

A COMPARATIVE STUDY FOR EVALUATION OF CORTICOTOMY FACILITATED ORTHODONTICS & PEIZOCISION

Sneha Patil¹, Nitin Bhola¹, and Rajanikanth Kambala¹

¹Shri Sharad Pawar Dental College and Hospital

October 29, 2022

Abstract

Interdisciplinary orthodontics can synchronize with tissue designing standards of periodontal regenerative medical procedure to make quick orthodontic results. Periodontally accelerated osteogenic orthodontics (PAOO) using piezosurgery, a novel approach, has found numerous applications in the field of osseous surgery. It helps to overcome the drawbacks of traditional rotary instruments.

A COMPARATIVE STUDY FOR EVALUATION OF CORTICOTOMY FACILITATED ORTHODONTICS & PEIZOCISION

NAME OF THE AUTHORS:

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Orcid ID- 0000-0002-6000-2695

Note- Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy and has been attached with the manuscript

ANNEXURE - IV

SHARAD PAMAR DENTAL COLLEGE, SAWANGI (MEGHE), WARDHA.

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

CONSENT FORM

I, the undersigned Hemant Kulkarni
aged 51 sex M resident of Nandga am ready to confirm my
voluntary consent for the above research being conducted in this hospital. I have
been informed about the procedure and risk involved, in my vernacular language and I consents
to perform comparative evaluation of of conventional corticotomy versus piezo-guided
corticotomy in orthodontic tooth movement.

In my full consciousness and presence of mind, I give my informed consent to undergo the
following procedure and to utilize the same information for study and further publication.

Name of the Patient: Hemant Kulkarni

Name of the Guardian: Mr. Hemant Kulkarni

Signature/Thumb impression: [Signature]

Date: 16/01/2022 Place: Sawangi (M).

Witness's Name: Mrs. Kishori Kulkarni

Signature/Thumb impression: [Signature]

Investigator's Name: Dr. Sudeesh

Investigator's Signature: [Signature]

Date: 16/01/2022 Place: Sawangi (M).

संमती पत्र

मी श्रेया कुलकर्णी वय 19 लिंग महिला
रा. वयसि कुठल्याही दडपणाखाली न येता व पूर्ण समजुतदारीने संमती देतो/देते कि
मला माझ्या डॉक्टरांनी (मुख हनु दंधशल्या चिकीत्सा शास्त्र विभाग) मला समजेल, या भाषेत मला झालेल्या
रोगाचे व त्यावर होणाऱ्या उपचार व शल्य क्रिया याचा पूर्ण तपशील सांगितलं आहे व तो मला मान्य आहे. या
उपचारदरम्यान मिळणाऱ्या व्यवस्थापन प्रक्रिया याबद्दल मला माहिती आहे व ती मला समाधानकारक आहे.
मला या संस्थेमार्फत मिळणाऱ्या सर्व सुविधांबाबत कळविण्यात आले आहे. या शल्यक्रियेत जी जोखीम आहे
ती मला समाजविण्यात आली आहे आणि जर काही झाल्यास कोणत्याही प्रकारची नुकसान भरपाई केली
जाणार नाही व त्यासाठी मी पूर्णपणे जबाबदार राहील. येथील डॉक्टर व इतर कर्मचारी यांची उकृष्ट सेवा मला
मिळाली आहे व त्यांच्या बाबतीत मला कुठलीही तक्रार नाही.

साक्षीदार: Hemant Kulkarni
हेमंत कुलकर्णी
(पिता)

नाव: श्रेया कुलकर्णी
स्वाक्षरी किंवा अंगठा: [Signature]
दिनांक: 16/01/2022
स्थळ: Sawangi (M)
वेळ: 12:00 pm

हस्ताक्षर करताना हजर डॉक्टर:

[Signature]

ANNEXURE - IV

SHARAD PAWAR DENTAL COLLEGE, SAWANGI (MEGHE), WARDHA.

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

CONSENT FORM

I, the undersigned Muralidhar Satpute
aged 57 sex M resident of Deoli am ready to confirm my
~~son's~~ daughter's volunteering for the above research being conducted in this hospital. I have
been informed about the procedure and risk involved, in my vernacular language and I concede
to perform comparative evaluation of conventional corticotomy versus piezo-guided
corticotomy in orthodontic tooth movement.

