Dull, gnawing, stabbing, aching	L, R, D	
20	53/F	1 tooth (#16)	R	20	Dull, gnawing, stiff	L, R, D	
21	32/M	1 tooth (#27)	R	36	Dull, gnawing, swelling, tightening	L, R, D	

(PIFP: persistent idiopathic facial pain, F: female, M: male, I: implantation, E: extraction, L: localized pain, R: root canal therapy, R: regional pain, D: distant pain)

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dental implantation (n=15), tooth extraction (n=4), and root canal therapy (n=2). Additionally, four patients were undergoing psychiatric treatment for associated conditions such as depression and insomnia.

All subjects in this study showed pain in the treated site (localized pain). Among 16 out of 21 subjects, the pain was not confined to the primary site and radiated to regional or distant areas. Most patients described their pain as dull, gnawing, burning, or tightening in nature, while only one patient characterized their pain as sharp. Demographic findings and the character of symptoms of the patients were listed in Table 2.

Among the 21 patients, surgical or dental treatment for pain control was attempted for 16 patients. Implant removal or tooth extraction was performed for 10 patients. Prosthesis removal was performed on 5 patients. Curettage of the pain site was done in 4 patients. However, 93.8% of these cases were found to be non-effective.

On the contrary, pharmacologic management resulted in an acknowledged improvement in pain in 18 patients (partially effective+effective). Medications, including antidepressants and anticonvulsants, were commonly used for pain control. Antidepressants were prescribed in 14 patients, while anticonvulsants were administered in 21 patients. Among antidepressants, Tricyclic antidepressants (TCAs) were used at least once in 10 patients, Serotonin-norepinephrine reuptake inhibitors (SNRIs) in 6 patients, and selective serotonin reuptake inhibitors (SSRIs) in 1 patient. For anticonvulsants, clonazepam was the most frequently used (n=11), followed by pregabalin (n=9), gabapentin (n=7), carbamazepine (n=3), and diazepam (n=2). Additionally, four patients were prescribed muscle relaxants, and one patient was treated with melatonin to address sleep disturbances.

Of the 21 patients, 12 were treated with a combination of medications. Among 21 instances of combined medication therapy, 16 included both antidepressants and anticonvulsants. The corresponding rates of pain relief (partially effective+effective) were found to be TCAs (100%), gabapentin (57.1%), pregabalin (55.6%), clonazepam (54.5%), and SNRIs (50%). These efficacy outcomes were calculated based on the better response when patients were exposed to the same medication during separate treatment periods.

Additionally, three patients underwent Stellate ganglion nerve block procedures in collaboration with the Department of Anesthesiology. The treatment modalities are listed in Table 3.

Table 3. Management methods and treatment outcomes of PIFP

Patient No.	Dental/surgical treatment	Medication	Other treatment
1	None	Diazepam (E)	
2	Fixture removal (I)	1st Pregabalin (PE)	
		2nd TCA+pregabalin (PE)	
3	Prosthesis removal (I)	TCA+clonazepam (PE)	Stellate ganglion nerve block (E)
4	Fixture removal (I)	1st Baclofen (I)	Stellate ganglion nerve block (PE)
		2nd Pregabalin (I)	
5	Fixture removal (I)	1st Eperisone (I)	
		2nd Gabapentin (E)	
6	Prosthesis removal (I)	1st SNRI+clonazepam (I)	
		2nd Clonazepam (I)	
		3rd TCA+pregabalin (PE)	
7	1st Prosthesis removal (I)	1st Clonazepam (I)	
	2nd Fixture removal (I)	2nd SNRI+clonazepam (E)	
	3rd Alveoloplasty (I)		
8	None	1st Clonazepam (I)	
		2nd Gabapentin (I)	
9	Fixture removal (I)	TCA+pregabalin (PE)	
10	None	1st SNRI (I)	
		2nd Pregabalin (I)	
11	Prosthesis removal (PE)	TCA+clonazepam (PE)	
12	Prosthesis removal (I)	1st TCA+clonazepam (I)	
		2nd TCA+carbamazepine (E)	
13	1st Fixture removal (I)	1st TCA+baclofen (I)	Stellate ganglion nerve block (I)
	2nd Sinus irrigation (I)	2nd Pregabalin (PE)	
		3rd TCA (I)	
		4th TCA+gabapentin (I)	
		5th TCA+melatonin+gabapentin (PE)	
		6th Gabapentin+clonazepam (I)	
		7th TCA+gabapentin (PE)	
		8th Pregabalin (PE)	
		9th Baclofen (I)	
		10th TCA+gabapentin (PE)	
14	1st Fixture removal (I)	1st Pregabalin (I)	
	2nd Re-curettage (I)	2nd Gabapentin (I)	
		3rd SSRI+SNRI (E)	
15	1st Fixture removal (I)	1st Pregabalin (I)	
	2nd Re-curettage (I)	2nd TCA (PE)	
		3rd Gabapentin (I)	
		4th Pregabalin (PE)	
16	None	1st Pregabalin (I)	
		2nd Clonazepam (E)	
17	Re-curettage (I)	1st Carbamazepine+baclofen (PE)	
		2nd Carbamazepine+gabapentin (E)	
18	None	1st Diazepam (PE)	
		2nd TCA (PE)	
19	Re-curettage (I)	1st SNRI+clonazepam (I)	
		2nd Carbamazepine (E)	
		3rd Gabapentin (E)	
20	Extraction (I)	Clonazepam (PE)	
21	Extraction (I)	1st TCA+clonazepam (E)	
		2nd SNRI+clonazepam (E)	

