Case Report

Immediate implant placement in the aesthetic area, surgical and restorative considerations

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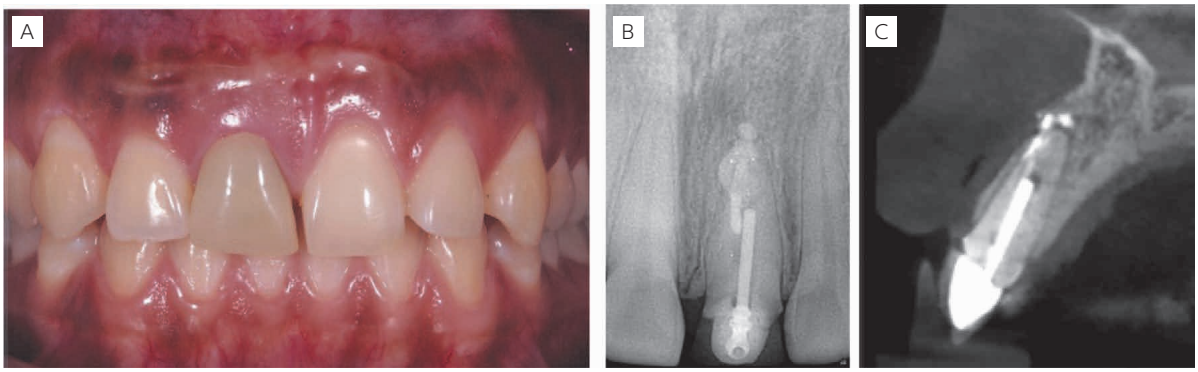
I. Introduction

The aesthetic sector represents a challenge for prosthetic treatment on dental implants, due to the high incidence of soft and bone tissue defects that make multidisciplinary treatment approach mandatory with a team of clinicians whose course of work is governed by an accurate diagnosis, and treatment plan in stages, surgical and restorative.[1-3] It is well described in the literature that the starting point for predictable and successful results is the initial diagnosis of the problem to be restored, therefore, knowing the etiology of the defect to be rehabilitated is imperative to achieve the planned objectives in each case. The current documentation offers various classifications of defects according to the presence of teeth whose periodontal, endodontic and/or prosthetic prognosis is hopeless,[4-7] such as described by Elian et al.[8], and Kan et al,[9] and there are classifications of residual bone ridges, those depends in the degree of loss of bone or soft tissue.[10-12] Generally, the teeth that must be replaced in this sector present a high level of complexity at different levels, which can be categorized as risk factors, Levine,et al.[13] they determined that the first key to success for the placement of immediate implants in the aesthetic area is the aesthetic risk assessment of each patient, and it is this analysis that will determine the surgical technique, selection of regeneration materials, design, type and nature of the final restoration. This case report presents the protocol used for prosthetic rehabilitation on an implant placed immediately after extraction of a tooth with a non-treatable prognosis in the anterior sector using the “dual zone therapeutic concept” surgical technique described by Chu et al.[14]

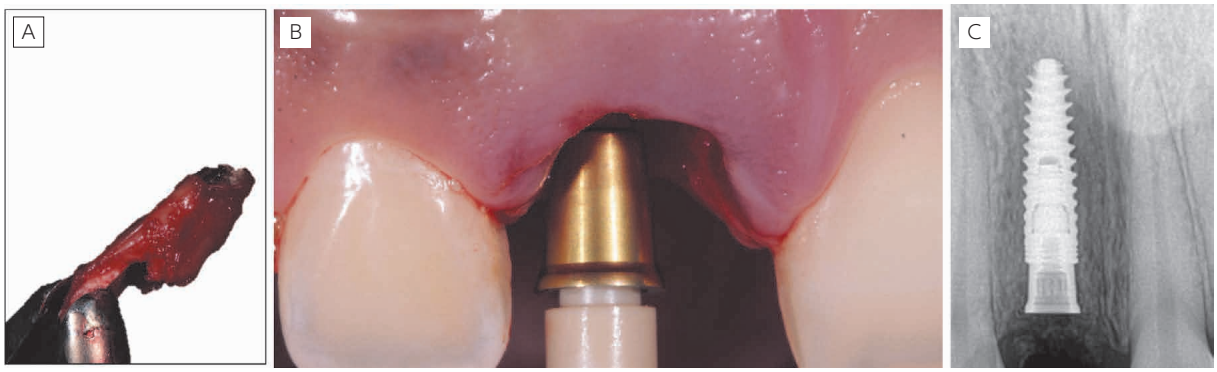
II. Case Report

A 22-year-old female patient, systemically healthy, with no history of periodontal disease, presented to the Advanced Implantology Clinic of the Francisco Marroquín University School of Dentistry, for consultation of pain in tooth 8. The clinical evaluation revealed a change in the coloration of the provisional crown, tenderness on palpation, without hemorrhagic exudate, upon removal of the provisional crown caries were observed at the cervical level with the presence of a composite reconstruction supported by a prefabricated post. Radiographic evaluation revealed poor root canal treatment with a history of apicoectomy. Consultation was made with the department of Endodontics to evaluate the possibility of performing a new periapical surgery, with the Department of Periodontology and Restoration to evaluate the possibility of performing a functional coronary lengthening surgery, however, due to the unfavorable crown-root ratio, presence of cervical caries and presence of previous failed endodontic treatments, it was concluded that the best option for this case was extraction and performing and immediate implant placement.



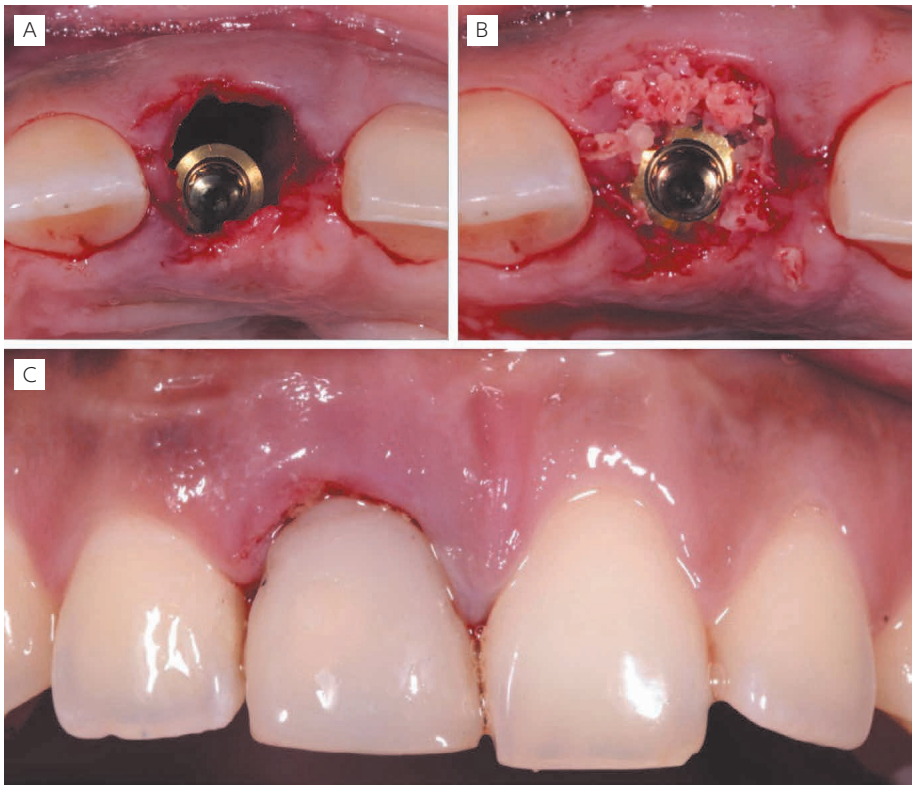
(Fig. 1) A. Teeth 8 with poor provisional crown. B. Poor root canal treatment. C. Type 1 socket according to Elian et al,[8] type 1 Kan et al.[9]

The minimally traumatic extraction of tooth 8 was performed with periotomes, curettage and disinfection of the socket, subsequently the integrity of the buccal bone table and distance between free gingival margin and buccal plate of 3mm was confirmed with a periodontal prob e to proceed with the immediate placement of the implant. A 3.75×11.5mm MIS C1 conical connection implant was placed with 45Ncm insertion torque. In addition, a 4mm MIS CONNECT transmucosal abutment with 30Ncm insertion torqu e was used to move the implant-prosthetic abutment interface away from the marginal bone crest(Fig.2).



(Fig. 2) A. Minimally traumatic extraction B. Placement of immediate implant and MIS CONNECT transmucosal abutment. C. Final implant position.

