Practical Procedures in Aesthetic Dentistry
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Contents

List of Contributors ix
Foreword xi
Preface xiii
Acknowledgements xv
About the Companion Website xvii

1 Ethics
1.1 Ethics in Aesthetic Dentistry 3
Russ Ladwa

2 Patient Assessment
2.1 Patient History and Examination 9
Subir Banerji and Shamir B. Mehta
2.2 Clinical Photography (Video) 13
Christopher C.K. Ho
2.3 Evaluation of the Aesthetic Zone (Video) 18
Subir Banerji and Shamir B. Mehta
2.4 Clinical Smile Evaluation (Video) 22
Subir Banerji and Shamir B. Mehta
2.5 Digital Smile Evaluation (Video) 27
Andrea Shepperson
2.6 Principles of Shade Selection (Video) 34
Christopher C.K. Ho
2.7 Treatment Planning for Aesthetic Dentistry (Video) 39
Subir Banerji and Shamir B. Mehta

3 Clinical Occlusion
3.1 Clinical Occlusion: Assessment 47
Subir Banerji and Shamir B. Mehta
3.2 Facebows: The Facebow Recording (Video) 51
Subir Banerji and Shamir B. Mehta
3.3 Intra-occlusal Records (Video) 55
Subir Banerji and Shamir B. Mehta
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4</td>
<td>Semi-adjustable Articulators (Video)</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Bill Sharpling</td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Functional Diagnostic Waxing Up</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Il Ki Ricky Lee</td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>Occlusal Stabilisation Splints (Video)</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>Periodontology in Relation to Aesthetic Practice</strong></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Clinical Assessment of Periodontal Tissues</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Jorge André Cardoso</td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>Crown Lengthening without Osseous Reduction: Gingivectomy and Lasers</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>(Video)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jorge André Cardoso</td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td>Crown Lengthening with Osseous Reduction (Video)</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Jorge André Cardoso</td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>Management of Gingival Recession and Graft Harvesting (Video)</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Jorge André Cardoso</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td><strong>Direct Aesthetic Restorations</strong></td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>Adhesive Dentistry</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Teeth Isolation (Video)</td>
<td>113</td>
</tr>
<tr>
<td></td>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>5.3</td>
<td>Cavity Preparation</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>5.4</td>
<td>Anterior Restorations (Video)</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td>Posterior Restorations (Video)</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>5.6</td>
<td>The Finishing and Polishing of Resin Composite Restorations (Video)</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>5.7</td>
<td>Direct Resin Veneers (Video)</td>
<td>137</td>
</tr>
<tr>
<td></td>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>5.8</td>
<td>Repair and Refurbishment of Resin Composite Restorations (Video)</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td><strong>Indirect Aesthetic Restorations</strong></td>
<td></td>
</tr>
<tr>
<td>6.1</td>
<td>Tooth Preparation for Full Coverage Restorations (Video)</td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>Christopher C.K. Ho</td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td>Tooth Preparation for Partial Coverage Restorations</td>
<td>153</td>
</tr>
<tr>
<td></td>
<td>Christopher C.K. Ho</td>
<td></td>
</tr>
<tr>
<td>6.3</td>
<td>Provisionalisation</td>
<td>156</td>
</tr>
<tr>
<td></td>
<td>Christopher C.K. Ho</td>
<td></td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>6.4</td>
<td>Impressions and Soft Tissue Management</td>
<td>161</td>
</tr>
<tr>
<td>Tom Giblin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.5</td>
<td>Aesthetic Post and Cores</td>
<td>167</td>
</tr>
<tr>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.6</td>
<td>Appraisal and Cementation</td>
<td>172</td>
</tr>
<tr>
<td>Christopher C.K. Ho</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.7</td>
<td>Adhesive Bridges</td>
<td>178</td>
</tr>
<tr>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.8</td>
<td>Fixed Partial Dentures</td>
<td>184</td>
</tr>
<tr>
<td>Tom Giblin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.9</td>
<td>The Role of CAD/CAM in Modern Dentistry (Video)</td>
<td>188</td>
</tr>
<tr>
<td>Charles A.E. Slade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.10</td>
<td>Ceramic Repair</td>
<td>194</td>
</tr>
<tr>
<td>Christopher C.K. Ho</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 7</th>
<th>Indirect Ceramic Veneer Restorations</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>Planning for Porcelain Laminate Veneers</td>
</tr>
<tr>
<td>Christopher C.K. Ho</td>
<td></td>
</tr>
<tr>
<td>7.2</td>
<td>Tooth Preparation for Porcelain Laminate Veneers (Video)</td>
</tr>
<tr>
<td>Christopher C.K. Ho</td>
<td></td>
</tr>
<tr>
<td>7.3</td>
<td>Provisionalisation for Porcelain Laminate Veneers (Video)</td>
</tr>
<tr>
<td>Christopher C.K. Ho</td>
<td></td>
</tr>
<tr>
<td>7.4</td>
<td>Appraisal and Cementation of Porcelain Laminate Veneers (Video)</td>
</tr>
<tr>
<td>Christopher C.K. Ho</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 8</th>
<th>Partial Removable Prosthodontics</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Aesthetic Removable Dental Prosthetics (Video)</td>
</tr>
<tr>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 9</th>
<th>Aesthetic Management of Tooth Wear</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>Aesthetic Management of Tooth Wear: Current Concepts</td>
</tr>
<tr>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>9.2</td>
<td>The Direct Canine Rise Restoration (Video)</td>
</tr>
<tr>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>9.3</td>
<td>Anterior Freehand Direct Restoration (Video)</td>
</tr>
<tr>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>9.4</td>
<td>Maxillary Anterior Direct Build-up with Indices (Video)</td>
</tr>
<tr>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>9.5</td>
<td>Mandibular Anterior Direct Build-up: Injection Moulding Technique (Video)</td>
</tr>
<tr>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
<tr>
<td>9.6</td>
<td>Management of the Posterior Worn Dentition</td>
</tr>
<tr>
<td>Subir Banerji and Shamir B. Mehta</td>
<td></td>
</tr>
</tbody>
</table>
9.7 Evaluation and Management of the Occlusal Vertical Dimension: Generalised Tooth Wear (Video) 274
Subir Banerji and Shamir B. Mehta

