

Quintessentials
口腔临床要点快速掌握系列

· 中英文对照 ·

12

美容口腔医学

Aesthetic Dentistry

- David Bartlett [编 著]
Paul A Brunton
- 王 革 梁珊珊 [主 译]

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内容提要

“口腔临床要点快速掌握系列”是国际著名的 Quintessence 出版集团近期出版的介绍口腔各科基本技术和最新医学理论的专业丛书。该丛书自 2002 年起陆续出版发行，我社第一时间引进，以便国内读者同步了解国际口腔技术发展的新情况。《美容口腔医学》由国际知名口腔医学专家编写，摆脱了一般专著的照本宣科，一切从临床实践出发，通过大量实例，讲解了美容牙科学基本理论方法，详细介绍了漂白、微打磨、瓷贴面和复合树脂薄层技术，临床医师与技工室如何协作，以及对美学缺陷和问题的处理。本书采用了中英对照的编排方式，对提高读者的专业英语水平大有裨益。本书适合临床口腔科医师、技师和口腔医学生阅读。

序

近年来,美容口腔医学在现代临床实践中呈现出持续而迅猛发展的态势。如今患者对牙齿美观的高度重视已成为牙科常规治疗的重要目标之一。然而,实现该目标无疑是具有挑战性的。为了能够通过适当的方式成功处理不美观的牙齿,并能够经受口腔环境的严格考验,使患者拥有满意的微笑,要求我们必须具备传统与现代牙科艺术与科学的双重技巧,掌握影响个体牙齿外观与整体牙齿外观的各种因素的相关知识理念。这是一个复杂的课题,“口腔临床要点快速掌握系列”丛书在这方面进行了完美补充。

与丛书中的其他书一样,美容牙科学重点阐述了该主题的重要性,采用大量优质的图片分类说明贯穿全文,用以强调原则、要点、关键技术以及常见错误。现在,美容牙科学的重要性已经在临床实践中得到了公认,临床操作已不再局限于3R原则[修补、去除、替换(repair, removal and replacement)]。本书涉及了日常牙科诊疗的基础知识和指导原则。

如同许多牙科临床工作一样,良好的治疗效果源于医患之间的互相信任和理解、有效的沟通、前沿的知识、谨慎的治疗计划、精确的治疗操作。美容口腔医学并不容易掌握,有相当高的要求。本书提供了一种有效的工具,帮助我们达到这一目的。对于那些为希望改善牙齿外观患者服务的牙科医生和医学生来说,这本书的确是物有所值。

主 编 **Nairn Wilson**

前言

本书的目标并不是要成为美容口腔医学领域的权威教科书。在该领域已经有数本集大成的著作。本书以对照的形式，设计成一本成功治疗的备忘录，它为临床医师提供了一些操作技巧和提示，以提高他们日常的口腔美容操作技术，同时也介绍了一些基础理论。除了从美容学角度探讨以外，本书不详细讲述任何一种间接修复体。这方面内容读者可以参考一些详细介绍间接修复体的专业书籍。此外，本书的附录列举了一些作者认为有用的材料和设备。

通过阅读本书，读者可以：

- 理解微笑的组成和变化
- 搞清楚色彩理论以及它是如何影响比色和颜色的传递的
- 合理选择活髓和死髓的漂白病例
- 考虑采用微打磨技术去除牙面不美观的缺陷
- 用树脂进行成功的前牙贴面修复
- 提供成功的瓷贴面修复
- 了解技术因素、技工室因素以及牙周因素如何对美观产生影响
- 尽量减小对美观的损害
- 解决常见的美学难题

David Bartlett
Paul A Brunton

致 谢

作者对 David Ricketts 医生对全书的审读以及提出的反馈意见表示感谢，同时感谢 Selina Priestley 小姐审读了本书第 2 章。

此外，以下一些同仁慷慨地提供了许多图片，使得本书得以出版：Leean Morrow 小姐提供了图 1-6，1-7 和 7-6；David Leedham 提供了图 2-7~2-9；Tim Horwood 提供了图 4-5，4-6，5-5 和 6-5；图 6-4，6-6 和 7-3 是得到 George Warman（英国）出版有限公司同意后从 Dental Update 上复制的。图 6-1 是征得 British Dental Journal 同意后复制的。

