Replacing Missing Laterals:

A Non-Implant Approach

presented by
Ron Jackson, DDS, FACD, FAGD, FAACD

to benefit

In conjunction with

January 25, 2018
Friday Factoids – July 28, 2017
www.fauquiernow.com

- Fiscal Year ending June 30, 2017 – 3,164 dental patient visits
- Represents 24% increase from previous year (2,550 visits)
- 1,269 patients seen from Fauquier & Rappahannock counties a 10.7% increase from previous year
- Clinic spent $285,300 on dental care up 8% from 2016

Agenesis of Permanent Lateral Incisors:
- Autosomal dominant trait
- Occurs in over 4% of the population
- Females to males 2:1
- 2/3 have both missing upper laterals
- 1/2 of those with only one missing – contralateral tooth is deficient or peg

Treatment Choices
- Canine Substitution
- Removable Partial Denture (Flipper)
- Conventional 3 Unit Bridge
- Maryland Bridge
- Implant
- Fiber reinforced Composite Inlay Bridge (FRC Inlay Bridge)

1) Size
2) Shape
3) Color
4) Gingival crest height
5) Function

2011
CHOICES

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Line Angle
Reduce & round lingual cusp

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Replacement of Congenitally Missing Incisors with Implant Crowns

- XXXX, General Dentist
Gen Dent, September/October 2008; 56 (6):516-519

"Implant placement and restoration is a preferred solution for the replacement of missing teeth in any age group but is particularly beneficial for Younger Patients."

Implants at any Age

- XXXX, Periodontist
Dental Products Report February 2008; 34-36

"... it's still unclear at what age implants can be placed .... This article presents clinical evidence that implants can be successfully placed in patients younger than 18."

"maxillary lateral incisor implants are challenging esthetically. the amount of space is often small, the papillae are occasionally short, the adjacent roots could be too close,

Vincent Kokich, DDS
Advanced Esthetics & Interdisciplinary Dentistry
Vol. 2, No. 2, 2008 pp. 2 - 7
“maxillary lateral incisor implants are challenging esthetically. the amount of space is often small, the papillae are occasionally short, the adjacent roots could be too close, the gingival levels may be uneven, and the patient could be too young.”

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Advanced Esthetics & Interdisciplinary Dentistry
Vol. 2, No. 2, 2006 pp. 2 - 7

Articles about the use of implants in adolescents:


Facial Development, Continuous Tooth Eruption and Mesial Drift as Compromising Factors for Implant Placement

“….. jaw growth may compromise the outcome of oral rehabilitation using implant-supported prostheses even if the implants are successfully integrated.”
The best method of evaluating the completion of facial growth is by superimposing sequential cephalometric radiographs taken at least one year apart....

The AVERAGE age at which facial growth stops in girls is about 17 years and in boys it is about 21 years of age.

Articles about the use of implants in adults:


3-dimensional craniofacial skeletal growth and remodeling are continuous throughout life

Face Height and Tooth Eruption in Adults – a 20-year Follow-up Investigation

- Forsberg CM, Eliasson S, Westergren H
- 15 men and 15 women ages 25-45 yrs.
- Significant changes in anterior facial height
- Dentoalveolar change indicative of continued eruption and vertical growth of the surrounding tissues.

Articles about the use of implants in adults:


3-dimensional craniofacial skeletal growth and remodeling are continuous throughout life

We Change!

Long-term vertical changes of the anterior maxillary teeth adjacent to single implants in young and mature adults: A Retrospective Study

- Bernard J, Schatz J, Christou P. et.al
- J Clin Periodontol 2004; 31: 1024-1028

14 Young Adults (Ages 15 – 21)
- .1 – 1.65mm implant infraocclusion over 1-9 years

14 Mature Adults (Ages 40 – 55)
- .1 – 1.86mm implant infraocclusion over 1-9 years
Conclusions:
1) Some vertical changes small over 9 years
   Some vertical changes significant over 1 year
   **Highly variable**
2) Mature adults can exhibit major vertical steps
   after anterior restorations with osseointegrated fixtures
   to the same extent as adolescents or “young adult” individuals with residual
   growth potential.

Adult Growth, Aging and the Single-Tooth Implant
- Oesterle LJ, Cronin RJ

“While the average changes are small, a patient demonstrating maximum growth may
show 2 to 3mm of vertical increase in the natural teeth …..”

Cases Courtesy of:
Dr. Sverker Toreskog

Implant Crown #8
15 year post op
(placed Age 20)

Implant Crown #9
Female - Age 24
Age 29

Implant Crown #9
Female - Age 24

Age 23
Implant Crown #9

Age 33
Implant Crown
10 years post op

Try-in New implant Crown

Courtesy Drs. Coachman, Garber, Salama
**Zirconia Abutment with Pink Composite**

**Immediate Post-op new crown**

**Cleaning new implant crown**

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**Implant-supported Crowns in the Esthetic Zone: Long-term effects**

1. Darkening (“blue-coloring) of the overlying labial gingiva
2. Progressive infraocclusion of the crown (even in mature Adults)
3. Gingival retraction and “root” exposure

- Zachrisson BU
  World J Ortho 2006; 7: 306 - 312

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**Age 28**

At insertion .5mm short

**Age 38**

2mm short

1.5mm change

- Tarlow Jeffrey, J Prosthet Dent

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**Single Implant-supported Crowns in the anterior maxilla – potential esthetic long-term (>5 years) problems**

“...the fact that the space for a missing incisor can now be substituted with an implant-supported crown does not necessarily imply that this replacement fulfills optimal esthetic requirements, and that this technique is superior to other treatment options in a lifelong perspective for the patient.”