10 Tooth Whitening
10.1 Assessment of the Discoloured Tooth (Video) 283
Kyle D. Hogg
10.2 Vital Bleaching (Video) 289
Kyle D. Hogg
10.3 Non-vital Bleaching (Video) 294
Kyle D. Hogg

11 Implants in the Aesthetic Zone
11.1 Pre-operative Evaluation (Video) 301
Kyle D. Hogg
11.2 Abutment Selection 308
Christopher C.K. Ho
11.3 Impression Taking in Implant Dentistry (Video) 314
Christopher C.K. Ho
11.4 Screw versus Cemented Implant-Supported Restorations 320
Christopher C.K. Ho
11.5 Implant Provisionalisation (Video) 327
Kyle D. Hogg
11.6 Pink Aesthetics 333
Brian Chee
11.7 Implant Maintenance and Review (Video) 341
Kyle D. Hogg

Index 347
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Foreword

Dr Banerji is to be congratulated for assembling such an impressive, international array of co-authors, all of whom I know to be highly talented clinicians and teachers. Collectively, they bring together a wealth of clinical experience and knowledge.

This very practical work is clearly aimed at the senior dental undergraduate/newly qualified dental practitioner, but will also prove of value to more experienced clinicians. The ambition of the authors, set out in the Preface, is to supplement established standard textbooks and the many hands-on courses available to us. The combination in each chapter of concise text, practical clinical tips, high-quality illustrations, and particularly the many hours of ‘live’ video that accompany a majority of the chapters, ensures that this ambition will be achieved. A companion website is also available to complement this work.