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第 1 章 微笑参数

Smile Dimensions

目 的

为了成功实施美容牙科学，很重要的一点是熟悉并牢记“理想微笑”的重要构成。所谓“理想微笑”是一个既包括以患者的治疗为基础，又包括对病人的个性化治疗意识的概念。本章的目的是使从业医师掌握“理想微笑”的参数及其构成。

要 点

通过阅读本章，从业医师将能够评价患者的个性化微笑中冠和其他修复体的外形及其相互关系。

引 言

牙科美学可以从两个水平来看待：一个是会话水平，一个是牙齿水平。会话水平考虑的是在牙齿整个面部中的排列情况以及微笑时牙齿的排

Aim

To practise successful aesthetic dentistry it is important to be familiar with the essential components of an “ideal” smile—remembering of course that the “ideal” smile is a concept around which all patient treatment is based and that every patient requires an individual approach. The aim of this chapter is to acquaint practitioners with the dimensions and components of an “ideal” smile.

Outcome

On reading this chapter practitioners will be able to assess the shape and inter-relationship of crowns and restorations within the framework of a patient’s individual smile.

Introduction

Aesthetics can be viewed at two levels—the conversational and tooth levels. The conversational level considers the arrangement of teeth within the framework of a

列情况；牙齿水平则要考虑通过美学处理使牙齿看起来逼真的每个细节。牙齿做得逼真很重要，但合适的牙齿结构比例也同样重要。为了达到这种效果，从业医师必须熟悉与微笑有关的各种因素，包括：

- 牙齿大小
- 黄金比例
- 牙龈位置
- 黑三角
- 唇线
- 牙龈组织遮盖
- 医学道德问题

牙齿大小

上颌切牙的平均宽度一般是其长度的75%，否则会影响美观（图1-1）。但对牙齿外形的感觉却因人而异。例如，有的人牙齿狭窄并有间隙，但他们本人可能很满意。但是，假如患者发现牙齿的外观难以接受，并计划用新的牙冠改变上切牙时，就有必要考虑用此规则（牙冠宽为冠长的75%）来计算牙齿的宽度。在改变牙齿的宽度和长度之前，必须使用诊断蜡型来评估所提出的牙齿改形方案。如有必要，在进行最终的治疗之前，还可以用复合树脂直接修复术，以对该牙的最终外形进行短期或中期的评估（图1-2）。由于目前复合树脂的修复效果美观，常

face and an individual's smile. The tooth level is the consideration of everything that makes a tooth look like a tooth. It is important that teeth should look like teeth, but equally it is important that teeth are appropriately framed. To do this effectively a practitioner must be familiar with the dimensions of a smile, to include consideration of the following:

- tooth size
- the golden proportion
- gingival position
- black triangles
- lip line
- masking gingival tissues
- moral issues.

Tooth Size

On average, the width of an upper incisor tooth is 75% of its length and where this is not the case the result is generally unaesthetic (Fig 1-1). The perception of tooth shape, however, is very personal. For instance, someone with narrow teeth and diastemas might be quite content with their appearance. But if the patient found the appearance unacceptable and new crowns were planned for the upper incisors, it may be worthwhile to consider using this rule (width based on 75% of length) to calculate tooth width. Before any changes to width and length are embarked upon, it is essential that a diagnostic wax-up is used



图 1-1 a. 长宽相等的牙冠不美观；b. (治疗后)用长宽比例合适的牙冠替代

Fig 1-1 (a) Unaesthetic crowns where the width and length of the crowns are equal. (b) Replacement crown of appropriate dimensions.



图 1-2 a. 酸蚀后用复合树脂减小年轻患者的牙间隙；b. 治疗后间隙减小

Fig 1-2 (a) Etch placed to reduce a diastema with resin composite in a young patient. (b) Post-treatment reduced diastema.

常使患者放弃最终的修复。

to assess the proposed changes to a patient's appearance. If necessary, directly placed resin composites can be used either for the short or medium term to assess the final appearance of the teeth before proceeding to the definitive treatment (Fig 1-2). The aesthetics of present-day resin composite often make the definitive stage of treatment unnecessary.