The implant was placed in a palatal position with respect to the clinical crowns of the adjacent teeth, following the "dual zone" concept, a bone graft was performed in the buccal gap between implant and buccal bone wall with a medium particle xenograft hydrated in saline solution (Bonefill® Dense [0.10 - 0.60mm] (Fine) 0.50 g · 0.50 DC. Bionnovation Biomedical, Bauru, Brazil.). The fixed provisional was immediately performed on a PEEK temporary abutment without occlusal contact(Fig.3).

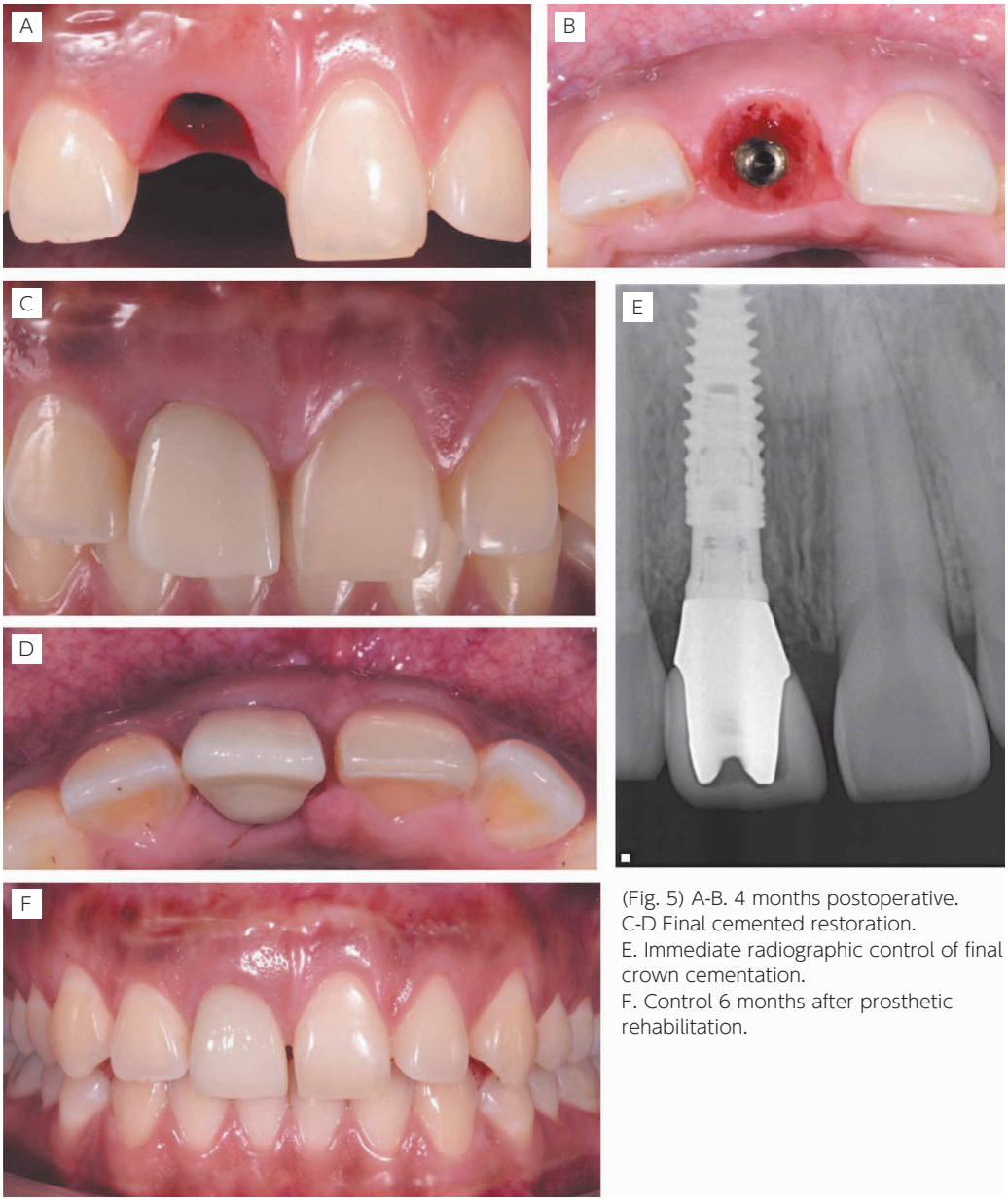


(Fig. 3) A. Implant placed in palatal position. B. Xenograft placed in buccal gap of bone tissue and soft tissue. C. Provisional screw-retained crown without occlusal contact.

Postoperative care included antibiotic therapy with Amoxicillin 500 mg. every 8 hours for 7 days. Oral anti-inflammatories Dexketoprofen 25 mg. Every 8 hours for 5 days. Mouthwashes with 0.12% Chlorhexidine Gluconate 3 times a day for 15 days. Recommendations on oral hygiene in the surgical area and soft foods. A postoperative control was carried out in the first week, 15 days, and after 4 months, the rehabilitation stage was carried out(Fig.4).

(Fig. 4) A. Postoperative situation at 1 week. B. Postoperative tomographic section of 1 week

Due to the buccal inclination of the implant, it was decided to perform a cemented crown using a custom zirconia prosthetic abutment. The final crown was made of EMAX lithium disilicate (Ivoclar Vivadent AG, Liechtenstein), which was cemented under the cementation protocol described by Seo & Seo.[15] A 6-month follow-up was performed to confirm the integrity of the peri-implant tissues and patient satisfaction (Fig.5).



(Fig. 5) A-B. 4 months postoperative.
C-D Final cemented restoration.
E. Immediate radiographic control of final crown cementation.
F. Control 6 months after prosthetic rehabilitation.

III. Discussion

The extraction of teeth triggers a process of catabolic changes within the periodontal tissues, resulting in a decrease in the height and thickness of the bone tissue available for the placement of dental implants,[16,18-20] as well as functional and aesthetic problems for the patient.[17] The degree of tissue reabsorption directly depends on the periodontal phenotype, thin bone phenotypes, less than 1 mm thick in the buccal table, the most affected in terms of progressive loss of tissue in both height and thickness.[18-20] When carrying out an extraction and immediate implant placement, these catabolic changes are not nullified, but can be modified by biomaterials that act as a scaffold for bone formation at the residual ridge implant interface.[4, 21-23] The success rate of immediate implants compared to conventionally placed implants is similar, however in immediate implant cases, the anatomical factors present (phenotype, presence of periapical pathology, available tissue), surgical factors (surgical technique, use of bone grafts, connective tissue) and prosthetic factors (immediate provisionalization, type of restorative material) play a key role in achieving the treatment goals in the short term, and more importantly, in the long term.[14, 23] The "dual zone" concept addresses three fundamental principles to manage type I sockets according to Elian et al., with the main objective of minimizing and preserving the greatest amount of periodontal architecture existing in the dental implant treatment site.[14, 23-25] These principles are defined as minimally traumatic extraction of the tooth, placement of the implant without elevation of the mucoperiosteal flap, in a suitable three-dimensional location with the use of biomaterials in both areas, soft tissue and bone tissue,[26] and use of a fixed provisional as a sealing device to hold the bone graft in place. This case report was carried out under the guidelines of this concept of two important areas of dimensional changes, thus important concepts that have been previously described in the literature for the success of dental implant therapy and maintenance of peri-implant tissues were also considered long-term, such as the use of xenograft as a biomaterial with a low resorption rate and inflammatory response,[22.26] use of conical connection and the MIS CONNECT transmucosal abutment to translate the platform-prosthetic abutment interface of the marginal bone crest,[27-29] and selection of highly aesthetic inert restorative materials.[30] It is important to emphasize that the decision to use a surgical technique depends on several factors, of which the initial diagnosis is key for the predictability of the treatment. Diagnosis should be based on the detailed clinical and radiographic evaluation, etiology of the defect, systemic state, collaboration, and aesthetic requirements of the patient.

IV. Conclusion

Rehabilitation on implants in the aesthetic area is a very complex challenge that requires adequate analysis to select the ideal treatment plan for each specific case. The "dual zone" surgical concept integrates the concepts of minimizing and maintaining the original architecture of the peri-implant tissue in implants placed immediately, however, the use of this technique should be reserved for specific cases where the periodontal tissues of the tooth to extract are present in position, proportion, and quality, as in Elian´s type 1 sockets. In cases where the absence of structures such as the buccal table, absence of keratinized tissue in height or thickness, and in cases of combined defects, it is necessary to consider another type of surgical approach that allows the restoration of the absent tissues prior to implant placement.