- Zachrisson BU
  World J Ortho 2006; 7: 306 - 312

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**Female Age 22**

internal resorption #8

- General Dentistry
  July 2013

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**Replacement of Congenitally Missing Incisors with Implant Crowns**

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**Implants at any Age**

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“... it’s still unclear at what age implants can be placed -.... This article presents clinical evidence that implants can be successfully placed in patients younger than 18.”
• Canine Substitution
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“ If patients are immature at the end of orthodontics and will have significant facial growth, it may be appropriate to place a bonded rather than a removable retainer in order to prevent reapproximation of the central incisor and canine roots.”

Vincent Kokich, DDS
Advanced Esthetics & Interdisciplinary Dentistry
Vol. 2, No. 2, 2006 pp. 2 - 7

19 year old Female

15 year old

19 year old

19 year old Female
19 year old Female

\[ \frac{D_2}{D_1} \approx 0.75 \]

Shallow Overbite
Normal Overbite
Deep Overbite

19 year old Female

\[ \frac{D_2}{D_1} \approx 0.75 \]

Shallow Overbite
Normal Overbite
Deep Overbite

Overbite and Overjet

Shallow Overbite
Normal Overbite
Deep Overbite

Excess Horizontal Overjet .5 -.7mm
Shallow Overbite
- .5 - .7mm excess Horizontal Overjet

Normal Overbite

Deep Overbite

Premise Indirect (Kerr) / eFiber (Prest)
- 75mm Inlay prep
- .5mm depth

Premise Indirect (Kerr) / eFiber (Prest)
- Shallow Overbite
- .5mm excess Horizontal Overjet
Reduce space by ¼ mm
1. 2-step Self-etch or 1-step Self-etch
2. Remove air inhibited layer with alcohol pledge

Apply scrubbing 20 seconds & dry
Apply scrubbing 15 seconds & dry

Apply scrubbing 15 seconds & dry

Apply scrubbing 15 seconds & dry

Remove Air Inhibited layer With Alcohol Pledge 

Try-in

Mock up
-2.5 mm, 1.5 mm

Add to gingival surfaces of denture teeth to maintain pontic sites

Add to gingival surfaces of denture teeth to maintain pontic sites
Add to gingival surfaces of denture teeth to maintain pontic sites.
Apply and Dry

Adhesive applied, dried, cured

Star Brush

Ultradent (800-552-5512)

Other Choices:
- RelyX Veneer (3M/Espe)
- Choice 2 (Bisco)
- Nexus 2 (Kerr)
- Flowable Resin

2% Chlorhexidine

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- Flowable Resin
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6 month Post Op

20 year old female
Fill preps with Flowable and cure

Premise Indirect/eFiber Framework with Ceramic Veneers

17 Year old Male

5 years post op
17 year old female

\[
\frac{D_2}{D_1} \approx 0.95 \rightarrow 0.75
\]

**ADULTS – IMPLANTS?**

- Not Desired by the Patient
- Restoratively Contraindicated

17 year old female

\[
\frac{D_2}{D_1} \approx 0.95 \rightarrow 0.75
\]

40 year old

12 years post op

8 years post op

12 years post op

Premise Indirect/Overlay Framework with Ceramic Veneers
Bonded Porcelain Restorations in the Anterior Dentition: A Biomimetic Approach; Magne P, Belser U. Quintessence 2002
Longevity

Success Rate varies widely:
- 54% failure rate over 11 months
- 90% success rate over 11 years

Technique Dependent

Long-term Clinical Performance of Resin-bonded Fixed Partial Dentures with Retentive Preparation Geometry in Anterior and Posterior Areas

Aggostoller H, Beuer F, et al.

Retentive preparation design – 88% survival at 10 years

Average Survival - 16 years

Alternative Bridge Design using Glass Ceramic (emax)

Fifteen-year Survival of Anterior All-Ceramic Cantilever Resin-Bonded Fixed Dental Prostheses.
Kern M.
J Dent 2017; 56: 133-135

Longevity of fiber-reinforced composite fixed partial dentures (FRCFPD) – Systematic review

Ahmed KE, Li KY, Murray CA
J Dent 2017; 61: 1-11

- Survival – 94.5% at 4.8 years
- Retentive tooth preparations performed better than retainers without a preparation

Conclusion:
- FRC FPDs demonstrated high overall survival with predictable performance outcomes
- FRC FPDs should no longer be considered as experimental, temporary or short term treatment modalities.
Conclusion:
Anterior zirconia ceramic cantilever RBFDPs provided excellent clinical longevity
RESOURCES

The International Association of Physiologic Aesthetics (IAPA) 866-669-4222 or www.theiapa.com

American Academy of Cosmetic Dentistry Annual Meeting (AACD) 800-543-9220 or www.aacd.com

Photography Equipment:
  • Washington Scientific Camera – 615 Wood Avenue Sumner, Washington 98390 253-863-2854 or wscrrz@aol.com
  • Norman Camera - 3602 S. Westnedge Kalamazoo, Michigan 49008 800-900-6676 or www.normancamera.com

Photography/Software Courses:
  • Dr. Greg Lutke – Dallas Dental Solutions Plano, Texas 866-801-9733 or www.dental-solutions.com

Photo Mounts (to send photos to patients):
  (UP#488 – “Your New Smile”) Ultradent Products, Inc. 800-552-5512 or www.ultradent.com

Reality and “Reality Now”
Esthetic Dentistry Research Group
www.realityesthetics.com
(800) 544 – 4999

Journal of Adhesive Dentistry
Quintessence Publishing Co., Inc.
www.quintpub.com
(630) 682 – 3223
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