长宽比例会影响对间隙关闭的判

The width-to-length ratio influences the

断。如果宽度与长度的比例原本已经大于 75%，那么通过加宽牙齿来减小间隙可能会使牙齿外形显得更加难看。对于牙冠窄且容易加宽的牙齿来说，可以采用这种方法来关闭间隙，但是，对于牙冠宽大的牙齿，则需要考虑其他因素。在这种情况下牙冠下方的牙龈组织的位置就成为另一个重要的评估因素。

临床医师通常会将牙齿外形和性别联系起来。女性的牙齿可能较窄，而男性的较宽。这种划分一点也不精确，在设计桥支架或者间接修复体时，临床医师通常参考其他现存的牙齿来确定修复体的外形和轮廓。这里介绍几种技术小窍门，可以用来遮盖或模糊技工室制作的牙冠的角度。水平中线使牙冠看起来较短，而垂直线则可使加宽牙冠的邻面角变窄（图 1-3）。另外，如果间隙太宽，可以使用一个远离邻面的锐角，在视觉上产生牙冠变窄的假象（图 1-4）。

最重要的美学评判标准取决于患者。对颜色和外形的美感在某种程度上与年龄有关。年长者通常认为较大

judgement to close diastemas. If the ratio of the tooth is above 75% then widening the tooth further to reduce the space may produce an appearance that is unacceptable. The compromise and closure might be acceptable for a narrow tooth that could easily be widened, but for a broader tooth other factors may need to be considered. In such cases the location of the gingival tissues down the length of the crown is another assessment that is important.

Traditionally, some clinicians have linked tooth shape with gender. Narrower teeth may be found in females, broader ones in males. This demarcation is by no means accurate, and when bridgework or indirect restorations are planned clinicians normally have the advantage of other standing teeth to guide decisions on the shape and contour of the restoration. There are various technical tricks that can be adopted to hide or attenuate the angles of laboratory-made crowns. Mid-line horizontal lines appear to shorten the crown, while vertical ones nearer the proximal angles would broaden it (Fig 1-3). Additionally, if the space is too wide an illusion can be created by introducing sharp angles away from the proximal surface to make the crown appear narrower (Fig 1-4).

The most important criterion in making a judgement on aesthetics is the patient. The perceptions of colour and shape are some-

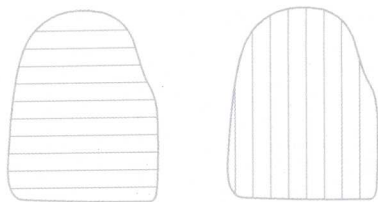


图 1-3 和垂直线相比，水平线使同样大小的牙齿的牙冠显得较短

Fig 1-3 Horizontal lines make the identical crown appear shorter than the crown with the vertical lines.

较亮的牙齿是年轻的标志。遗憾的是，越来越多的患者在比色时选择偏亮、偏白的颜色，甚至比 B1 颜色更浅。对于很多从业医师而言，这种颜色很不自然，但是，越来越多的患者希望或要求使用这一类颜色。如果选色是经过慎重考虑的，那么术前就应该经过充分的讨论，并且给患者一个明确的建议：什么颜色看起来可能更适合他们微笑的外观效果。

黄金比例

正常情况下，侧切牙比中切牙小，

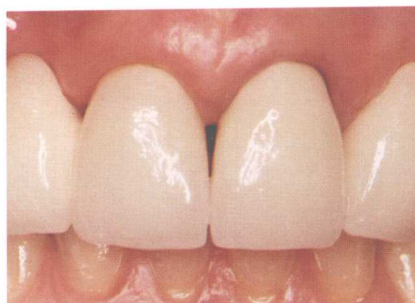


图 1-4 圆钝或平滑的接触区可以使牙冠变宽，而对于牙冠过宽的牙齿，使远离接触点的角更明显，也可产生牙冠变窄的假象
Fig 1-4 A rounded or smooth contact region can make the crown appear broader, but for one that is too broad making a more pronounced angle just away from the contact point creates the illusion of a narrower crown.

what age-related. Senior patients commonly perceive bigger and brighter teeth as indicative of youth. Unfortunately, there is an increasing trend to achieve brighter and whiter teeth producing shades that are lighter than B1. The result for many practitioners is too artificial, but increasingly patients expect and demand shades at this end of the spectrum. If such a shade is contemplated, considerable discussion should occur preoperatively and the patient should be given a clear idea what the shade is likely to look like within the parameters of their individual smile.