The inclusion of high-quality ‘live’ video is a major strength and a huge advance on the static illustrations in most standard textbooks. Several of the videos show actual clinical procedures from start to finish and, along with narrated presentations from the authors, allow a level of understanding that cannot be achieved using static images alone. Their extensive clinical experience has also enabled the authors to compile a whole series of extremely helpful clinical tips. Every reader will find something to adopt here to enhance their own clinical practice.

Even today, there probably remains, in the minds of some people, a stigma associated with the terms ‘aesthetic’ or ‘cosmetic’ when applied to healthcare. The inclusion of a chapter on ‘Ethics’ is, therefore, entirely appropriate. It should also be noted that many of the procedures described are additive or minimally invasive, and fully accord with the principles of best practice.

This work covers a comprehensive range of aesthetic clinical procedures and will be a very useful addition to every library. For many clinicians, it will be a ‘must have’ book!

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Clinical Director, Genix Healthcare Ltd
Specialist in Restorative Dentistry
President of the European Federation of Conservative Dentistry
Preface

With changing trends associated with increased patient demands (often perpetuated by a growing wealth of ready-access, media-based and online digital information), it has become increasingly apparent that the attainment of a high-quality, predictable and desirable aesthetic treatment outcome has become an additional fundamental aim for the contemporary restorative practitioner. There is little doubt that the effective prevention, elimination and stabilisation of oral disease are essential prerequisites for successful oral rehabilitation.

Dental educators have responded to these needs by making available an array of resources, typically by means of traditional textual learning and hands-on courses. However, given the highly rapid pace of change and diverse developments in restorative dentistry, coupled with the current digital revolution (both in terms of information technology and social media), there is a need to deliver educational materials in a time-efficient, effective, user-friendly and economic manner – often at the ‘touch of a button’!

In this context, many online video presentations are widely available, for example on YouTube, which allow the dental practitioner to visualise procedures rather than simply imagining the stages between steps shown on photos supplemented by text. However, it is important that such resources meet quality assurance requirements and concomitantly boast authenticity.

I have come to realise the advantage of such assured dynamic-graphic content through my 20 years involved in educating undergraduate and postgraduate dental students as well as in my own clinical practice. In this unique publication I have been joined by an international team of highly experienced clinical educators who have, with their vast experience, put together material that aims to cover the principles and procedures for an array of clinical techniques, which we as experienced clinicians and educators strongly believe are integral to providing successful restorative dental treatment. In doing so, we have included a comprehensive range of aesthetic dental procedures commonly executed in everyday practice.

This learning resource comprises a combination of several hours of recorded video accompanied by an illustrated handbook summarising the key points, making available a source of information that we feel will help you to learn in a quick, meaningful and ‘bite-sized’ manner, and which we hope you will also find helpful and enjoyable.

While concise, this handbook is evidence based and includes references and suggestions for further reading. Additionally, it contains some relevant still photographs of crucial points in the procedures. The clinical images used throughout this resource have been taken from the contributing authors’ own dental practices and are from patients who have been treated by them.
Throughout this text, my co-authors and I have also tried to provide you with a number of useful, pragmatic clinical tips, which we feel may also help to tackle some of the minor (yet important) challenges that we as everyday practitioners encounter, but are seldom addressed.

The overall intention of this learning resource is to serve as a good accompaniment to traditional undergraduate and postgraduate learning materials, as well as to provide the general dental practitioner with a readily accessible form of relevant and appropriate information, combining the scientific and technical concepts in modern restorative dentistry.

This book is dedicated to those from whom we have learnt and to the many who continue on this journey.

Subir Banerji
Acknowledgements

Undertaking a project such as this is not possible without acknowledging the help and support of the many who have contributed towards its production, both directly and indirectly.

We would like to thank our families for their support and patience during this time when many hours were spent writing and recording the content for this unique enterprise. Our contributors have given generously and selflessly.

We would also like to extend our warm thanks to our patients who have given their permission and consent, enabling the use of images and footage that allow us to illustrate the various techniques with a practical and pragmatic approach.

We would also like to acknowledge the support extended by the Wiley production team and the publishers to make this idea into a reality.