(PIFP: persistent idiopathic facial pain, E: effective, PE: partially effective, I: ineffective, TCA: tricyclic antidepressants, SNRI: serotonin-norepinephrine reuptake inhibitor, SSRI: selective serotonin reuptake inhibitor)
Most of dental/surgical treatments were carried out at local dental clinic.
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IV. Discussion

As previously noted, PIFP is generally characterized by a persistent "dull" or "aching" pain[1,7]. Consistent with this description, most patients in this study reported experiencing dull pain; however, some also characterized their pain as sharp. It is crucial to distinguish PIFP from other conditions presenting with continuous facial discomfort. For example, BMS also exhibits continuous pain but is usually limited to the superficial oral mucosa and often described as a "burning" sensation[4]. In contrast, PIFP is defined by poorly localized, deep-seated, or occasionally superficial pain, typically de-

scribed as "dull," "aching," or "nagging," with the potential to radiate to adjacent regions[4,12]. A retrospective analysis has indicated that approximately 10% of PIFP patients experience their pain in a neuropathic manner[13]. Nevertheless, PIFP can be distinguished from classical neuropathic facial pain by the lack of sensory-negative symptoms such as hypoesthesia or numbness[1].

Consistent with previous studies, the present study demonstrated a higher prevalence of PIFP in female patients[6]. Although earlier studies have typically reported the average age of onset between 30 and 60 years, the mean age in our study was notably higher (mean age=61.0)[1]. This trend aligns with findings from previous retrospective research (mean age=61.7) conducted by our department[10]. This discrepancy may be attributed to regional differences, but it is also possible that focusing on PIFP cases specifically triggered by dental treatment contributed to this difference. Since dental treatments such as extractions and dental implantations are more commonly performed in older populations in South Korea.

PIFP has been reported to be triggered by minor dental surgeries and treatments[14]. While previous research conducted by our department primarily focused on dental implantation as a trigger for PIFP, the present study expanded its scope to include other dental procedures (root canal therapy and tooth extraction). Despite this broader research, dental implantation remained the most frequently identified trigger (71.4%). This finding contrasts with results from a retrospective study conducted in Italy, where root canal therapy was recognized as the most common trigger (44.4%), while dental implantation accounted for only 14.8%[15]. The Italian study included patients who visited outpatient clinics between 2011 and 2014. Although regional and ethnic variations may partially explain these discrepancies, another possible factor appears to be the increasing prevalence and accessibility of dental implant procedures in recent years. Technological advancements and cost reductions have made dental implant placement more widespread and routine, particularly among older adults. Supporting this trend, our previous study identified 20 cases of implant-associated idiopathic pain over an 18-year period (2001-2019)[10], whereas a comparable number (n=15) of cases were observed within just four years (2020-2024) in the current study. This sharp increase suggests that the growing number of dental implant procedures may have contributed to the predominance of implantation as a trigger for PIFP in the present study.

Two patients in this study experienced idiopathic pain following root canal therapy, which could be attributed to apical fenestration occurring during the procedure[16]. The exact mechanism by which dental minor treatments induce PIFP remains unclear. Some studies suggest that controlling anxiety levels before dental surgery may contribute to preventing PIFP onset[17]. In cases following root canal therapy or tooth extraction, many patients already experience pain before the procedure, making it difficult to determine whether the pre-existing pain was truly pathological or idiopathic. By contrast, PIFP triggered by dental implantation tends to present a more apparent temporal association, with pain typically emerging after implant placement or prosthetic restoration. This clarity makes implantation a more readily identifiable trigger compared to other dental treatments.