In my full consciousness and presence of mind, I give my informed consent to undergo the
following procedure and to utilize the same information for study and further publication.

Name of the Patient: Roshni Satpute.

Name of the Guardian: Mr. Muralidhar Satpute

Signature/Thumb impression: Roshni

Date: 22/1/2022 Place: Sawangi (M).

Witness's Name: Mr. Raju Satpute (Brother)

Signature/Thumb impression: Raju Satpute

Investigators Name: Dr. Soncha Patil

Investigators Signature: Soncha Patil

Date: 22/1/22 Place: Sawangi (M)

संमती पत्र

मी शेखती अतपुते वय २९ लिंग महिला
रा. देवली कुठल्याही दडपणाखाली न येता व पूर्ण समजुतदारीने संमती देतो/देते कि
मला माझ्या डॉक्टरांनी (मुख हनु दंधशल्या चिकीत्सा शास्त्र विभाग) मला समजेल, या भाषेत मला झालेल्या
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मिळाली आहे व त्यांच्या बाबतीत मला कुठलीही तक्रार नाही.

साक्षीदार: M. Satpute
मुसलीखर अतपुते
(पिता)

नाव: शेखती अतपुते
स्वाक्षरी किंवा अंगठा: Rodini
दिनांक: २२/१०/२०२२
स्थळ: सावंगी (मेवे)
वेळ: १०:०० am

हस्ताक्षर करताना हजर डॉक्टर: Dr. Chafali

ANNEXURE - IV

SHARAD PAWAR DENTAL COLLEGE, SAWANGI (MEGHE), WARDHA.

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

CONSENT FORM

I, the undersigned Lokesh Bhoyar
aged 52 sex M resident of Yanabmal am ready to confirm my
son's/daughter's volunteering for the above research being conducted in this hospital. I have
been informed about the procedure and risk involved, in my vernacular language and I concede
to perform comparative evaluation of of conventional corticotomy versus piezo-guided
corticotomy in orthodontic tooth movement.

In my full consciousness and presence of mind, I give my informed consent to undergo the
following procedure and to utilize the same information for study and further publication.

Name of the Patient: Sakshi Bhoyar

Name of the Guardian: Mr. Lokesh Bhoyar

Signature/Thumb impression: [Signature]

Date: 26/1/2022 Place: Sawangi (M).

Witness's Name: Mrs. Mani Bhoyar (Mother)

Signature/Thumb impression: [Signature]

Investigators Name: Dr. Sneha Patil

Investigators Signature: [Signature]

Date: 26/1/2022 Place: Sawangi (M)

संमती पत्र

मी साक्षी शोयर वय २१ लिंग महिला
रा. यवतमाळ कुठल्याही दडपणाखाली न येता व पूर्ण समजुतदारीने संमती देतो/देते कि
मला माझ्या डॉक्टरांनी (मुख हनु दंथशल्या चिकीत्सा शास्त्र विभाग) मला समजेल, या भाषेत मला झालेल्या
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साक्षीदार: Lm Blogan
लोकेश शोयर
(पिता)

नाव: साक्षी शोयर
स्वाक्षरी किंवा अंगठा: 88
दिनांक: २६/१/२२
स्थळ: शांतांगी (मेवे)
वेळ: १०:०० am

हस्ताक्षर करताना हजर डॉक्टर: Dr. H. H. H.

ANNEXURE - IV

SHARAD PAWAR DENTAL COLLEGE, SAWANGI (MEGHE), WARDHA.

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

CONSENT FORM

I, the undersigned Laxman Wankhede
aged 61 sex M resident of Wardha am ready to confirm my
son's/daughter's volunteering for the above research being conducted in this hospital. I have
been informed about the procedure and risk involved, in my vernacular language and I concede
to perform comparative evaluation of of conventional corticotomy versus piezo-guided
corticotomy in orthodontic tooth movement.

In my full consciousness and presence of mind, I give my informed consent to undergo the
following procedure and to utilize the same information for study and further publication.