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Case Report

美学区即刻种植，手术和修复考量

Immediate implant placement in the aesthetic area, surgical and restorative considerations

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I. 引言

美学区种植修复面临着一个挑战，那就是由于软硬组织缺损的高发病率致使临床团队需要进行多学科联合治疗，这就需要通过精确的诊断，以及制定分段治疗计划进行手术和修复才能实现。[1-3] 文献中充分的描述了可预测和成功结果的起点是待修复问题的初始诊断，因此，了解待修复缺损的病因对于在每种情况下实现计划目标至关重要。目前的文献根据牙周，牙髓和 / 或修复预后无望的牙齿，提供了各种缺损分类，[4-7] 如 Elian 等人，[8] 以及 Kan 等人 [9] 的文献都有提及，并且也有剩余骨嵴的分类，这些取决于骨或软组织的缺损程度。[10-12] Levine 等人认为，一般来说，在美学区必须拔除修复的牙齿在不同层面上呈现出高度的复杂性，这些均可归类为风险因素。[13] 他们认为，在美学区域成功进行即刻种植的第一个关键是对每位患者进行美学风险评估，正是这种分析将决定手术技术，再生材料的选择，最终修复的设计，类型和性质。本病例报告介绍了使用 Chu 等人 [14] 描述的“双区治疗概念”外科技术，在拔除前牙区预后不可治疗的牙齿后立即植入种植体的修复方案。

II. 病例报告

22 岁女性患者，全身健康，没有牙周病史，至 Francisco Marroquín 大学牙科学院高级种植学门诊就诊，咨询右上中切牙的疼痛问题。临床检查发现临时冠的颜色发生变化，有触痛，无出血渗出，在移除临时冠后可见牙颈部的树脂充填物和继发龋，以及预成桩。影像学检查显示根管治疗不佳，可能曾行根尖切除。转诊牙体牙髓科以评估进行新的根尖周手术的可能性，转诊牙周病和修复科以评估进行冠延长手术的可能性，但是，由于不利的冠根比，以及存在颈部龋和以前失败的牙髓治疗，因此得出结论，本病例的最佳选择是拔牙和即刻种植。

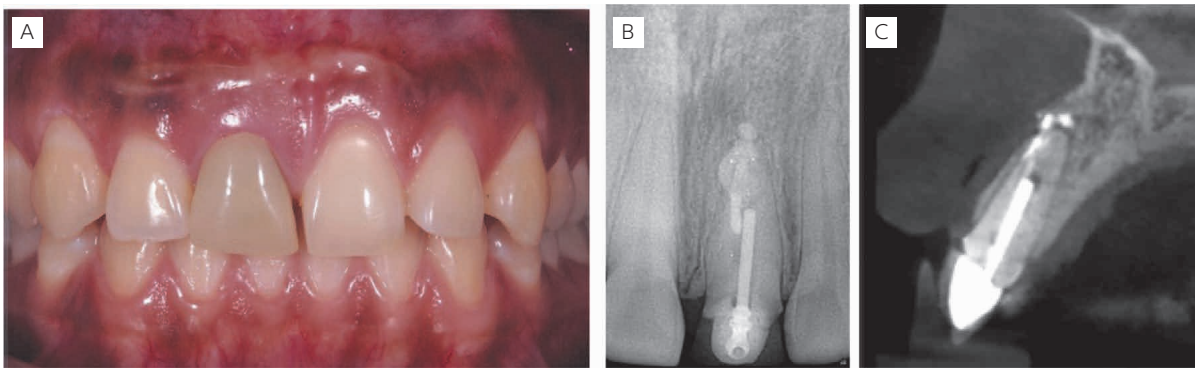

图 1）A. 右上中切牙的不良临时冠。 B. 不良的根管治疗。C. Elian 等人 [8] 定义的 I 类拔牙窝，Kan 等人 [9] 定义的 I 类拔牙窝。

牙周膜切开后微创拔除 8 号牙（右上中切牙），刮除并清除牙槽窝内的感染，随后用牙周探针确认颊侧骨壁的完整性以及游离龈缘与唇侧骨板之间的距离为3mm，随后即刻植入种植体。以 45Ncm 扭矩植入一枚3.75×11.5 mm 的 MIS C1 锥度连接植体。此外，用 30Ncm 扭矩锁紧一枚 4mm 的 MIS CONNECT 穿龈基台，使种植 - 修复基台界面远离边缘骨嵴（图 2）。

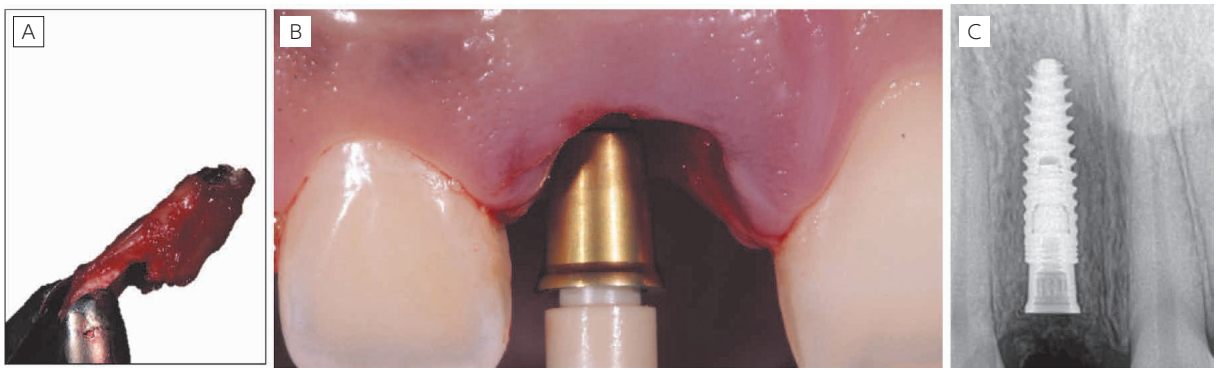

图 2）A. 微创拔牙。B. 即刻种植和 MIS CONNECT 穿龈基台。C. 最终种植位点。

参考邻牙的临床冠位置将种植体植入在腭侧的骨嵴上，遵循“双区”概念，在种植体和唇侧骨壁之间的间隙填充骨移植材料，材料为中等颗粒异种异体骨（Bonefill® Dense［0.10 - 0.60 mm］（Fine）0.50 g • 0.50 DC. Bionnovation Biomedical，Bauru，Brazil.），并使用盐水溶液浸润。在 PEEK 临时基台上进行即刻修复，确保没有咬合接触（图 3）。

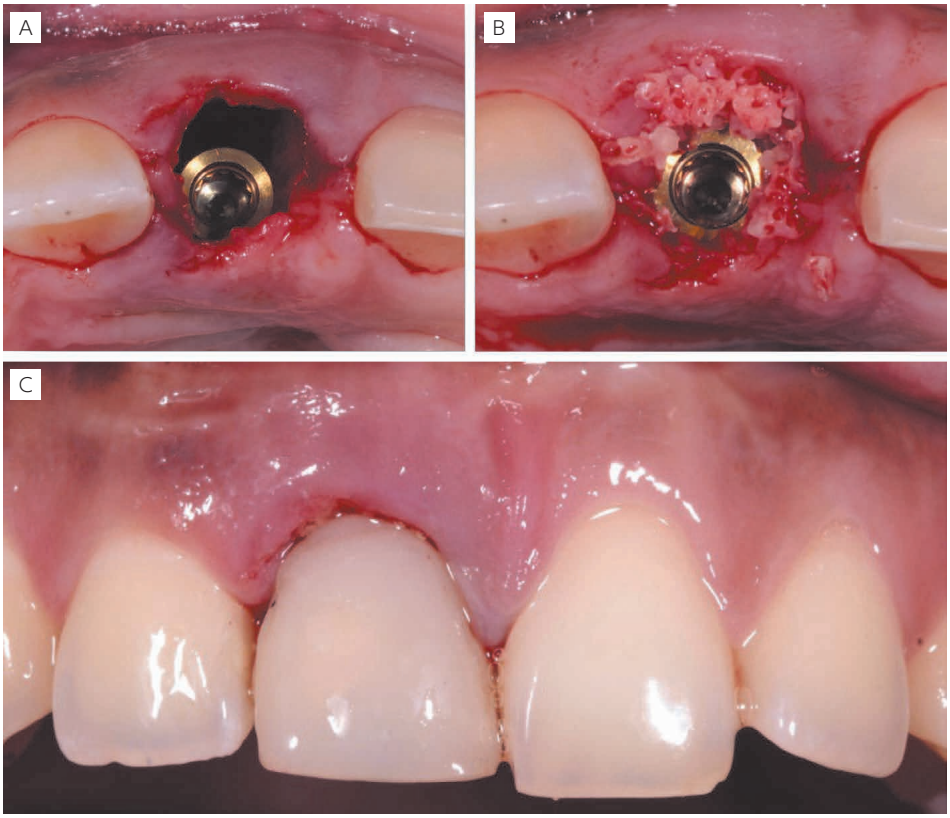

图 3）A. 种植体植入位点偏腭侧 B. 在骨组织和软组织的唇侧缝隙内填充异种异体骨。C. 螺丝固位临时冠，无咬合。

术后护理包括使用 500mg 阿莫西林进行抗生素治疗。每 8 小时一次，持续 7 天。口服消炎药右酮洛芬 25mg。每 8 小时一次，持续 5 天。用 0.12% 葡萄糖酸洗必泰漱口，每天 3 次，连续 15 天。进行手术区口腔卫生宣教和建议进食软性食品。术后第 1 周，第 15 天进行术后复查，4 个月后进行修复（图 4）。