Subir Banerji, Shamir B. Mehta and Christopher C.K. Ho
About the Companion Website

*Practical Procedures in Aesthetic Dentistry* is accompanied by a companion website:

www.wiley.com/go/banerji/aestheticdentistry

The website includes the following videos, corresponding to their listed chapter number:

2.2 Clinical Photography
2.3 Evaluation of the Aesthetic Zone
2.4 Clinical Smile Evaluation
2.5 Digital Smile Evaluation
2.6 Principles of Shade Selection
2.7 Treatment Planning for Aesthetic Dentistry
3.2 The Facebow Recording
3.3 Intra-occlusal Records
3.4 Semi-adjustable Articulators
3.6 Occlusal Stabilisation Splints
4.2 Crown Lengthening without Osseous Reduction
4.3 Crown Lengthening with Osseous Reduction
4.4 Management of Gingival Recession and Graft Harvesting
5.2 Teeth Isolation
5.4 Anterior Restorations
5.5 Posterior Restorations
5.6 The Finishing and Polishing of Resin Composite Restorations
5.7 Direct Resin Veneers
5.8 Repair and Refurbishment of Resin Composite Restorations
6.1 Tooth Preparation for Full Coverage Restorations
6.9 The Role of CAD/CAM in Modern Dentistry
7.2 Tooth Preparation for Porcelain Laminate Veneers
7.3 Provisionalisation for Porcelain Laminate Veneers
7.4 Appraisal and Cementation of Porcelain Laminate Veneers
8.1 Aesthetic Removable Dental Prosthetics
9.2 The Direct Canine Rise Restoration
9.3 Anterior Freehand Direct Restoration
9.4 Maxillary Anterior Direct Build-up with Indices
9.5 Mandibular Anterior Direct Build-up: Injection Moulding Technique
9.7 Evaluation and Management of the Occlusal Vertical Dimension: Generalised Tooth Wear
10.1 Assessment of the Discoloured Tooth
10.2 Vital Bleaching
10.3 Non-vital Bleaching
11.1 Pre-operative Evaluation
11.3 Impression Taking in Implant Dentistry
11.5 Implant Provisionalisation
11.7 Implant Maintenance and Review
Part I

Ethics
1.1
Ethics in Aesthetic Dentistry

Russ Ladwa

Principles

Ethics could be considered to be a moral code, giving a set of principles to guide behaviour. All of us who belong to the healing or caring professions are expected to look after our patients in their best interests, at all times. This is the obligation that society places on us, in return for the trust it places in our hands.

The doctor/patient relationship is underpinned by some fundamental principles, the first of these being 'beneficence' – that is, doing good and acting in the patient’s best interests – and ‘non-maleficence’ – that is, doing no harm. This principle dates back to the Hippocratic oath, which also includes the exhortation Primum est non nocere, ‘First and most importantly, do no harm’. This is further supported by a secondary principle of reserving more extreme measures to treat the more extreme conditions.

The two words ‘aesthetic’ and ‘cosmetic’ appear to be very commonly used in surgery and dentistry and are often interchangeable. ‘Cosmetic’ comes from the Greek word cosmeticos and generally implies temporary, superficial or reversible. ‘Aesthetic’ comes from the Greek word aestheticos and is concerned with the perception, the philosophy or the structure of beauty. With its deeper meaning, the term ‘aesthetic’ may appear to be favoured by the medical profession.

We live in an age where various cultural and social expectations associate beauty and appearance with attractiveness, youth, success and status. Added to this, in the presence of a rapidly increasing amount of readily available information, the people who are seeking cosmetic procedures have rising demands and expectations. They may also see themselves more as consumers than as patients. Because aesthetic dentistry may be perceived as an issue to do with their ‘wellness’, they see it as their ‘right’ to have it done.

