Stage 1 | Assessment and treatment planning

Step 4 Fabrication of the surgical drill template



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Introduction



A custom-made surgical drill template (also known as a surgical stent or acrylic guide) supports surgical and prosthetic planning. It helps to facilitate preparation of the implant beds to help you carry out the desired positioning and angulation of the im-

plants during surgery. It is constructed in relation to the remaining natural dentition and residual alveolar ridges.

A custom-made surgical drill template helps you to accurately position the implants during surgery.

Learning objectives

- Understand the importance of a diagnostic wax-up, which helps in the fabrication of a surgical drill template.
- Be able to communicate with the dental lab on the specific requirements of fabricating the surgical drill template for the implant placement visit.
 - Know how to assess a surgical drill template intraorally.

1. Requirements for a surgical drill template

The surgical drill template should:

- be stable and rigid when positioned in the mouth
- · be easy to place and remove
- be transparent
- be produced with a solid or robust material which does not distort during use
- not interfere with tissue reflection or the external cooling process during surgery

Important features of a surgical drill template.

2. Fabrication of a surgical drill template

A conventional surgical drill template can be produced with the vacuum-formed template components. The surgical drill template should be fabricated using the diagnostic wax-up of the proposed implant-supported fixed dental prosthesis. Surgical drill templates can also be created out of acrylic resin.

Surgical drill templates can be produced conventionally with a vacuum-form process or from acrylic resin.

3. Example of a surgical drill template made of acrylic resin



- 1 The buccal contour gives you information about the bucco-palatal position of the implants and future gingival margins.
- 2 Palatal/lingual parts can be trimmed off to allow better visualization and easy access for drills. These wide openings allow external cooling during implant bed preparation.

Design features of a surgical drill template



- ³ Coverage of at least two adjacent teeth is necessary for stable positioning of the surgical drill template.
- 4 Connectors should have a minimum thickness of 2 mm for stability and rigidity.

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- 5 Visualization of surrounding landmarks (e.g., buccal aspect of the neighboring teeth) helps you to place the implants in the correct mesio-distal position.
- Information about the prospective crown margins of the restoration can help you to visualize the final tooth position during implant placement.
- The surgical drill template should not interfere with tissue reflection when a flap is raised during surgery.

Video: Assessing the fit of the surgical drill template



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