图 4）A. 术后 1 周的情况。B. 术后 1 周的断层扫描。

由于种植体略向唇侧倾斜，所以决定使用个性化氧化锆基台进粘接修复。最终冠由 EMAX 二矽酸锂（Ivoclar Vivadent AG，Liechtenstein）制成，根据 Seo 和 Seo[15] 所述的粘接流程进行粘接。6 个月随访，以确认种植体周围组织的完整性和患者满意度（图 5）。

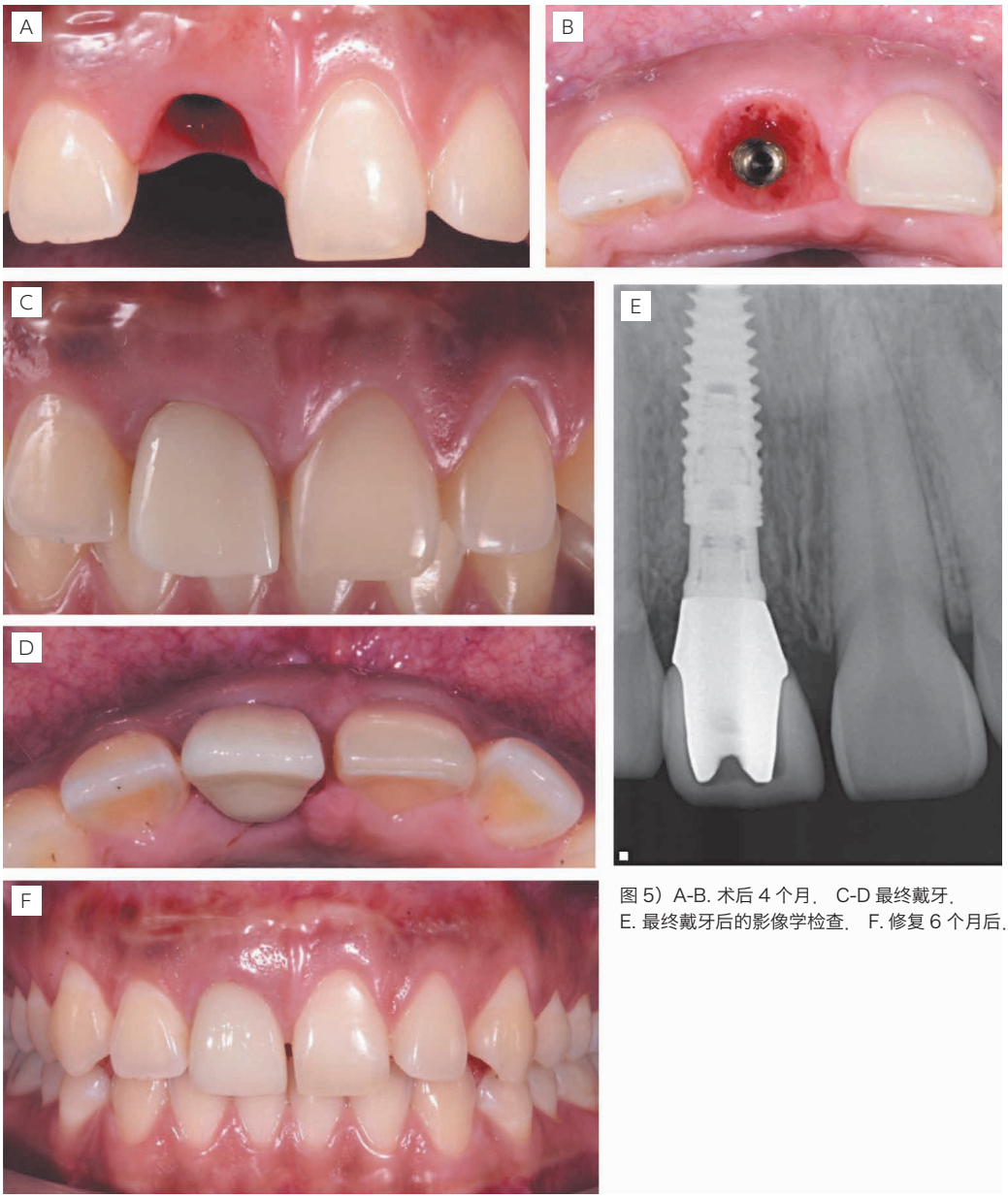

图 5）A-B. 术后 4 个月。 C-D 最终戴牙。
E. 最终戴牙后的影像学检查。 F. 修复 6 个月后。

III. 讨论

拔牙会引起牙周组织内的分解代谢变化，导致可用于种植牙的骨组织高度和厚度降低，[16，18-20] 以及患者的功能和美学问题。[17] 组织吸收的程度直接取决于牙周表型，薄骨表型，唇侧骨厚度小于 1mm，受影响最大的是组织高度和厚度逐渐丧失。[18-20] 进行拔牙和即刻种植时，这些分解代谢变化不会消失，但可以通过生物材料进行修饰，生物材料充当残余种植体界面处骨形成的支架。[4，21-23] 与常规种植相比，即刻种植的成功率相似，但在即刻种植病例中，在短期内存在解剖因素（表型，根尖周病变的存在，可用组织），外科因素（外科技术，骨移植物的使用，结缔组织）和修复因素（即刻临时牙，修复材料的类型）的影响，更重要的是，长远来说，对实现治疗目标起着关键作用。[14，23] 根据 Elian 等人的观点，“双区”概念阐述了管理 I 型拔牙窝的三个基本原则，其主要目标是最大限度地减少和保留种植牙治疗部位现有的牙周结构。[14，23-25] 这些原则被定义为：对牙齿进行创伤最小的拔除，在不翻起粘骨膜瓣的情况下，在两个区域使用生物材料，软组织和骨组织，[26] 将种植体放置在合适的三维位置，并使用固定的临时牙封闭创口并固定骨移植物。本病例报告是在尺寸变化的两个重要领域这一概念的指导下进行的，因此先前文献中描述的成功种植牙治疗和种植体周围组织维护的重要概念也被认为是长期有益的，例如使用异种移植物作为生物材料，具有低吸收率和炎症反应，[22，26] 使用锥形连接和 MIS CONNECT 穿龈基台移动修复界面远离边缘骨嵴，[27-29] 并选择高度美观的惰性修复材料。[30] 重要的是要强调，决定使用外科技术取决于几个因素，其中初始诊断是治疗可预测性的关键。诊断应基于详细的临床和影像学评估，缺损的病因，全身状态，依从性和患者的美学要求。

IV. 结论

美学区种植修复是非常复杂的挑战，需要进行充分的分析，为每个具体病例选择理想的治疗方案。“双区”外科概念整合了在即刻种植时创伤最小和保持种植体周围组织的原始结构的概念，但是，这种技术的使用应保留在特定情况下，即要拔除的牙齿的牙周组织在位置，比例和质量符合一定条件，如 Elian 的 I 类拔牙窝。如果存在组织缺损比如唇侧骨不足，角化龈高度或厚度不足以及混合型缺损，那么有必要考虑另一种类型的外科手术方法，在植入种植体前修复缺损的组织。

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Case Report

審美領域におけるインプラント即時埋入 外科および補綴学的考察

Immediate implant placement in the aesthetic area, surgical and restorative considerations

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Ⅰ 緒言

審美領域では軟組織や硬組織の欠損が多く生じるため，インプラント治療において，特に補綴処置が課題となる．そのため，正確な診断をもとに外科から補綴への段階を経た治療計画を立案し，チームによる包括的なアプローチが必須となる．[1-3]　予知性が高く成功という結果を導くには，正確な補綴学的初期診断であるということはしばしば文献にも記載されている．従って，組織欠損の病因を知ることは，それぞれのケースにおいての治療計画を成し遂げる上で不可欠となる．現在の文献では，歯周病学的，歯内療法学的，そして補綴学的に予後が不良な歯を伴う様々な欠損の分類が発表されている．例えば，Elian ら,[8]　Kan ら [9] が示しているように，残存する骨の形態による分類があり，それらは硬組織または軟組織の欠損の程度によって異なる．一般的に，硬組織や軟組織が不十分な状態で補綴されるべき歯は，危険因子として分類されるべき高い複雑性を呈する．Levine ら [13] は，審美領域におけるインプラント即時埋入の成功への鍵は，各々の患者に対する審美的リスク評価であり，この分析によって，外科的手法，再生材料の選択，最終補綴物の種類とデザインが決定されると述べている．ここでは，Chu ら [14] が提唱する "dual zone therapeutic concept" の外科的手法を用い，上顎前歯部抜歯直後に埋入したインプラントに対し補綴修復を行った一例を報告する．