Procedures

As dentists we have a problem and an ethical dilemma when faced with patients requesting cosmetic treatments that are purely elective and optional, merely in order to enhance the smile or appearance. This is especially the case when it is in the absence of any disease or functional disability or deficiency. The fact is that many procedures may involve considerable and irreversible harm to the existing biological tissues. It has been shown that up to 30% of sound hard tissue may be removed for a porcelain veneer.
preparation, and between 62% and 73% of sound tooth structure may be removed during preparation for full ceramic crowns in anterior teeth.

There are several questions to ask of ourselves. First, do we have the required competence to perform the procedure? Competence may be considered as the sum total of knowledge (which must be up to date in terms of materials, techniques and methods as well as being evidence based) and skills (which consist of appropriate training and adequate experience).

Secondly, in terms of treatment planning, are there any other, less invasive options that would achieve almost the same or a similar objective and could be considered instead? Is the plan based on what is safe and appropriate for this particular patient? What will work and last the longest? What will cause minimal problems in the future? How can these problems be dealt with if and when they arise? Is the whole procedure to be done with minimally invasive measures and methods?

When a patient is demanding a certain type of treatment, consent is a complex issue. Has the patient the mental capacity and the maturity to absorb, comprehend, analyse and assess all the information we offer? Did the patient give their consent freely, without any subconscious or subtle coercion on our part? As professional people we then have to ask some pertinent questions of ourselves. Did I give all the relevant options and facts with regard to the risks/benefits and failure/success and potential harm, in step with current acceptable professional standards? Where do I stand if a patient who is a bruxist, for whom I know gold would be the most conservative and long-lasting suitable material with which to restore the posterior teeth, refuses it?

The reality is that dentistry is a business too for many of us. Therefore there are further questions to ask. Did I or any of my team do anything by any form of communication (including any advertising in all its forms) to embellish or promote my qualifications or ability to encourage uptake of the treatment plan offered? Am I comfortable that I have no financial conflict of interest in the advice I have given? Would I be able to justify it to my peers? Would I be able to defend it to my profession’s regulatory body? Would I be willing to carry out the proposed treatment on any member of my own immediate family?

In parallel with our patients’ increased dental knowledge, intelligence and expectations, we have moved in medicine from the age of paternalism to one of collaboration. So it behoves us to work in a spirit of cooperation with our patients to help guide them and enable them to reach a proper and suitable decision, while at the same time respecting their autonomy.

However, if after having presented all the information honestly and fully, the patient still insists on having inappropriate or harmful work carried out, which we as the dentist disagree with and are uncomfortable undertaking, then not only are we professionally entitled to refuse, we should also feel at liberty to do so. It should be remembered that just as their culture and social environment influence patients, dentists also have our personal judgement coloured by our upbringing and family background. This is of the utmost relevance when facing a professional dilemma, because attitudes and behaviour go beyond education and competence. Therefore, our level in possibly engaging with aesthetic work with any downsides must be judged on each individual case and particularly in the patient’s best interests. This ultimately becomes a matter for our individual conscience, guided by our internal moral compass. This is vital, as we need to retain the proper respect and trust of those we look after and care for, to belong and remain part of a worthy and noble profession.
1.1 Ethics in Aesthetic Dentistry

Tips

● Make sure you have covered all the treatment options, even those you may not consider within your area of expertise.
● Be prepared to refer the patient on if the option chosen is beyond your area of expertise or experience.
● Make sure to list the advantages and disadvantages of all the treatment options.
● It is good practice to have a consultation with your patient, follow it up with a written treatment plan and then allow the patient to have the opportunity to discuss that plan.
● It is good practice for the patient to be informed of all the likely costs not only of providing the treatment but also of any maintenance required over a period of time.

References

Part II

Patient Assessment
2.1

Patient History and Examination

Subir Banerji and Shamir B. Mehta

Principles

The foundation for successful treatment planning is largely reliant on the ability of the clinician to attain an accurate and contemporaneous patient history and to carry out a meticulous clinical examination. All findings should be appropriately recorded. Treatment planning should aim to fulfil the patient’s realistic expectations, provide an outcome that boasts functional and aesthetic success (spanning beyond the short term) and, where possible, utilise techniques that involve minimal intervention.

