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Database: Ovid MEDLINE(R) <1946 to November Week 3 2013>
Search Strategy:

1 quad helix.tw. (90)
2 limit 1 to english language (71)

1 Early correction of posterior crossbite—a cost-minimization analysis.
   Authors
   Petren S.  Bjerklin K.  Marke LA.  Bondemark L.
   Authors Full Name
   Institution
   Department of Orthodontics, Faculty of Odontology, Malmo University, Sweden. sofi a.petren@mah.se
   Title
   Source
   THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY
   Abstract
   INTRODUCTION: The purpose of this study was to determine the costs of correcting posterior crossbites with Quad Helix (QH) or expansion plates (EPs) and to relate the costs to the effects. To determine which alternative has the lower cost, a cost-minimization analysis was undertaken, based on that the outcome of the treatment alternatives is identical. The study comprised 40 subjects in the mixed dentition, who had undergone treatment for unilateral posterior crossbite: 20 with QH and 20 with EPs. Duration of treatment, number of appointments, broken appointments, and cancellations were registered. Direct costs (for the premises, staff salaries, material and laboratory costs) and indirect costs (loss of income due to parent's assumed absence from work) were calculated and evaluated for successful and unsuccessful treatment alone, for successful and unsuccessful treatment and re-treatment when required. The QH had significantly lower direct and indirect costs, with fewer failures requiring re-treatment. Even the costs for successful cases only were significantly lower in the QH than in the EP group. The results clearly show that in terms of cost-minimization, QH is the preferred method for correcting posterior crossbite in the mixed dentition.
   Publication Type
   Randomized Controlled Trial. Research Support, Non-U.S. Gov't.
   Date Created
   20130128
   Year of Publication

   Authors
   Mucedero M.  Franchi L.  Giuntini V.  Vangelisti A.  McNamara JA Jr.  Cozza P.
   Authors Full Name
   Institution
   Department of Orthodontics, University of Rome Tor Vergata, Rome, Italy.
   Title
   Source
   THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY
   Abstract
   INTRODUCTION: The purpose of this study was to evaluate the long-term stability of quad-helix/crib treatment in subjects with dentoskeletal open bite.
   METHODS: Twenty-eight subjects (11 boys, 17 girls; mean age, 8.2 +/- 1.3 years) were treated consecutively with quad-helix/crib appliances. The patients were reevaluated at the end of active treatment with the quad-helix/crib (mean age, 9.7 +/- 1.6 years) and at least 5 years after the completion of treatment (mean age, 14.6 +/- 1.9 years). A control group of 20 untreated subjects with the same dentoskeletal disharmony was used for the statistical comparison (Mann-Whitney U test).
   RESULTS: In the long term, the quad-helix/crib group showed a significant reduction in the ANB angle (-1.3), a downward rotation of the palatal plane (1.8), a greater increase in overbite (2.1 mm), and a decrease in overjet (-1.5 mm) when compared with the controls.
   CONCLUSIONS: In the long term, the use of the quad-helix/crib appliance led to successful outcomes in about 93% of the patients considered. Correction of dentoskeletal open bite was associated with a clinically significant downward rotation of the palatal plane. Copyright 2013 American Association of Orthodontists. Published by Mosby, Inc. All rights reserved.
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**2013**