Ⅱ 症例報告

全身既往歴，歯周病罹患歴無しの 22 歳女性が，上顎右側中切歯の自覚痛を主訴としてフランシスコ・マロキン大学歯学部先進インプラント外来を受診した．臨床評価では，出血や滲出液は見られないものの，プロビジョナルクラウンの色調の変化，触診による圧痛を認め，プロビジョナルクラウンを除去すると歯頚部に齲蝕があり，既製品のポストに支えられたコンポジットレジン修復の存在が認められた．X 線画像評価では，歯根端切除術の既往を伴う不良根管充填が認められた．歯内療法科での新たな根管治療の可能性と歯周病科での機能的歯冠長延長術の可能性を検討したが，歯冠歯根比が悪く，また歯頚部齲蝕と過去の不良根管充填の存在から，この症例では抜歯後即時インプラント埋入を行うことが最善の選択だと結論づけられた．

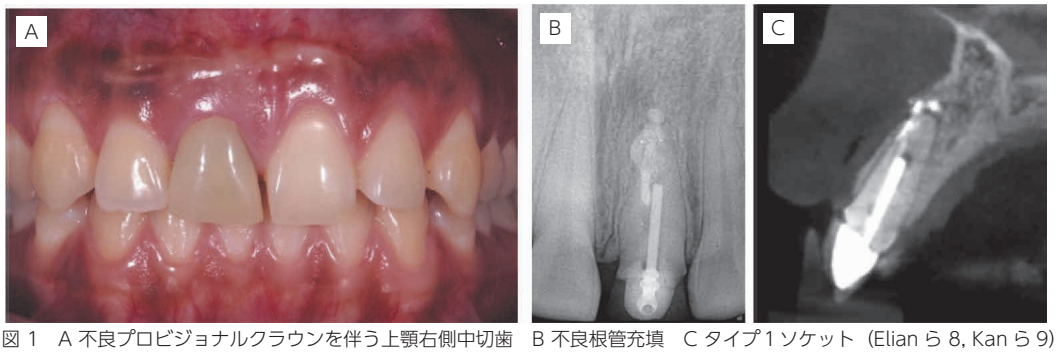

図 1　A 不良プロビジョナルクラウンを伴う上顎右側中切歯　B 不良根管充填　C タイプ 1 ソケット（Elian ら 8, Kan ら 9）

ペリオトームを用いて低侵襲下にて上顎右側中切歯を抜歯し，抜歯窩の掻爬を行った．その後，プローブを用いて歯肉縁と唇側骨との距離が 3mm であり唇側骨が保たれていることを確認後，インプラントを即時埋入した．直径 3.75mm，長さ 11.5mm の MIS　C1 コニカルコネクションインプラントが選択され，45Ncm で初期固定を得た．さらに，インプラント体と補綴物の境界と辺縁骨頂との距離をつくるため，高さ 4mm の MIS　CONNECT transmucosal abutment を 30Ncm のトルクをかけて装着した（図 2）．

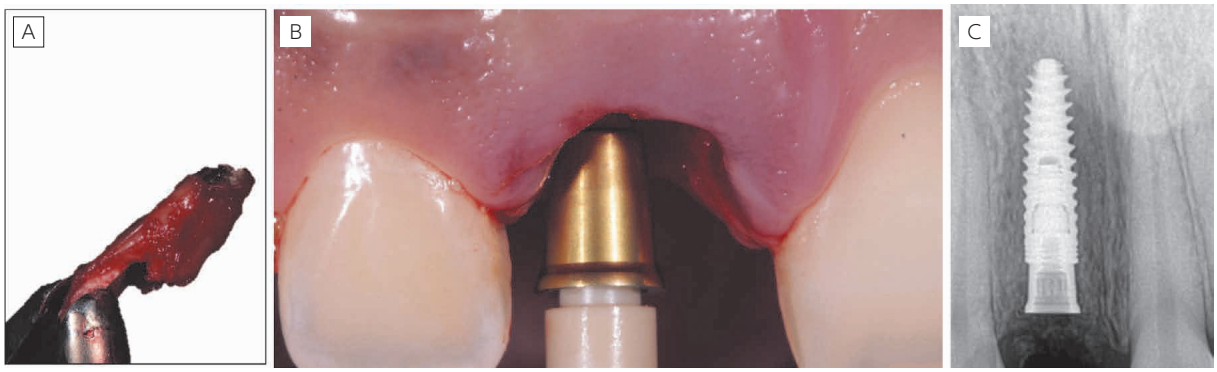

図 2　A 低侵襲による抜歯　B インプラント即時埋入と MIS CONNECT transmucosal abutment　C 最終的なインプラントポジション

インプラントを隣在歯に対して口蓋側に埋入し，「デュアルゾーン」コンセプトに従い，インプラントと頬側骨壁との間に生理食塩水で水和した中粒子のゼノグラフトを補填した．（Bonefill® Dense［0.10 - 0.60mm］(Fine)0.50 g/0.50cc. Bionnovation Biomedical, Bauru, Brazil.）．その後，固定性プロビジョナルが，PEEK 製テンポラリーアバットメント上に咬合を与えない状態で固定された（図 3）．

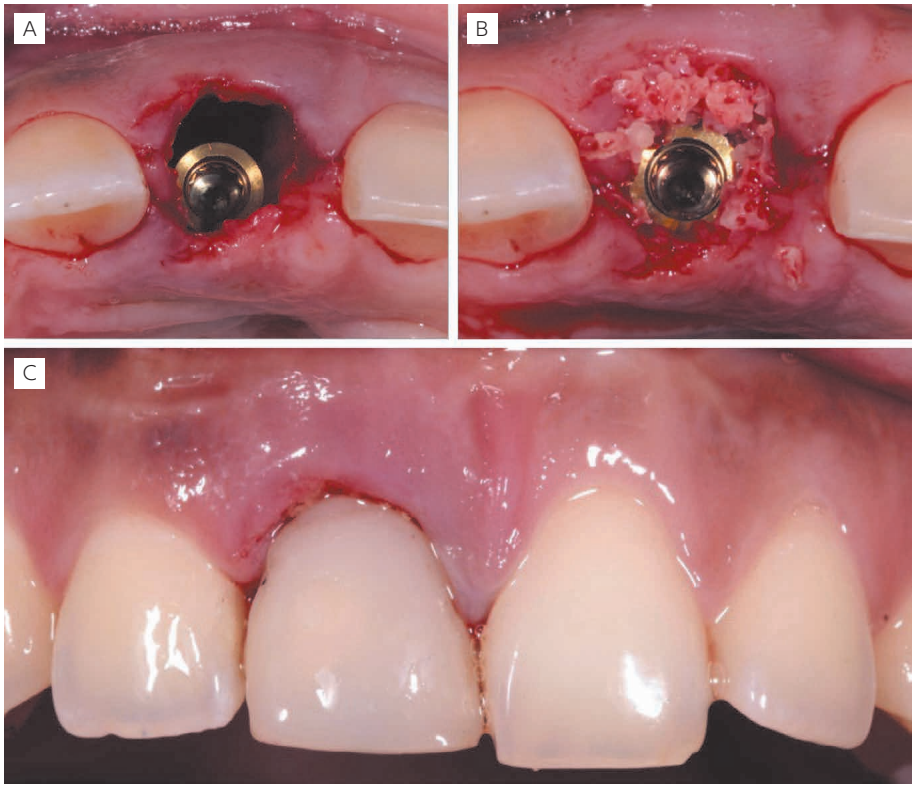

図 3　A 口蓋側へのインプラント埋入　B 唇側の空隙へのゼノグラフトの補填　C 咬合を与えていないスクリュー固定性のプロビジョナルクラウン

抗生物質の術後投与として，アモキシシリン 500mg を 8 時間おきに 7 日間投与した．また，経口抗炎症薬のデクスケトプロフェン 25mg を 8 時間おきに 5 日間，洗口液の 0.12% クロルヘキシジングルコン酸塩を 1 日 3 回，15 日間使用した．手術部位の口腔衛生と軟らかい食物の摂取を指示し，術後 1 週間，15 日，4 ヶ月後にそれぞれ状態の確認を行った（図 4）．