Name of the Patient: Vaibhav Wankhede

Name of the Guardian: Mr. Laxman Wankhede

Signature/Thumb impression: [Signature]

Date: 1/03/2022 Place: Sawangi (M)

Witness's Name: Mr. Laxman Wankhede (father)

Signature/Thumb impression: [Signature]

Investigators Name: Dr. Sneha Patil

Investigators Signature: [Signature]

Date: 1/03/2022 Place: Sawangi (M)

संमती पत्र

मी साक्षी शोयर वय २१ लिंग सहिला
रा. यवतमाळ कुठल्याही दडपणाखाली न येता व पूर्ण समजुतदारीने संमती देतो/देते कि
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उपचारदरम्यान मिळणाऱ्या व्यवस्थापन प्रक्रिया याबद्दल मला माहिती आहे व ती मला समाधानकारक आहे.
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मिळाली आहे व त्यांच्या बाबतीत मला कुठलीही तक्रार नाही.

साक्षीदार: Lm Blogan
लोकेश शोयर
(पिता)

नाव: साक्षी शोयर
स्वाक्षरी किंवा अंगठा: 88
दिनांक: २६/१/२२
स्थळ: शांतांगी (मेवे)
वेळ: १०:०० am

हस्ताक्षर करताना हजर डॉक्टर: Dr. H. H. H.

ANNEXURE - IV

SHARAD PAWAR DENTAL COLLEGE, SAWANGI (MEGHE), WARDHA.

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

CONSENT FORM

I, the undersigned Laxman Wankhede
aged 61 sex M resident of Wardha am ready to confirm my
son's/daughter's volunteering for the above research being conducted in this hospital. I have
been informed about the procedure and risk involved, in my vernacular language and I concede
to perform comparative evaluation of of conventional corticotomy versus piezo-guided
corticotomy in orthodontic tooth movement.

In my full consciousness and presence of mind, I give my informed consent to undergo the
following procedure and to utilize the same information for study and further publication.

Name of the Patient: Vaibhav Wankhede

Name of the Guardian: Mr. Laxman Wankhede

Signature/Thumb impression: [Signature]

Date: 1/03/2022 Place: Sawangi (M)

Witness's Name: Mr. Laxman Wankhede (father)

Signature/Thumb impression: [Signature]

Investigators Name: Dr. Sneha Patil

Investigators Signature: [Signature]

Date: 1/03/2022 Place: Sawangi (M)

संमती पत्र

मी वेभव वात्रवेडे वय २५ लिंग मर्द
 रा. तय्यी कुठल्याही दडपणाखाली न येता व पूर्ण समजुतदारीने संमती देतो/देते कि
 मला माझ्या डॉक्टरांनी (मुख हनु दंथशल्या चिकीत्सा शास्त्र विभाग) मला समजेल, या भाषेत मला झालेल्या
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 उपचारदरम्यान मिळणाऱ्या व्यवस्थापन प्रक्रिया याबद्दल मला माहिती आहे व ती मला समाधानकारक आहे.
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 ती मला समाजविण्यात आली आहे आणि जर काही झाल्यास कोणत्याही प्रकारची नुकसान भरपाई केली
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 मिळाली आहे व त्यांच्या बाबतीत मला कुठलीही तक्रार नाही.

साक्षीदार: लक्ष्मण वात्रवेडे
तय्यी वात्रवेडे
 (पिता)

नाव: वेभव वात्रवेडे
 स्वाक्षरी किंवा अंगठा: Wilckod
 दिनांक: 1/03/2022
 स्थळ: Sawangi (R)
 वेळ: 1:00 pm

हस्ताक्षर करताना हजर डॉक्टर: Kachhapati

Abstract

Inter-disciplinary orthodontics can synchronize with tissue designing standards of periodontal regenerative medical procedure to make quick orthodontic development and its results. In 2001 “Wilckodontics” was introduced by Wilcko Brothers, which is a treatment methodology comprising of an in-office periodontal system joined with orthodontic tooth development. The idea of orthodontic tooth development should be returned to foster a novel treatment strategy joining specific alveolar decortication, alveolar augmentation, and orthodontic treatment. Periodontally accelerated osteogenic orthodontics (PAOO) using piezosurgery, a novel approach, has found numerous applications in the field of osseous surgery. It helps to overcome the drawbacks of traditional rotary instruments. The method of PAOO is patented by “Wilckodontics” based on the emerging concepts of Wilcko brothers. This Case series is a collection of 5 cases of patients who were treated using the PAOO technique to analyze the efficacy of piezocision and conventional corticotomy

techniques, with respect to surgery time, amount and rate of orthodontic tooth movement to achieve closure in the premolar areas.¹

INTRODUCTION

With the increase in awareness of orthodontic treatment and a more discerning interest from the patients, grown-up orthodontic treatment has come into the spotlight. Nonetheless, the issues related with grown-up orthodontics are the long span of time, dento-facial style, and the sort of machines utilized, as numerous patients do bother about eliminating their supports soon and lessen the treatment length because of esthetic concerns. Moreover, in grown-up patients, delayed orthodontic treatment may cause periodontal and bone issues, further bringing about a backslide.