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Authors  
McDowall RJ.
Authors Full Name  
McDowall, Ross James.
Institution  
R. J. McDowall, Dorset County Hospital, Dorchester, Dorset, UK.
rossmcdowall@hotmail.com
Title  
Source  
Local Messages  
THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY
Abstract  
This paper describes the clinical orthodontic treatment of two cases treated by the recipient of the 2010 Membership in Orthodontics William Houston Gold Medal of the Royal College of Surgeons of Edinburgh. The first case describes a three-phase treatment approach to correct a class II division 2 malocclusion on a non-extraction basis. The second case describes the treatment of a class III malocclusion with a notable unilateral crossbite using a quad-helix, a single premolar extraction and upper and lower pre-adjusted fixed appliances.
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Authors  
Kobayashi Y.  Shundo I.  Endo T.
Authors Full Name  
Kobayashi, Yoshiki.  Shundo, Isao.  Endo, Toshiya.
Institution  
Nippon Dental University Niigata Hospital, Niigata, Japan.
Title  
Treatment effects of quad-helix on the eruption pattern of maxillary second molars.
Source  
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Abstract  
OBJECTIVE: To evaluate the effects of quad-helix treatment on the eruption pattern of maxillary second molars in patients with maxillary incisor crowding.
MATERIALS AND METHODS: The lateral cephalograms of 40 consecutively treated patients in the early mixed-dentition group (treatment group) were examined in comparison with those of the same number of untreated patients with a similar form of malocclusion (control group). The cephalograms of the treated patients were taken at the start (T0) and at the end (T1) of treatment, and those of the untreated patients were also taken at about the same time as T0 and T1. The mean ages at T0 and T1 in the two groups were about the same.
RESULTS: Distal tipping and movement and impeded extrusion of the maxillary first molars were notable in the treatment group compared with the control group. The actual treatment changes with the use of the quad-helix found expression in distal tipping and impeded vertical eruption of maxillary second molars. The more the maxillary first molars were tipped distally and the less the maxillary first molars extruded, the more the vertical eruption of the maxillary second molars was impeded.
CONCLUSION: Quad-helix treatment gives rise to spontaneous distal tipping and impeded vertical eruption of the maxillary second molars.
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Authors  
Aizenbud D.  Ciceu C.  Rachmiel A.  Hazan-Molina H.
Authors Full Name  
Institution  
Orthodontic and Craniofacial Department, School of Graduate Dentistry, Rambam Health Care Campus, Haifa, Israel. aizenbud@ortho.co.il
Title  
Reverse quad helix appliance: differential anterior maxillary expansion of the cleft area before bone grafting.
Cleft-affected cases present a variable degree of transversal constriction of the maxilla. Our aim is to present a new method for differential expansion of the premaxillary area in unilateral cleft lip and palate-affected patients. The reverse quad helix appliance is made of a 0.036-in stainless-steel wire soldered to 2 bands placed on maxillary deciduous canines or first primary molars (or first permanent premolars). It incorporates 4 helical loops forming an inverse W-arch design. The spring is positioned posterior to the banded teeth; thus, the expansion effect is focused in the anterior maxillary region. A reverse quad helix appliance was activated and cemented in 20 patients for premaxillary expansion. Upper arch width was assessed by means of plaster study models in the anterior and posterior maxillary regions. The mean anterior occlusal expansion achieved by the reverse quad helix (9.60 +/- 5.24 mm) is statistically significantly larger than that achieved in the posterior region (5.50 +/- 3.07 mm) (P < 0.0001). The reverse quad helix is an efficient appliance for differential expansion of the anterior maxillary region as a preparatory stage for secondary bone graft procedures in unilateral cleft lip and palate-affected patients.