図４　A 術後１週間　B 術後１週間のレントゲン画像

インプラント体が頬側に傾斜しているため，インプラントが頬側に傾斜しているため，ジルコニア性のカスタムアバットメントを用いたセメント固定性のクラウンを選択した．最終補綴物は EMAX　lithium　disilicate（Ivoclar Vivadent AG, Liechtenstein）で作製し，Seo & Seo15 の文献からセメンテーションプロトコルに基づきセメント固定を行った．インプラント周囲組織の確認と患者の満足度を確認するために，最終補綴物装着後６ヶ月間のフォローアップを行った（図 5）．

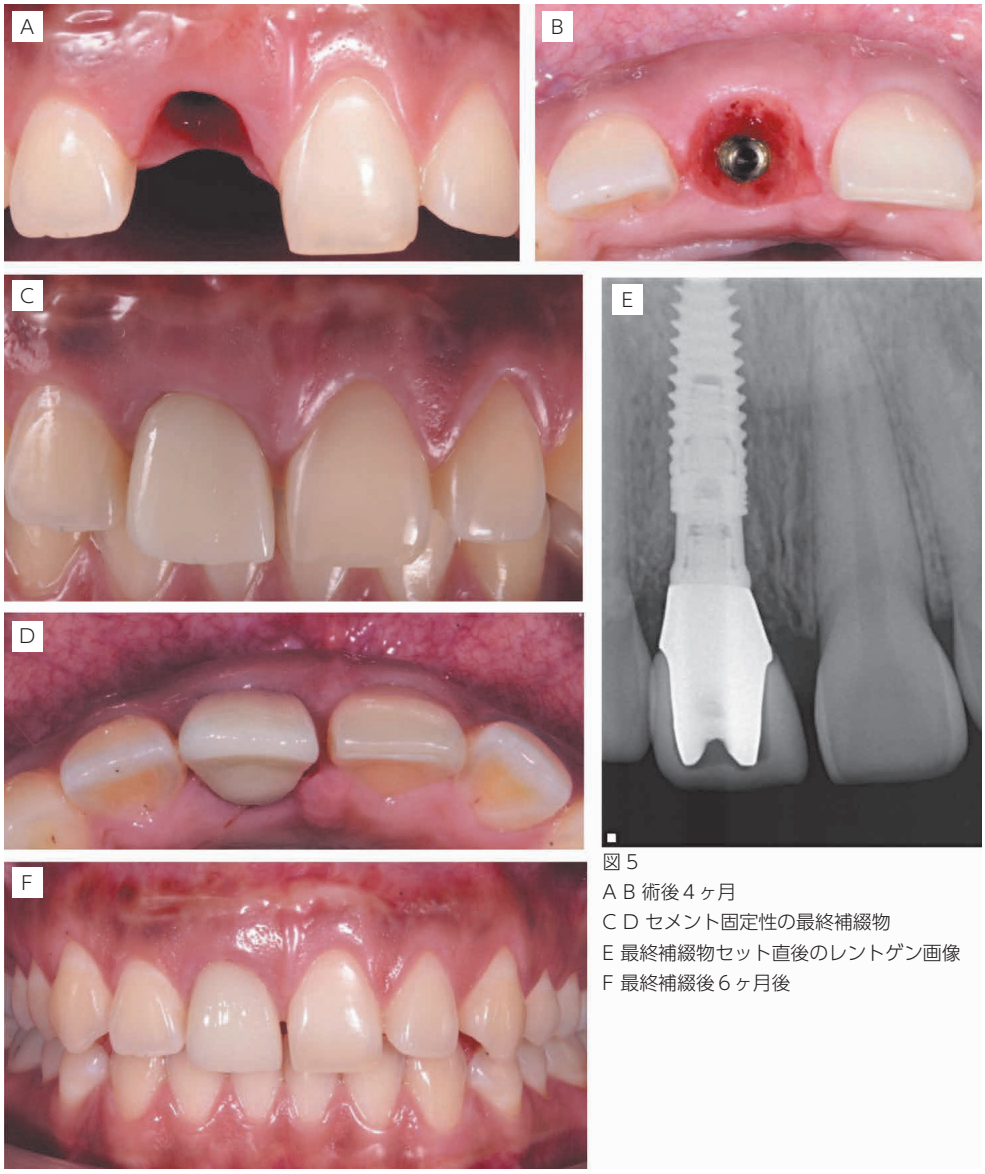

図５
Ａ Ｂ 術後４ヶ月
Ｃ Ｄ セメント固定性の最終補綴物
Ｅ 最終補綴物セット直後のレントゲン画像
Ｆ 最終補綴後６ヶ月後

Ⅲ 考察

抜歯は歯周組織内の異性化変化を引き起こし，インプラント埋入に必要な硬組織の高径と幅径の減少につながる．[16,18–20] また，患者にとっては機能的，審美的問題が生じる．[17] 組織の吸収の程度は歯周組織の表現型に直接依存し，頬側骨の厚みが 1mm 未満という薄い骨の場合，高径と幅径の両方において組織の吸収が最も進行する．[18–20] 抜歯とインプラント即時埋入を行う場合，これらの異性化変化を防ぐことはできないが，インプラント周囲の残存骨への新たな骨増生への足場として作用するバイオマテリアルによって補うことができる．[4,21–23] インプラント即時埋入の成功率は従来型のインプラント埋入と比較して同程度だが，即時埋入の症例では，解剖学的要因（表現型，歯周病変の有無，利用可能な組織），外科的要因（外科手技，骨補填材の使用，結合組織），補綴的要因（即時プロビジョナル，補綴材料の種類）が短期的なゴール，さらに長期的なゴールとしての大きな役割を果たす．[14,23] 「デュアルゾーン」コンセプトは，Elian らによるタイプⅠソケットを維持するための 3 つの基本原則に対応し，インプラント治療部位に存在する歯周組織を最大限に保存することを主な目的とする．[14,23–25] この 3 つの原則は，極めて低侵襲な抜歯，粘膜骨膜弁の挙上なしに軟組織と硬組織に生体材料を用いて適切な三次元位置にインプラントを埋入すること，[26] そして，骨移植材を保持するために固定性のプロビジョナルを使用することと定義されている．この症例報告は，吸収率や炎症反応の低い生体材料であるゼノグラフトの使用 [22,26]，コニカルコネクションインプラントと MIS CONNECT transucosal abutment の使用，[27–29] 審美性の高い不活性補綴物の選択 [30] など，インプラント治療の成功とインプラント周囲組織の維持のためにこれまでに文献で述べられている重要な概念も長期的に考察された．外科的手法の選択は，複数の要因に左右されることを知ることは重要である．その中でも，初期診断が治療の予知性を決める重要な鍵となる．診断は，詳細な臨床診査および X 線による評価，組織欠損の病因，全身状態，患者協力度，および患者の審美的要求などに基づいて行われる必要がある．

Ⅳ 結論

審美領域におけるインプラント治療は非常に複雑であり，個々の症例に対して適切な治療計画を選択するためには十分な診査が必要である．「デュアルゾーン」の概念は，インプラント即時埋入において，インプラント周囲組織の本来の形を維持することを目的とした考えから成り立っているが，それは，Elian's type 1 socket のように，抜歯する歯の歯周組織が軟組織，硬組織ともに存在する限られた症例に限定されるべきである．インプラント体と唇側骨との空隙であるジャンピングディスタンスや付着歯肉が得られないとき，また複合的に組織の欠損を伴う症例では，インプラント埋入前に組織の欠損を補う別のタイプの外科的アプローチが必要である．

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Case Report

Colocación inmediata de implantes en el área estética, consideraciones quirúrgicas y restaurativas

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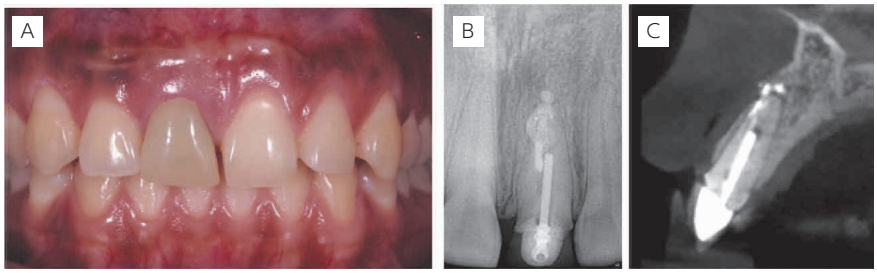
I. Introducción