Tremendous advances in metallurgy and chemistry have been made in the past decades. This can be found in the advancement of curve wires, groups, sections, concretes, and holding materials. These advances have improved the way and productivity with which the orthodontic forces are moved to the crowns of the teeth. In any case, despite every one of these advances, the most regular fixed orthodontic medicines actually require 1½ to 3 years to finish. The acceleration of tooth movement in orthodontics is a major concern as it determines the success of orthodontic treatment. The PAOO system has settled this difficulty by abusing the elements of bone physiology and diverting the accentuation in tooth development to the way in which the supporting bone reacts to orthodontic power as opposed to simply focusing on the way in which the forces are applied to the teeth. It is a clinical procedure that combines selective alveolar corticotomy, particulate bone grafting, and the application of orthodontic forces.²

Over the years, conventional corticotomy has undergone multiple variations in the technique like vertical grooves/cuts or perforations either on the buccal or lingual cortex or both. These corticotomy procedures can be performed using a variety of instruments like rotary bur, piezosurgical tips, laser surgery, etc. that have proven to accelerate the orthodontic treatment time by virtue of the lower resistance encountered in dense cortical bone and facilitating faster tooth movement and complete treatment in a shorter time. The concept of accelerated tooth movement originates from the theory of Frost on regional acceleratory phenomenon (RAP) that stimulates a localized, transient environment of osteoblastic and osteoclastic activity caused by effective noxious stimulus of sufficient magnitude to evoke a response directly proportional to this stimulus.

During the past four decades, various external stimuli such as heat application, electric current, electromagnetic fields, distraction, osteogenesis, laser therapy, and corticotomy have been investigated for their efficacy in the acceleration of tooth movement. Accelerated treatment leads to early completion of orthodontic treatment with greater patient compliance, comfort, satisfaction, and overall better quality of life; especially in adults.

Using piezosurgery, a relatively new treatment option for periodontally accelerated osteogenic orthodontics (PAOO, which facilitates for successful adult orthodontics and drastically lessens the time taken for overall orthodontic treatment with minor complications, enhanced expansion, post-orthodontic stability & increased traction of impacted teeth.²

CASE REPORTS

CASE 1

A female patient of age 21 years was referred to the Department of Oral and Maxillofacial Surgery from Department of Orthodontics, for space closure. She had no sensitivity or medical issues as per her medical history. No signs and indications of temporomandibular problems were noticed. On considering intra-orally Angle's Class II division 1 dentoalveolar malocclusion requiring comprehensive orthodontic treatment revealed and she is willing for surgically assisted orthodontic treatment. Right side was randomly assigned for corticotomy with bur (Fig. 1) and the other side for piezo-guided corticotomy in the maxilla as well as the mandible

After taking care of the surgical protocols, the surgery was planned. The surgical site was anesthetized under

local anesthesia. Both techniques involved buccal interproximal transmucosal incisions of 1cm length (Fig. 2) with a No.15 blade with a Bard Parker blade handle No.3, performed from the mesial to second premolar & distal to the canine in the upper and lower jaws without any flap reflection. The incision were located 5 mm apical to the papillae, preserving the papillary attachment. Blunt dissection was carried out with a periosteal elevator (Molt No.9) through the mucosa, submucosa, and periosteum to reach the bone beneath.

For conventional corticotomy technique, the vertical guided bur holes were made on the bone buccally and connected with a carbide round bur no. 8, on a straight hand piece with speed at 35,000 rpm(Fig. 3). Extending through the cortical bone into the spongy bone minimally in the depth of 2 mm. The cuts expand just into the shallow part of the medullary tissue to develop bleeding immediately for the Regional Acceleratory Phenomenon (RAP) to occur. Copious irrigation of cooled saline solution was accompanied during cutting of bone. Consistently, cutting of bone was joined by extensive water irrigation of cooled saline solution. The area was sutured with a surgical silk suture.