The purpose of this study was to evaluate the effects of the maxillary arch expansion on maxillomandibular arch widths in patients treated with the quad-helix versus untreated controls. The treatment group consisted of 50 consecutive patients treated for maxillary incisor crowding with a quad-helix appliance in the early mixed dentition. Lateral cephalograms and dental casts taken at the start (T0) and end (T1) of the quad-helix treatment were obtained. The control group consisted of 50 untreated patients with the same type of malocclusion. Two consecutive lateral cephalograms and dental casts of each untreated patient were taken at about the same time as T0 and T1. All these study materials were analyzed for comparison between the two groups. The mean ages at T0 and T1 in the two groups were about the same. The maxillary first molars moved and tipped distally in the treatment group and mesially in the control group. The quad-helix treatment actually expanded the mandibular and maxillary arches concurrently. The more the maxillary arch widths were expanded and the less the maxillary first molars were inclined distally, the more the mandibular arch widths were expanded. The quad-helix activation caused lingual tipping and mesiobuccal rotation of the maxillary first molars. The mesiobuccal rotation of the maxillary first molars could turn molar occlusal relationships for the better from Class II to Class I. The quad-helix treatment gives rise to spontaneous expansion of the mandibular arch concurrent with maxillary expansion in the early mixed dentition patients with maxillary incisor crowding.
and T1. All these study materials were analyzed for comparison between the two
groups. The mean ages at T0 and T1 in the two groups were about the same. The
maxillary first molars moved and tipped distally in the treatment group and mesially
in the control group. The quad-helix treatment actually expanded the mandibular and
maxillary arches concurrently. The more the maxillary arch widths were expanded and
the less the maxillary first molars were inclined distally, the more the mandibular arch
widths were expanded. The quad-helix activation caused lingual tipping and
mesiobuccal rotation of the maxillary first molars. The mesiobuccal rotation of the
maxillary first molars could turn molar occlusal relationships for the better from Class II
to Class I. The quad-helix treatment gives rise to spontaneous expansion of the
mandibular arch concurrent with maxillary expansion in the early mixed dentition
patients with maxillary incisor crowding.

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Authors
Acharya PN, Gill D, Lloyd T.
Authors Full Name
Acharya, Priti N. Gill, Daljit. Lloyd, Tim.
Institution
Eastman Dental Hospital UCLH NHS Trust, London, UK. pritinacharya@hotmail.com.
Title
Pyogenic granuloma: a rare side complication from an orthodontic appliance.
Source
Local Messages
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Abstract
INTRODUCTION: In this study, we evaluated the transverse dentoalveolar changes
in the maxillary first molar region after early treatment with the quad-helix appliance.
METHODS: Seventy-three consecutive patients (39 boys, 34 girls) who had phase 1
quad-helix treatment were evaluated with cone-beam computed tomography scans
taken before phase 1 (mean age, 9.2 years) and phase 2 (mean age, 11.9 years)
treatments. Buccal bone thickness, buccal cortical plate thickness, lingual bone
thickness, alveolar width, palatal width, and intermolar width were measured by using
standardized orientations.
RESULTS: Slow palatal expansion with the quad-helix decreased buccal bone
thickness (1.6 mm +/- 0.8), and increased lingual bone thickness (1.6 mm +/- 1.3) and
alveolar width (0.5 mm +/- 1.0). Intermolar widths and palatal widths increased 6.5 mm
 +/- 2.9 and 3.9 mm +/- 1.8, respectively. At the beginning of phase 2, approximately
one third of the patients showed little or no buccal cortical plate on at least 1 side.
Patients retained with the Hawley demonstrated some relapse tendencies; patients
without retention had the greatest relapse tendencies.
CONCLUSIONS: Early treatment with the quad-helix appliance proved to be highly
effective in increasing intermolar, palatal, and alveolar widths. The teeth moved
through the alveolus, leading to substantial decreases in buccal bone thickness and
increases in lingual bone thickness. Copyright 2011 American Association of
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CONCLUSION: Maxillary arch dimensions in early mixed dentition in patients with unilateral posterior crossbite showed good stability 4 years post treatment in the permanent dentition.

Publications
  - Date Created: 20110706
  - Year of Publication: 2011

Title
- Arch dimension changes from successful slow maxillary expansion of unilateral posterior crossbite.

Authors
- Wong CA.  Sinclair PM.  Keim RG.  Kennedy DB.

Abstract
- OBJECTIVE: To evaluate the long-term effects of successful slow maxillary expansion without fixed appliances or retainers in the mixed dentition on patients with unilateral crossbites, using Haas-type, hyrax, or quad helix appliances.

RESULTS: Successful treatment by slow maxillary expansion (SME) produced similarly favorable expansion by all three expanders in all measurements for both arches. Maxillary arch widths were narrower than controls pretreatment (T1) and wider than controls immediately post treatment (T2). Long-term (T3) maxillary intercanine and intermolar widths, arch length, and perimeter and molar angulation were measured at all three time intervals with the Michigan published growth norms serving as a control.