El sector estético representa un reto para el tratamiento rehabilitador sobre implantes dentales, debido a la alta incidencia de defectos de tejido blando y tejido óseo que hacen mandatorio el abordaje del tratamiento multidisciplinario con un equipo de clínicos cuyo curso de trabajo esté regido por un diagnóstico preciso y plan de tratamiento en etapas, quirúrgicas y restauradoras.[1-3] Está bien descrito en la literatura que el punto de partida para resultados predecibles y exitosos es el diagnóstico inicial del problema que se quiere restaurar, por tanto, conocer la etiología del defecto a rehabilitar es imperativo para alcanzar los objetivos planificados en cada caso en particular. La documentación actual ofrece varias clasificaciones de defectos de acuerdo con la presencia de piezas dentales cuyo estado periodontal, endodóntico y/o protésico es no tratable,[4-7] como la descrita por Elian et al,[8] y Kan et al,[9] y también se detallan clasificaciones de crestas óseas residuales cuya complejidad de tratamiento recae en el grado de pérdida de tejido óseo o blando presente.[10-12] Generalmente las piezas dentales que deben ser reemplazadas en este sector presentan un nivel de complejidad alto en diferentes niveles, que pueden ser categorizados como factores de riesgo, Levine, et al.[13] Determinaron que la primera clave del éxito para la colocación de implantes inmediatos en el área estética es la evaluación de riesgo estética de cada paciente, y es este análisis el que determinará la técnica quirúrgica, selección de materiales de regeneración, diseño, tipo y naturaleza de la restauración final. En este reporte de caso se presenta el protocolo utilizado para la rehabilitación protésica sobre un implante colocado de forma inmediata luego de extracción de una pieza con pronóstico no tratable en el sector anterior utilizando la técnica quirúrgica “dual zone therapeutic concept” descrita por Chu et al.[14]

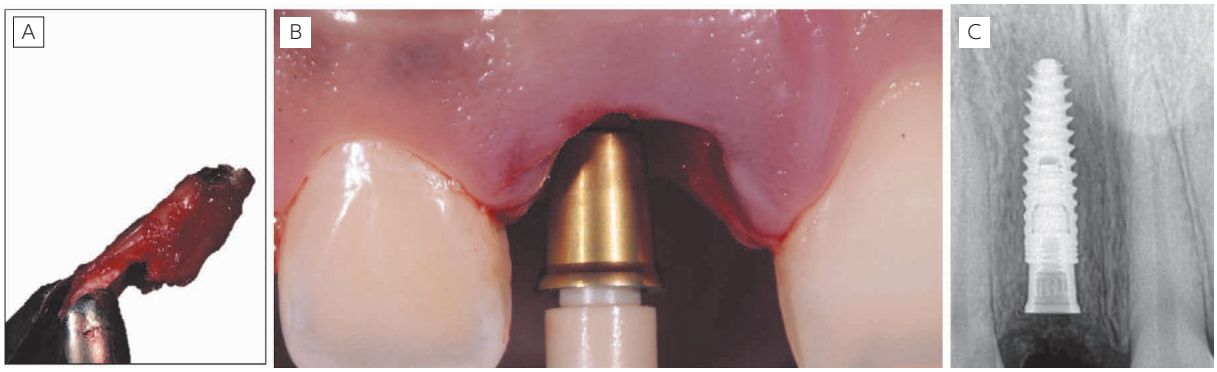
II. Reporte de Caso

Paciente femenina de 22 años, sistémicamente sana sin historia de enfermedad periodontal, se presentó a la clínica de Implantología Avanzada de la facultad de odontología, Universidad Francisco Marroquín, con motivo de consulta de dolor en la pieza 8. A la evaluación clínica se evidenció cambio en la coloración de la corona provisional presente en dicha pieza, dolor a la palpación, sin exudado hemorrágico, a la remoción de la corona provisional se observó caries a nivel cervical con la presencia de una reconstrucción de muñón sostenida por un poste prefabricado. A la evaluación radiográfica se apreció un tratamiento de conductos radiculares deficiente con historia de apicectomía. Se hizo la interconsulta con el departamento de Endodoncia para evaluar la posibilidad de realizar una nueva cirugía periapical, con el departamento de Periodoncia y Restaurativa para evaluar la posibilidad de hacer una cirugía de alargamiento coronario funcional, sin embargo, debido a la proporción corono-radicular desfavorable, presencia de caries cervical y presencia de tratamientos endodónticos previos fallidos se concluyó que la mejor opción protésica era la extracción y colocación inmediata de implante en dicha área (Fig. 1).



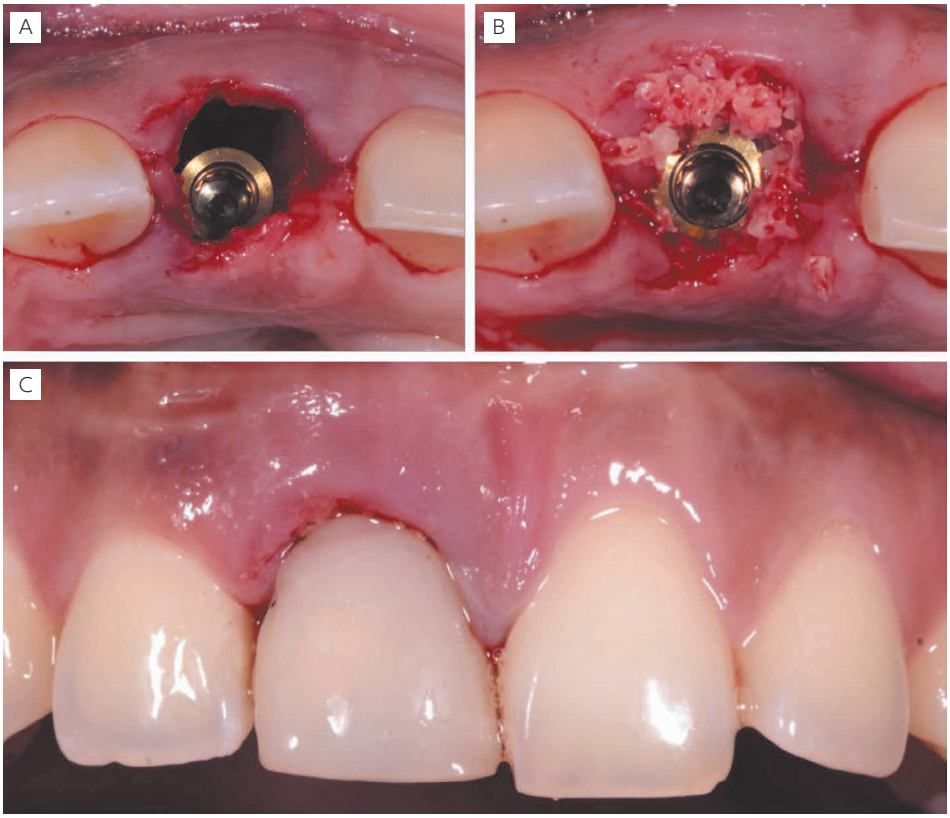
(Fig. 1) A. Pieza 8 con corona provisional deficiente. B. Tratamiento de conductos radiculares deficiente. C. Alveolo tipo 1 según Elian et al,[8] tipo 1 Kan et al.[9]

Se realizó exodoncia mínimamente traumática del diente 8 con periotomos, curetaje y desinfección del alvéolo, posteriormente se comprobó la integridad de la tabla ósea bucal y distancia entre margen gingival libre y placa bucal de 3 mm con sonda periodontal para proceder a la inmediata colocación del implante. Se colocó un implante de conexión cónica MIS C1 de 3,75×11,5mm con un torque de inserción de 45 Ncm. Además, se utilizó un pilar transmucoso MIS CONNECT de 4 mm con un torque de inserción de 30 Ncm para alejar la interfaz implante-pilar protésico de la cresta ósea marginal(Fig. 2).



(Fig. 2) A. Extracción mínimamente traumática B. Colocación de implante inmediato y aditamento transmucoso MIS CONNECT. C. Posición del implante final.

El implante se colocó en posición palatal respecto a las coronas clínicas de las piezas adyacentes, siguiendo el concepto de “dual zone” se realizó injerto óseo en el gap bucal entre implante y pared ósea bucal con xenoinjerto de partícula media hidratado en solución salina (Bonefill® Dense [0,10 - 0,60mm] (Fine) 0,50 g · 0,50 cc. Bionnovation Biomedical, Bauru, Brasil.). Inmediatamente se realizó el provisional fijo sobre un pilar temporal PEEK sin contacto oclusal(Fig. 3).