Several studies suggest a potential association between orofacial pain and mood disorders[18,19]. In the present study, four subjects were receiving treatment for insomnia, headache or depression in other medical departments. A notable case is that of patient number 13, who was presented with idiopathic facial pain following dental implantation on the right maxillary first molar in a local dental clinic. Despite waiting approximately 15 months, the pain persisted, leading to the removal of the implant. Subsequently, the adjacent teeth (the right upper first molar and the third molar) were also extracted due to continued discomfort, but no pain relief was achieved, prompting referral to our department. Although no definitive pathological findings were observed, mild mucosal thickening of the maxillary sinus was noted. Based on the patient's strong request, sinus irrigation was performed; however, this intervention did not lead to any symptom improvement. Multiple combinations of medications were administered under a provisional diagnosis of PIFP, yet none yielded meaningful pain relief. Further evaluation revealed that the patient was suffering from insomnia, therefore, melatonin therapy was initiated. Following the improvement in sleep quality, the patient began treatment with a combination of TCA and gabapentin, which led to a significant reduction in pain. While other medications were attempted, none provided comparable relief, leading to the re-initiation of the TCA and gabapentin medication.

Two patients were undergoing treatment for a thyroid disorder, with reports indicating that a hypothyroid state may contribute to chronic facial pain[20]. Patients with psychiatric symptoms such as depression may omit these details during medical history assessments. Therefore, in patients with PIFP or other atypical pain syndromes, a comprehensive and detailed investigation of the medical history is necessary to

ensure that underlying conditions contributing to symptoms are not overlooked. Clinicians should carefully investigate underlying conditions that may exacerbate pain symptoms to provide comprehensive patient management.

Among the patients in this study, 16 underwent surgical interventions aimed at resolving pain. However, none demonstrated meaningful pain relief, and the interventions were classified as non-effective. Several studies consistently advise against surgical management in PIFP patients unless a clear and definitive indication exists[7,21]. One study reported that approximately 55% of chronic oral pain patients who underwent unnecessary surgical procedures experienced worsening of their symptoms[22]. These findings underscore that surgical interventions in PIFP should be approached with extreme caution, as they may exacerbate symptoms rather than provide relief.

On the contrary, many patients in this study showed symptomatic improvement following used of medication. For example, Patient number 7 underwent multiple dental and surgical procedures—including prosthesis removal, fixture removal, and alveoloplasty—at a local dental clinic yet continued to experience persistent facial pain. After referral to our department, the patient was treated with a combination of SNRI and clonazepam, which led to a noticeable reduction in pain symptoms.

In PIFP, use of medication generally aims to reduce symptom severity rather than achieve complete pain resolution[23]. The choice of medications often mirrors treatment strategies for neuropathic pain[1]. Various studies support the efficacy of antidepressants and anticonvulsants in PIFP patients[1,24]. However, these medications should be used cautiously due to the risk of systemic side effects, including neurological, cardiovascular, and gastrointestinal complications[25,26].

In this study, TCAs were the most frequently prescribed antidepressants, demonstrating substantial effectiveness in pain relief (partially effective and effective). TCAs act by inhibiting the reuptake of norepinephrine and serotonin at synaptic junctions located in the central nervous system region involved in pain modulation[27]. By enhancing neurotransmitter availability in these areas, TCAs are thought to facilitate the activity of pain-inhibitory pathways, thereby exerting therapeutic effects in chronic pain conditions such as PIFP[28].

Previous studies have demonstrated that amitriptyline, in particular, is significantly effective in managing PIFP. One study involving 65 patients reported that 46.3% experienced at least a 30% reduction in pain after four weeks of treatment, and 65.9% showed improvement at 12 weeks[29]. Another long-term follow-up study confirmed statistically significant sustained pain relief at 12 months[30]. These findings imply that amitriptyline is a potential first-line medication option in the management of PIFP. However, amitriptyline is associated with adverse effects such as cognitive impairment, dizziness, confusion, and gait disturbances, particularly in elderly patients[26].

In the present study, nortriptyline—a different type of TCA—was more commonly used due to its lower incidence of side effects. Nevertheless, TCAs should be administered with caution in elderly patients due to their potential to exacerbate cardiovascular conditions such as tachycardia, arrhythmia, and even sudden cardiac arrest[31]. Therefore, baseline electrocardiographic evaluation is recommended before initiating TCA therapy in patients over 40 years of age, with contraindication if QT prolongation is detected[26].

Although SSRIs were not utilized in the present study, and SNRIs were prescribed less frequently, previous literature reported that agents from both SSRI and SNRI groups may be effective in managing PIFP. Among SSRIs, fluoxetine has shown potential benefits, while among SNRIs, duloxetine has been noted for its efficacy in chronic facial pain conditions[32,33]. In particular, duloxetine should be used cautiously due to its potential to elevate hepatic enzymes. Nevertheless, since it does not affect the electrocardiogram, it may serve as a first-line option for patients with diabetic neuropathy, warranting further research[26]. Notably, in South Korea, nortriptyline (marketed as Sensival) was discontinued in November 2024 due to supply issues. Given its favorable side effect profile and usefulness in managing PIFP, further studies on alternative medications with similar benefits are necessary. Considering this discontinuation, the use of SSRIs and SNRIs may increase as potential substitutes, underscoring the need for additional research to evaluate their efficacy and safety in PIFP management.