The initial assessment should take place in a relaxed setting, perhaps distinct from the operatory, and permit the patient to voice their views. Emphasis should be placed on actively listening to the patient’s concerns and attitudes.

Procedures

Begin by verifying the essential patient data, such as the patient’s name, gender, date of birth, address and contact details. This may be attained by requesting completion of a pre-treatment evaluation document. The details can be checked by other members of your dental staff team, together with information concerning any relevant special needs.

Establish your patient’s reasons for attendance, hence the nature of their complaint and associated history. There are three categories of ‘dental aesthetic imperfections’ that drive patients to seek aesthetic intervention, which may be broadly classified as matters relating to tooth colour, shape and/or position.1

A detailed medical history is mandatory. A template medical history form may prove helpful. It is beyond the scope of this text to discuss the relevance of the medical history and its impact on the provision of dental care. However, in brief, the patient’s medical history (and status) may preclude them from attending necessary lengthy or frequent treatment sessions, require modification of the treatment protocol or may sometimes contraindicate certain types of treatment, as when there is an allergy to a material or product. Indeed, the underlying medical condition may also prove to be contributory to the aesthetic impairment, such as taking prescription medication that may induce
gingival hyperplasia; or an eating disorder, hiatus hernia or gastric reflux, which may result in erosive tooth wear.

The condition of **body dysmorphic disorder (BDD)** is one to be particularly aware of. This may be considered a psychiatric illness characterised by a preoccupation with an imagined defect in appearance and may cause clinically significant distress or impairment in social, occupation or other important areas of functioning, with the preoccupation not being related to any other form of mental illnesses.\(^2,3\) It would appear to be more common among patients seeking cosmetic and aesthetic treatments.

The patient’s **dental history**, their attitude to dentistry and their oral health should be noted. Oral hygiene habits, past attendance habits and previous experience of dental care should also be detailed. Dental-phobic patients and those who lack the motivation to maintain a high standard of oral hygiene may be more suited to relatively simple, low-maintenance, minimally invasive forms of treatment. Patients with unrealistic expectations may require further counselling, especially prior to embarking on complex, irreversible forms of dental treatment.

The patient’s **social habits** such as smoking and their level of alcohol consumption should be ascertained. Smoking and excessive alcohol consumption not only contribute to the initiation and progression of various forms of oral disease, they also may contraindicate certain forms of treatment, such as tooth whitening and implant therapy. A **diet history** should also be obtained, taking particular note of the frequency and quantity of refined carbohydrate intake, together with the consumption of acidic foods and drinks. Copious and frequent consumption of foods and beverages that may cause staining, including tea, coffee, red wine and turmeric, is a further factor to be considered when contemplating colour-enhancing treatments such as tooth whitening. The patient’s occupation should also be noted, as it may affect their ability to attend on a frequent basis, or indeed have an aetiological role in the causation of their aesthetic concerns.

Now proceed to the **initial examination phase**. To be assured of completeness, you may wish to use an assessment template. Start with examination of the **extra-oral features**. This should include an assessment of the following:

- Temporomandibular joints and associated musculature
- Cervical lymph nodes and salivary glands
- Facial (and dento-facial) features such as facial proportions, symmetry, facial shape, profile and width, lip morphology and mobility
- Facial skin.

For details of how to carry out an evaluation of the temporomandibular joint and musculature, refer to Chapter 3.1.

A thorough **intra-oral examination** should be conducted in a systematic manner. It is common first to examine the **soft tissues** of the lips, cheeks, tongue, vestibule, soft palate, hard palate and floor of the mouth for the presence of any anomalies. The use of dental loupes with appropriate illumination is highly recommended.

Record the overall standard of **oral hygiene**; the use of plaque-disclosing tablets and the subsequent derivation of plaque scores may prove useful. The presence of any local factors that may encourage plaque and calculus accumulation and stagnation should also be identified, including overhangs and other defects in restorations. The presence and extent of extrinsic tooth stains should be noted also.