MATERIALS AND METHODS: Serial dental casts of 110 patients were evaluated at three time points: preexpansion (T1) (mean age 7 years/7 months), postexpansion (T2) (mean age 8 years/8 months), and approximately 4 years later in the permanent dentition (T3) (mean age 12 years/9 months). Maxillary and mandibular intercanine and intermolar widths, arch length, and perimeter and molar angulation were measured at all three time intervals with the Michigan published growth norms serving as a control.

REFERENCES: Successful treatment by slow maxillary expansion (SME) produced similarly favorable expansion by all three expanders in all measurements for both arches. Maxillary arch widths were narrower than controls pretreatment (T1) and wider than controls immediately post treatment (T2). Long-term (T3) maxillary intercanine and intermolar width were the same as controls, with intercanine width significantly wider than controls. Maxillary intercanine and intermolar width increased from T1 to T3, by 4.5 mm and 3.5 mm, respectively, with 98% of intercanine and 80% of intermolar expansion remaining at T3. Maxillary arch circumference increased by 1 mm from T1 to T3. Mandibular width did not change significantly.

CONCLUSION: Maxillary arch dimensions in early mixed dentition in patients with unilateral posterior crossbite showed good stability 4 years post treatment in the permanent dentition.

Publication Type
  - Date Created: 20110706
  - Year of Publication: 2011

Title
- A case report of bilateral Brodie bite in early mixed dentition using bonded constriction quad-helix appliance.

Authors
- Nojima K.  Takaku S.  Murase C.  Nishii Y.  Sueishi K.

Abstract
- Brodie bite is a comparatively rare type of malocclusion found in primary and mixed dentition. It not only adversely affects chewing and muscle functions, but also impairs normal growth and development of the mandible. This report describes the therapeutic results of a patient with bilateral Brodie bite in early mixed dentition after using a bonded constriction quad-helix appliance. The patient, a boy aged 9 years and 2 months, first visited our hospital after occlusal abnormality in the molar region was detected at a local dental clinic. Case analysis resulted in a diagnosis of bilateral Brodie bite with slight mandibular retrognathism. Treatment objectives were to reduce the arch width of the maxillary dentition and expand the mandibular arch in order to establish and stabilize molar occlusion and to achieve a Class I molar relation and appropriate overbite and overjet. Treatment comprised covering the occlusal surface of the maxillary molars with resin and attaching a bonded constriction quad-helix appliance joined with a 0.040-inch quad-helix wire. A bi-helix appliance was also fixed to the mandibular dentition. Brodie bite visibly improved after 5 months. Cervical headgear was then fitted and the patient observed until eruption of the permanent dentition was complete. Class I molar relation was achieved after 2 years and 6 months, although spacing remained in the maxillary and mandibular dentitions.

TREATMENT OF BILATERAL BRODIE BITE IN MIXED DENTITION BY MEANS OF A BONDED CONSTRUCTION
quad-helix appliance attached to the maxillary dentition enabled effective bite opening and reduction in the width of maxillary arch independent of the patient's cooperation, providing good therapeutic outcome in a short time period.

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Case Reports. Journal Article.

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Authors
Petren S. Bjerklin K. Bondemark L.

Authors Full Name

Institution
Department of Orthodontics, Malmo University, Malmo, Sweden.

sofia.petren@mah.se

Title
Stability of unilateral posterior crossbite correction in the mixed dentition: a randomized clinical trial with a 3-year follow-up.

Source

Local Messages
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Abstract
INTRODUCTION: The long-term stability of posterior crossbite correction in the mixed dentition has not been sufficiently evaluated. Our aim was to compare long-term outcomes in patients with crossbite correction by using matched controls with normal occlusion.