Among anticonvulsants, clonazepam, pregabalin, and gabapentin were the primary agents used in this study. As previously mentioned, antidepressants-especially TCAs- are generally recommended as first-line agents in the treatment of PIFP. However, due to their broad mechanisms of action, they are also associated with a higher incidence of adverse effects[34]. As a result, anticonvulsants are sometimes selected as alternative or adjunctive therapies, particularly in patients who are intolerant to antidepressants. A retrospective study by Sotorra-Figuerola et al.[28] demonstrated comparable drug responses between PIFP patients and those with painful post-traumatic trigeminal neuropathy, with clonazepam showing

notable efficacy in 50% of cases. A 2022 systematic review of atypical odontalgia also reported significant pain relief in most studies utilizing anticonvulsants[34]. Although anticonvulsants were occasionally used as monotherapy in this study, previous studies have generally reported their use in combination with antidepressants[34]. Among the anticonvulsants, pregabalin and gabapentin are considered adequate for pain relief[21]; both require careful use in patients with renal impairment due to their excretion pathways[26]. Gabapentin typically requires slow titration, which may delay its analgesic onset, whereas pregabalin often provides more immediate symptom relief[26].

Carbamazepine was used in a limited number of cases in this study (n=3) and demonstrated improvement in pain. However, early placebo-controlled trials showed limited benefit of carbamazepine in PIFP, despite positive effects in trigeminal neuralgia and mixed outcomes in postherpetic neuralgia[35]. Nevertheless, a retrospective study conducted in Busan suggested that some patients experienced symptom improvement with carbamazepine or oxcarbazepine[23]. Given the small sample size in our study, further investigation is warranted for the therapeutic efficacy of carbamazepine in PIFP.

Given that most patients in this study received combined medication therapy, it was difficult to precisely assess the efficacy of individual medications, which is a limitation of this study. However, previous research suggests that combination therapy may enhance outcomes, indicating a need for further investigation into optimal drug regimens for PIFP management[29,36].

Stellate ganglion block did not show significant efficacy in this study. However, one retrospective study reported that Stellate ganglion block could be effective for PIFP, though its efficacy was lower compared to its effects on trigeminal neuralgia and post-herpetic facial pain[37]. A case report suggested that the Sphenopalatine ganglion block might be more effective than the Stellate ganglion block for PIFP, indicating the need for further investigation[38,39]. However, the Sphenopalatine ganglion block is not without risks. Potential complications include injury to the deep vessels, facial nerves, and parotid gland, as well as inadvertent penetration of bony structures.

The 2018 ICHD established defined diagnostic criteria for PIFP[4]. Despite this advancement, PIFP was previously referred to as atypical facial pain and was usually diagnosed as an "exclusion diagnosis" [40]. The concept made variations in diagnostic criteria across different studies. Further complicating the issue, the 2020 International Classification of Orofacial Pain specifically distinguishes between Persistent Idiopathic Dentoalveolar Pain and PIFP, adding to the difficulties in reaching a consensus on their definitions[41]. This lack of uniformity presents challenges in conducting systematic reviews of literature. To facilitate meaningful future research, clinicians need to establish a clear and standardized concept of PIFP.

V. Conclusion

Since PIFP after dental treatment is highly related to dental implant treatment, differential diagnosis of the PIFP is important for patients who complain of persistent implant pain with no clear cause. Accurate differential diagnosis is essential to avoid unnecessary surgical interventions. Combined medication is effective in most patients with PIFP; a definitive understanding of these medications is emphasized. Among the medication treatments used in this study, the treatment demonstrated significant pain resolution in 85.7% of patients. However, due to the limited sample size and the frequent use of combined regimens, the specific efficacy of individual medications could not be clearly delineated. Further prospective studies with larger patient cohorts are needed to establish standardized diagnostic criteria and evidence-based treatment protocols for PIFP following dental procedures.

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Authors' Contributions

S.H.B. participated in data collection, performed the data analysis. S.H.B. and G.J.S. wrote the manuscript. G.J.S. and T.G.K. participated in the study design. S.H.B. and T.G.K. participated in the data coordination and drafted the manuscript. All authors read and approved the final manuscript.

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Ethics Approval and Consent to Participate

This study was approved by the Institutional Review Board (IRB) of Kyungpook National University Dental Hospital (KNUDH-2025-04-05-00). The requirement for informed consent was waived due to the retrospective nature of the study.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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