For the other side, the OT-7 cutting insert (Mectron Insert) of the piezo surgery was used for corticotomy(Fig. 4). Between 28 and 30 kHz, the frequency was adjusted and between 30 and 60 ?m/s micro vibration amplitude. The depth of corticotomy was the same as in conventional corticotomy technique(Fig. 5&6). Both sites after corticotomy were watered with 0.9% normal saline and 3-0 silk sutures used for closure with the interrupted technique.

Thereafter, arch wire activation was initiated to ensure accelerated space closure for the process of rapid acceleratory phenomenon to occur. Suture removal was done after 7 days and then recalled after 1 month & 4 months for observation. A four-month review (Fig. 7) showed more space closing in the left upper & lower quadrants than on the right side.









Case 2

A 20 -year-old female came to the department with Angle's Class II division 1 dentoalveolar malocclusion, who underwent presurgical orthodontic phase that included levelling, decrowding, alignment and extraction of the teeth prior to the beginning of corticotomy and retraction. The same procedure was carried out as mentioned in the previous case and intramedullary penetration was done in all four quadrants. Right side was assigned for corticotomy with bur and the left side for piezo-guided corticotomy in the maxilla(Fig. 8&9) as well as mandible

The area was sutured with a surgical silk suture. With one month and 4 months follow-up, it was observed

that more closing spaces over the piezo-surgery side than on quadrants with corticotomy with bur(Fig. 10&11). The pre and post operative changes in the profile of the patient can be appreciated in the Fig. 12.













Case 3

A 25 -year-old male reported for conventional fixed orthodontic therapy. Due to the presence of insufficient arch space, his first premolars were removed(Fig. 13). The same procedure was carried out as mentioned in the previous case and intramedullary penetration was done in all four quadrants. Right side was assigned for peizo-guided corticotomy and the left side for bur. The area was sutured with a surgical silk suture after completing corticotomy.

Similar to other cases, this patient has also undergone orthodontic archwire activation for achieving accelerated space closure. Suture removal of the patient was done 7 days later and then recalled after the 1st & 4th month for observation. With 4 months follow-up, considerable space closure was present in the right side(Fig. 14) than the left.



Case 4

The other scenario was of a female patient 19 years old with the requirement of space closure for both maxillary and mandibular arches. On the right side piezo guided corticotomy was done in the maxilla as well as mandible(Fig. 15-18).

And on the left side corticotomy using bur was done for both maxilla and mandible.

This case was reviewed after a month and then at the 4th month which showed results of space closure significantly in both upper & lower quadrants of the right side(Fig. 19-20).









Case 5

A 23 -years-old male reported with malocclusion of Angle's class 1 with prognathism upper and lower jaw(Fig. 21). For the minimally invasive approach, the usage of a piezoelectric instrument tip was done to selectively reduce the alveolar bone and induce the RAP in both sides of the jaw. Left side corticotomy using bur was done and on the right side with peizo-guided. Corticotomy was accompanied with 0.9% normal saline and suturing done with 3-0 black silk. The patient was recalled after the 1st & 4th month and noticeable space closure was seen in both quadrants(Fig. 22).



Discussion

The study of the acceleration of tooth movement in Orthodontics is a major concern as it determines the success of orthodontic treatment. Accelerated treatment leads to early completion of orthodontic treatment with greater patient compliance, comfort, satisfaction, and overall better quality of life; especially in adults. The corticotomy-facilitated orthodontic acceleration has been widely applied owing to its reduced treatment time with minimal relapse.

Surgical orthodontics has evolved in recent years as a promising modality to accelerate orthodontic tooth movement (OTM) with an aim to reduce total orthodontic treatment time. Over the years, conventional corticotomy has undergone multiple variations in the technique like vertical grooves/cuts or perforations either on the buccal or lingual cortex or both. Periodontally accelerated osteogenic orthodontics (PAOO) using piezosurgery has overthrown the drawbacks of traditional rotary instruments. Ultrasonic vibrating tip create hard tissue cuts through the cavitation phenomenon, including bone and teeth, sparing the soft tissues (gingiva, blood vessels, nerves, and sinus membrane) from damage. Minimum morbidity and rapid healing response with favorable osseous repair were evident with the use of piezoelectric surgery avoiding osteonecrotic injury seen with overheating and pressure from surgical burs. There exists a transient state of osteopenia after selective alveolar decortication around the tooth to enhance bone and periodontal turnover, thus accelerating the tooth movement.