METHODS: After 35 patients were treated for crossbite with a quad-helix or an expansion plate, we used randomized controlled trial methodology to follow them for 3 years posttreatment. All had fulfilled our pretreatment criteria: mixed dentition, unilateral posterior crossbite, no sucking habits, and no previous orthodontic treatment. Transverse relationships, maxillary and mandibular widths, overbite, overjet, arch lengths, and midlines were registered on the study models immediately before and after treatment and at the follow-up 3 years after treatment. The matched control group comprised 20 subjects with normal occlusion and was compared with the first and last registrations for the treated groups.

RESULTS: At follow-up, changes in the treatment groups were equal and stable. The changes were comparable with the control group. All other changes were minor and had no clinical implications. The long-term effect of crossbite correction on midline deviation was unpredictable.

CONCLUSIONS: If crossbite is successfully corrected by the quad-helix appliance or the expansion plate, similar long-term stability is achieved. However, in treated patients, mean maxillary widths never reached those of normal control subjects.

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Comparative Study. Journal Article. Randomized Controlled Trial. Research Support, Non-U.S. Gov't.

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Authors
Godoy F. Godoy-Bezerra J. Rosenblatt A.

Authors Full Name

Institution
Department of Pediatrics, University of Pernambuco, Recife, Pernambuco, Brazil.

fabianagodoy10@gmail.com

Title
Treatment of posterior crossbite comparing 2 appliances: a community-based trial.

Source

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Abstract
INTRODUCTION: The aim of this community-based trial was to compare the effectiveness of the quad-helix appliance and removable plates for treating posterior crossbite.

METHODS: Ninety-nine patients were randomly divided into 3 groups: quad-helix, expansion plate, and untreated. All subjects were in the mixed dentition, had posterior crossbite, no sucking habits, no previous orthodontic treatment, and no Class III malocclusion. The following aspects were evaluated: posterior crossbite correction, maxillary and mandibular intermolar and intercanine expansions, length of treatment, cost-benefit analysis, success rate, and number of complications.
RESULTS: The length of treatment and the costs were higher in the expansion plate group than in the quad-helix group. The success rates were similar for the quad-helix and the expansion plate groups, and the number of complications was higher in the quad-helix group. No self-correction was observed in the untreated group, and relapses occurred in both experimental groups.

CONCLUSIONS: The average treatment time was significantly shorter and 11% less expensive than in the quad-helix group, making it the more cost-effective choice for treatment. Copyright A 2011 American Association of Orthodontists. Published by Mosby, Inc. All rights reserved.

Abstract
INTRODUCTION: The objective of this study was to evaluate the effectiveness of the light-force chincup appliance in correcting the skeletal and dentoalveolar components of Class III malocclusion compared with an untreated Class III control group.

METHODS: The treatment sample consisted of 26 patients (11 boys, 15 girls) treated with the light-force chincup (125-250 g). The mean age at the start of treatment in the chincup group was 8.5 years, with posttreatment cephalograms taken on average 2.6 years later. The control group consisted of 20 subjects. The mean age at the start of observation for the control group (6 boys, 14 girls) was 7.3 years, and the mean time of observation was 2.4 years. Lateral cephalograms were analyzed with a specific tracing regimen at the 2 time points for both groups. Treatment outcome was determined. The treatment group subsequently was subdivided into those treated simultaneously with a quad-helix appliance and those with the chincup only. Mann-Whitney U tests for independent samples were performed to evaluate the differences between the treated and untreated groups at both time points, the changes between the 2 time points, and the differences between the groups treated with the quad-helix and chincup, and the chincup only.
RESULTS: The chincup sample showed no significant skeletal changes in the mandible in either the vertical or horizontal direction, except for a slight decrease in SNB angle and an increase in ANB angle. There were significant dentoalveolar changes, particularly uprighting of the mandibular incisors. Significant positive Class III treatment outcomes were recorded in the quad-helix group, including a decrease in mandibular length of 1.9 mm compared with the chincup group.

CONCLUSIONS: Fewer than 50% of the subjects treated with the chincup had favorable clinical outcomes. Correction of the initial Class III malocclusion occurred through significant dentoalveolar changes. The light-force chincup did not produce orthopedic changes in the mandible. Maxillary expansion with a quad-helix might aid in the correction of the Class III malocclusion in conjunction with the chincup.