The Golden Proportion

Normally lateral incisors are smaller than

如果它们大小相差不多，这在美学上是不能接受的。采用黄金比例的概念来平衡尖牙、侧切牙和中切牙。黄金比例是公元前300年欧几里得提出的一个定律，现将其应用于牙科美学中。中切牙和侧切牙的黄金比例，侧切牙和尖牙的黄金比例已得到了充分证明（图1-5）。简单地说，中切牙的宽度是侧切牙的1.618倍。可以根据中切牙的宽度，利用网格图来确定患者微笑的宽度。认识比例关系的大小是十分重要的，例如，中切牙的宽度和侧切牙的宽度比是黄金比例，而且，中切牙和这两个牙齿宽度之和的比例同样是黄金比例。按照黄金比例设计的牙齿，其微笑的效果是令人满意的，这一点已经得到了一致的公认。

centrals, and if their comparative size starts to become equal the result can be aesthetically unacceptable. The golden proportion adopts this concept with a balance between the canines, laterals and central incisors. The golden proportion was formulated as one of Euclid's elements c. 300 BC and it applies to dental aesthetics. This is amply illustrated by the fact that the central incisors are in golden proportion to the lateral incisors, which in turn are in golden proportion to the canines (Fig 1-5). Put simply, the central incisor is 1.618 wider than the lateral incisor. It is possible using grids that are based on the width of the central incisor to determine the width of a patient's smile. It is important to recognise that the proportion of the smaller to the greater — for example, the width of the central incisor in relation to the width of the lateral incisor — is golden but so also is the width of the central incisor in relation to the com-



图 1-5 符合黄金比例的牙齿

Fig 1-5 Teeth in golden proportion.

患者微笑的宽度和面部其余部分应符合黄金比例。微笑时前牙美学区由嘴唇及牙齿和嘴角之间的间隙构成,这个中性间隙区总是被外形过大的牙齿或做得过宽的牙弓充满。如果失去了这个中性间隙区,微笑就很不美观。理想的状态是前牙美学区的宽度和微笑的宽度符合黄金比例,且前牙的中线和面部中线一致。

牙龈的位置

健康的上颌侧切牙的牙龈位置比中切牙和尖牙更接靠近殆平面一些。不管是在天然情况下,还是在牙齿磨损以后牙槽骨代偿作用下,这个位置都可能发生改变,导致侧切牙的牙龈高度和中切牙的高度一样。牙齿未磨损时牙龈的梯度外形给人以自然和愉悦的感觉,并且可以使上颌中切牙显得比较突出,产生较好的美学效果(图1-6)。尽管通过冠延长术以形成牙龈的梯度外观的方式是存在疑问的,但是,如果冠延长术是磨损牙治疗计划的一部分,那么将牙龈位置形成梯度

bined widths of the two teeth. It is accepted that when teeth are set up so that the proportion is golden within the confines of the smile it is aesthetically pleasing.

The width of a patient's smile is in golden proportion to the rest of the face. Upon smiling the anterior aesthetic segment is framed by the lips and there is space between the teeth and the corners of the mouth. This neutral space is all too often filled with over-contoured teeth or dental arches that have been made too wide. If this neutral space is lost the smile is not aesthetically pleasing. The width of the anterior aesthetic segment is in golden proportion to the width of the smile, ideally with the midline coincidental with the midline of the face.