It is evident in the literature that more extensive the injury, greater is the potential for repair and remodeling. This phenomenon was demonstrated by Al-Naoum et al. in their study, where after performing corticotomy, utilizing the bur over the buccal and palatal aspects to make vertical cuts and perforations after reflecting a full thickness mucoperiosteal flap, a 4 fold faster movement of the tooth was achieved for an initial 2 weeks. However, authors like Aboul-Ela et al. reported only up to 1.5 times faster OTM for 3-4 months when vertical cuts/holes were performed on both palatal and buccal sides after raising a full thickness flap.³ Similarly, Abbas NH et al. noticed 1.5-1.8 times accelerated OTM after conventional corticotomy with bur using both interdental cuts and perforation for 4 months. They aimed at reducing the hindrance in tooth movement that would require less effort to move the tooth through the dense buccal cortical bone distal to the canine; where only vertical cuts along with interdental perforations were performed only on the buccal cortex.⁴

Nevertheless, in conjunction with rapid tooth movement; greater rate of canine mobility, plaque index, attachment loss, and canine rotation was observed by Al-Naoum et al and Aboul-Ela et al whereas no statistically significant difference was observed regarding the adverse impact on paradental tissue in the study of Abbas NH et al. except for resorption of the canine root. Minimal transversal periodontal damage was attributed to a less invasive technique of surgery.^{[3][4]}

The results of our clinical trial showed that although piezo-guided corticotomy takes a longer duration of time for surgery but reduces the total orthodontic treatment time with rapid rate and amount of tooth movement, and developed less postoperative complications when compared with conventional rotary technique in accelerated OTM. This was contradictory to the work of Farid KA et al and Abbas NH et al. where corticotomy has shown faster tooth movement which is attributable to extensive flap reflection to perform decortication. However, the method employed in our study for conventional corticotomy using bur has the advantage of being less invasive, excluding bias in the surgical technique and an environment conducive to initiate RAP, and is a straightforward technique because corticotomy holes/vertical cuts were prepared only mesial to the first premolar over the buccal cortex with a depth of 3 mm and activation was followed to evoke RAP.⁵ This idea concurs to that suggested by Frost HM and Wilcko MT et al. where the amplitude of response is generated in direct proportion to the amount of bone damage done. Thus, the RAP effect is proportionally generated to the type of corticotomy selected and is reproducible after the effect subside.⁶

Undesirable adverse effects after corticotomy are the least reported and studied in the past. However, the current available literature suggests few cases of root resorption and periodontal damage with corticotomy facilitated orthodontics by comparing standard methods. The main drawback of corticotomy with bur is its low acceptance rate, the postoperative discomfort it causes, and the chances of complications associated with intensive corticotomies. Therefore, the trend is toward minimal invasive surgery with higher patient compliance. Other drawbacks include minor interdental bone loss, loss of clinical gingival attachment, root resorption, and tooth mobility. There have been cases in the past showing extensive hematomas in the face and neck associated with intensive corticotomies, where postoperative swelling and pain doesn't subside quickly. However, yet there have been no reports on loss of pulp vitality in the region of corticotomy.

LIMITATIONS

The present study did not incorporate parameters like comparison of root resorption, anchorage loss, canine rotation, and micro-CT comparison postoperatively. The study would have been better deliberated if it had taken it into consideration. The present study did not explore the postsurgical orthodontic treatment stability comparing the long-term effects of both techniques. The present study did not take into consideration patient-centered outcomes such as discomfort and pain.

CONCLUSION

This study of the piezo-guided corticotomy procedure demonstrated the overall decrease in orthodontic treatment time by rapid orthodontic tooth movement when compared to the conventional rotary methods. It is an innovative procedure that has several clinical advantages: precise cutting, sparing soft tissue, and lesser heat generation on bone.

Thus, piezo-guided corticotomy may be proposed as a suitable adjuvant to conventional corticotomy for rapid orthodontic tooth movement having comparable postoperative complications.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest for this study.

FUNDING STATEMENT

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