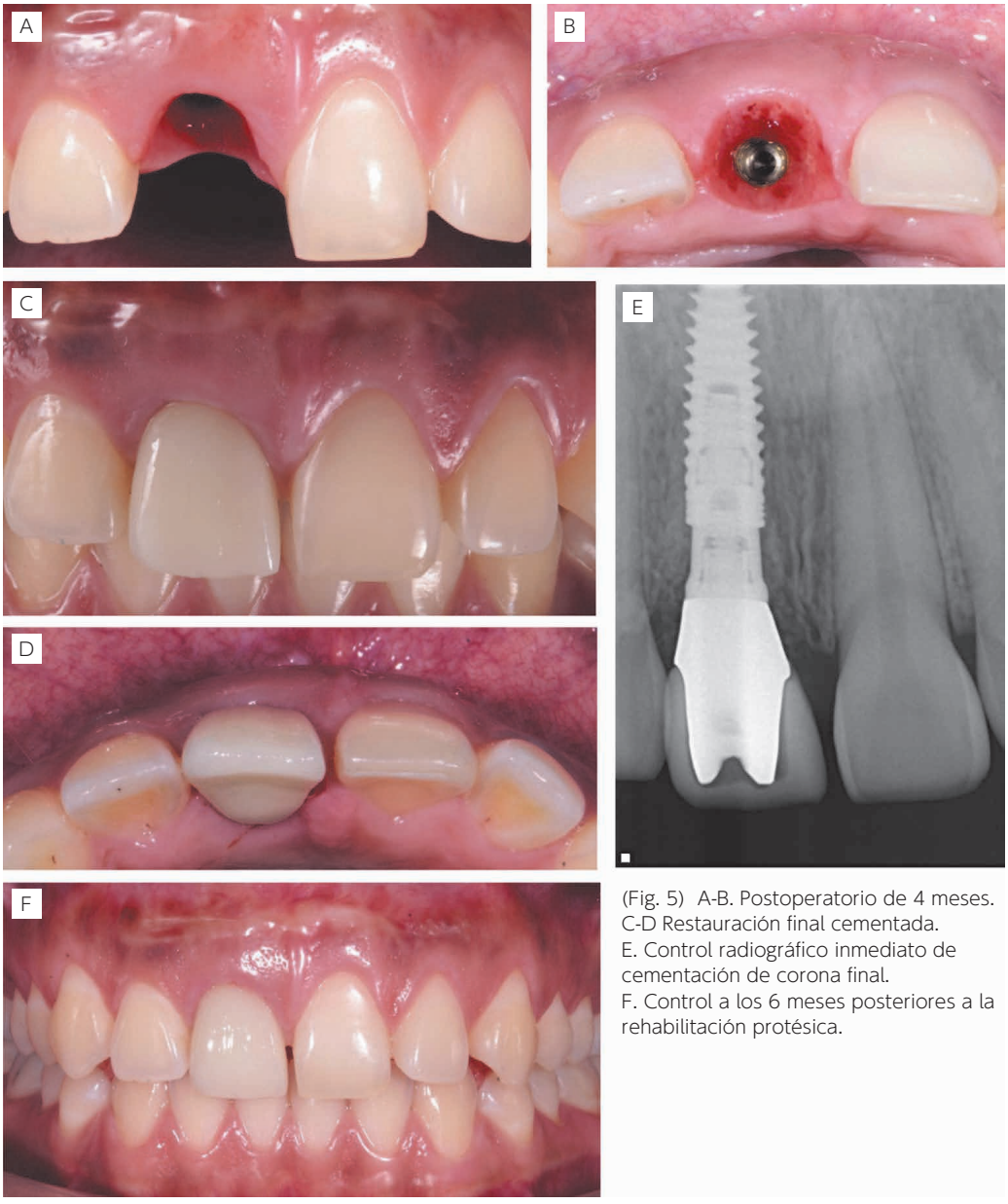


(Fig. 3) A. Implante colocado en posición palatal. B. Xenoinjerto colocado en gap bucal de tejido óseo y tejido blando C. Corona provisional atornillada sin contacto oclusal.

Los cuidados postoperatorios incluyeron terapia antibiótica con Amoxicilina de 500mg. cada 8 horas por 7 días. Antiinflamatorios orales Dexketoprofeno de 25mg. Cada 8 horas por 5 días. Enjuagues con Gluconato de Clorhexidina al 0.12% 3 veces al día por 15 días. Recomendaciones sobre higiene oral en el área quirúrgica y comidas blandas. Se realizó un control postoperatorio a la primera semana, 15 días y al cabo de 4 meses se procedió a la etapa rehabilitadora(Fig. 4).

(Fig. 4) A. Situación postoperatoria a 1 semana. B. Corte tomográfico postoperatorio de 1 semana

Debido a la inclinación bucal del implante se decidió realizar una corona cementada utilizando un pilar protésico personalizado de zirconia. La corona definitiva se realizó de disilicato de litio EMAX (Ivoclar Vivadent AG, Liechtenstein), la cual fue cementada bajo el protocolo de cementación descrito por Seo & Seo.[15] Se realizó un seguimiento a los 6 meses para corroborar la integridad de los tejidos periimplantarios y satisfacción de la paciente(Fig. 5).



(Fig. 5) A-B. Postoperatorio de 4 meses.
C-D Restauración final cementada.
E. Control radiográfico inmediato de cementación de corona final.
F. Control a los 6 meses posteriores a la rehabilitación protésica.

III. Discusión

La extracción de piezas dentales desencadena un proceso de cambios catabólicos dentro de los tejidos periodontales, dando como resultado disminución en la altura y grosor del tejido óseo disponible para la colocación de implantes dentales,[16] así como problemas funcionales y estéticos para el paciente.[17] El grado de reabsorción de los tejidos depende directamente del fenotipo periodontal, siendo fenotipos óseos finos, menores a 1 mm de grosor en tabla bucal, los más afectados en cuanto a pérdida progresiva de tejido tanto en altura como en grosor.[18-20] Al realizar una extracción y colocación inmediata del implante, estos cambios catabólicos no son anulados, pero pueden ser modificados mediante biomateriales que actúen como andamio para la formación ósea en la interfase implante cresta residual.[4, 21-23] La tasa de éxito de los implantes inmediates en comparación con los implantes colocados de manera convencional es similar, sin embargo en los primeros, los factores anatómicos presentes (tipo de fenotipo, presencia de patología periapical, tejido disponible), factores quirúrgicos (técnica quirúrgica, uso de injertos óseos, tejido conectivo) y factores protésicos (Provisionalización inmediata, tipo de material restaurador) juegan un papel clave para conseguir los objetivos del tratamiento a corto plazo, y más importante, a largo plazo.[14, 23] El concepto "dual zone" aborda tres principios fundamentales para manejar alveolos tipo I según Elian et al., con el objetivo principal de minimizar y preservar la mayor cantidad de arquitectura periodontal existente en el sitio de tratamiento sobre implantes dentales.[14, 23-25] Estos principios se definen como extracción mínimamente traumática de la pieza dental, colocación del implante sin elevación de colgajo mucoperióstico, en una ubicación tridimensional adecuada con uso de biomateriales en ambas zonas, de tejido blando y tejido óseo,[26] y utilización de provisional fijo como dispositivo de sellado para contener el injerto óseo en su lugar. Este reporte caso fue realizado bajo los lineamientos de este concepto de dos zonas importantes de cambios dimensionales, así también se tomaron en cuenta conceptos importantes que se han descrito en la literatura con anterioridad para el éxito de la terapia sobre implantes dentales y mantenimiento de tejidos periimplantarios a largo plazo, como el uso de xenoinjerto como biomaterial de baja tasa de reabsorción y respuesta inflamatoria,[22, 26] el empleo de conexión cónica y aditamento transmucoso MIS CONNECT para trasladar la interfase plataforma-pilar protésico de la cresta ósea marginal,[27-29] y la selección de materiales restauradores inertes altamente estéticos.[30] Es importante recalcar que la decisión de emplear una técnica quirúrgica depende de varios factores, de los cuales el diagnóstico inicial es clave para la predictibilidad del tratamiento. Dicho diagnóstico debe ser basado en la evaluación clínica y radiográfica detallada, etiología del defecto, estado sistémico, colaboración y requerimientos estéticos del paciente.

IV. Conclusión

La rehabilitación sobre implantes en el área estética es un reto muy complejo que requiere el análisis adecuado para seleccionar el plan de tratamiento ideal en cada caso específico. El concepto quirúrgico "dual zone" integra muy bien los conceptos de minimizar y mantener la arquitectura original del tejido periimplantario en implantes colocados de forma inmediata, sin embargo, la utilización de esta técnica debe reservarse para casos específicos en donde los tejidos periodontales del diente a extraer se encuentran presentes en posición, proporción y calidad, como en alveolos tipo 1 de Elian et al. En casos donde la ausencia de estructuras como la tabla bucal, ausencia de tejido queratinizado en altura o grosor, y en casos de defectos combinados es necesario considerar otro tipo de abordaje quirúrgico que permita el restablecimiento de los tejidos ausentes previo a la colocación del implante.

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