Gingival Position

The gingival position on the upper lateral incisors in a healthy state is closer to the occlusal plane than on the central incisors and canines. Either naturally, or as a result of tooth wear and dentoalveolar compensation, this position may alter and result in the lateral incisors having a similar height to the incisors. The unworn step effect produces a natural and pleasing appearance and can accentuate the dominance of the upper central incisors, providing an acceptable aesthetic result (Fig 1-6). Whether it is acceptable to undertake crown

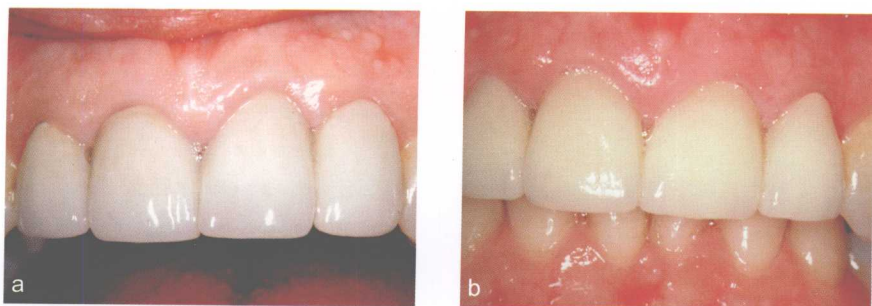


图 1-6 a. 牙龈高度不一致使牙冠不美观，牙齿之间的比例不正确；b. 冠延长术后为患者做新的牙冠

Fig 1-6 (a) Unaesthetic crowns with unequal gingival heights and teeth in incorrect proportion to each other. (b) New crowns provided for the patient after crown lengthening surgery.

外观则是值得考虑的。

龈缘的位置要对称。如果患者唇线较低，单侧牙龈退缩可能不会产生临床问题。但是，对于某些唇线高的患者，牙龈高度的不一致就会影响前牙的外观（图 1-7）。但是，以调整牙龈的位置为目的的手术内容不在本书范畴之内，读者可参考牙周病学专业的教材。然而，这个问题应该在制定治疗计划阶段就进行考虑，适当的时候可以向牙周病学专家求助。

lengthening surgery to produce this step height appearance is doubtful but if, for instance, surgery was planned as part of the treatment for tooth wear, placing this step in the gingival position is worth considering.

The location of the gingival margin needs to be symmetrical. Unilateral gingival recession may not create a clinical problem if the patient has a low lip line. But in someone with a high lip line, unequal gingival contours may compromise the appearance of the anterior teeth (Fig 1-7). Surgical procedures aimed at adjusting the gingival position are, however, outside the remit of this book and readers are referred to a specialist textbook in periodontics. This problem, however, should be considered at the treatment-planning stage and help sought from a periodontist, if appropriate.

避免牙周问题的关键措施也许就是控制牙体预备中龈缘的位置。将龈缘放在过于龈下的位置将会导致慢性牙周问题。特别是对易患牙周病的患者,很可能导致牙龈退缩,进而使原本位于龈沟内的边缘暴露出来(图1-8)。最常受其影响的牙体预备区域是牙间区。牙间的牙龈乳头被切割是相当常见的现象,这样做可能易于取模,但可能造成唇侧龈缘的不稳定。如果患者属牙周病的易感人群,则必将引起牙间区局部的牙龈退缩,进而导致唇侧龈缘不稳定,并使牙龈的位置迅速改变。所以,最合适的龈缘位置恰恰是在龈沟内,既满足隐藏边缘的要求又不引起牙龈炎症。在设计牙体预备的边缘位置时,应记住仅仅有33%的人群在微笑时显露牙体龈方1/3部分(图1-9)。预备体边缘近牙龈的设计适合这类人群。

Perhaps the most avoidable periodontal problem is where the gingival margin of the preparation is placed. Placing preparation margins too subgingivally will result in a long-term periodontal problem. This is especially the case if the patient is susceptible to periodontal disease, as this might well result in gingival recession, thereby exposing margins that had previously been placed within the gingival crevice (Fig 1-8). One area of the preparation most commonly affected by this is the interdental region. Cutting through the interdental papilla is quite common and, while this may not make the impression-taking too difficult, it might result in the labial gingival margin becoming unstable. If the patient is susceptible to periodontal disease then this will cause localised recession in the interdental area, but unfortunately this



图 1-7 牙龈形态不一致

Fig 1-7 Unequal gingival contours.



图 1-8 根面平整术后牙龈退缩, 露出牙冠龈下不适合的边缘

Fig 1-8 Recession post root planing, showing ill-fitting crowns placed with