METHODS: The inclusion criteria were models and treatment notes of patients with PXB at the start of treatment (T1), after PXB correction (T2), and at least 2 years posttreatment (T3). Exclusion criteria were craniofacial anomalies, fixed appliance use, or more than 1 expander type. From 312 consecutive expansion patients, 74 Haas, 41 hyrax, and 45 quad-helix subjects were evaluated regarding PXB correction, intermolar width, and angulation and compared with published norms to separate treatment effects from growth. The mean ages at T1, T2, and T3 were 8, 9, and 13 years.

RESULTS: There were no significant differences in PXB correction stability or treatment response at T2 and T3 among the 3 expanders. Expansion increased intermolar width by 5 mm and tipped each molar by 2.3 degrees. At least 2 years after expander removal, molar width decreased by 1.3 mm, and the molars uprighted by 6 degrees. Compared with noncrossbite norms, PXB subjects had narrower intermolar width before treatment and greater width after expansion, and were slightly wider at least 2 years posttreatment. Both younger age at T1 and retainer use resulted in statistically greater intermolar width at T3.

CONCLUSIONS: Eighty-four percent of PXB correction remained with about one third of the initial expansion lost; retainer use and early treatment provided increased intermolar width. Haas, hyrax, and quad-helix appliances were equally effective. Slow maxillary expansion altered the PXB patients' maxillary widths from narrower to slightly wider than the widths of the noncrossbite norms.
Orthodontic treatment combined with mandibular distraction osteogenesis and changes in stomatognathic function.

Source

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Abstract
We performed an orthodontic treatment combined with mandibular distraction osteogenesis in a 15-year-old patient who wanted a correction of a chin deficiency and a protruding upper lip. The patient had an Angle Class II division 1 malocclusion with mandibular retrusion, a low mandibular plane angle, and scissors bite. First, a quad-helix appliance was applied to the mandibular dentition to correct the scissors bite in the bilateral premolar region. Later, a preadjusted edgewise appliance was applied to the maxillary and mandibular teeth. After 3 days, a mandibular distraction osteogenesis was performed. During and after the distraction, the open bite between the upper and lower dental arches was corrected using up and down elastics. The total treatment time with the edgewise appliance was 14 months. A skeletal Class I apical base relationship, good facial profile, and optimum intercuspation of the teeth were achieved with the treatment. The jaw-movement pattern on the frontal view did not change during gum chewing. However, the maximum gap without pain increased. The electromyographic (EMG) activity of the masseter and anterior temporalis muscles, and maximum occlusal force increased. The present case report suggests that an orthodontic treatment combined with mandibular distraction osteogenesis in a patient with mandibular retrusion in the late growth period might be effective for improving stomatognathic function.

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Case Reports. Journal Article.

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2008
INTRODUCTION: From an evidence-based point of view, correction of posterior crossbite is not sufficiently evaluated. Thus, the aims of this study were to compare and evaluate the effectiveness of different treatment strategies to correct unilateral posterior crossbite in the mixed dentition by using the randomized clinical trial methodology with an untreated control group.

METHODS: Sixty patients participated in the study. All met the following inclusion criteria: mixed dentition, unilateral posterior crossbite, no sucking habits, and no previous orthodontic treatment. The patients were randomized into 4 groups: quad-helix, expansion plate, composite onlay, and untreated control. The success rates, amounts of maxillary and mandibular expansion, and treatment times were registered.

RESULTS: The quad-helix appliance was superior to the expansion plate in success rate and treatment time. Treatment with the expansion plate was unsuccessful in one third of the subjects. Crossbite correction with composite onlay in the mixed dentition was ineffective, and spontaneous correction in the mixed dentition did not occur.

CONCLUSIONS: If unilateral posterior crossbite is planned to be corrected in the mixed dentition, this study clearly confirmed that treatment with the quad-helix is an appropriate and successful method.