

Dental implant Surgical guide



Assist. Prof. Dr. Firas Abdulameer Farhan

The use of medical imaging and software planning has led to considerable improvement in treatment planning.

Surgical guides play an important role in transferring this premapped plan to placing the implants at their designated positions (**angulation and depth**).

Surgical guides feature several advantages

1. **Decreases manual errors** associated with free hand implant placement
2. **Minimally invasive procedure** -since surgical guides allow minimal intervention, postoperative surgical problems are minimized.
3. **Precision** - Implants are prosthetically driven components; any deviation can lead to abrupt results in functioning.
4. **Safety** - with guides, such deviations can be prevented. Vital structure damage is easily prevented
5. **Predictability** - Alertness throughout the whole procedure cannot be maintained. Even experienced hands are associated with decreased quality in comparison to guided implantation technique•
6. **Aesthetics** - It is seen that use of surgical guides to transfer software planning to the actual placement has shown good cosmetic results
7. Reduction of implant surgery time

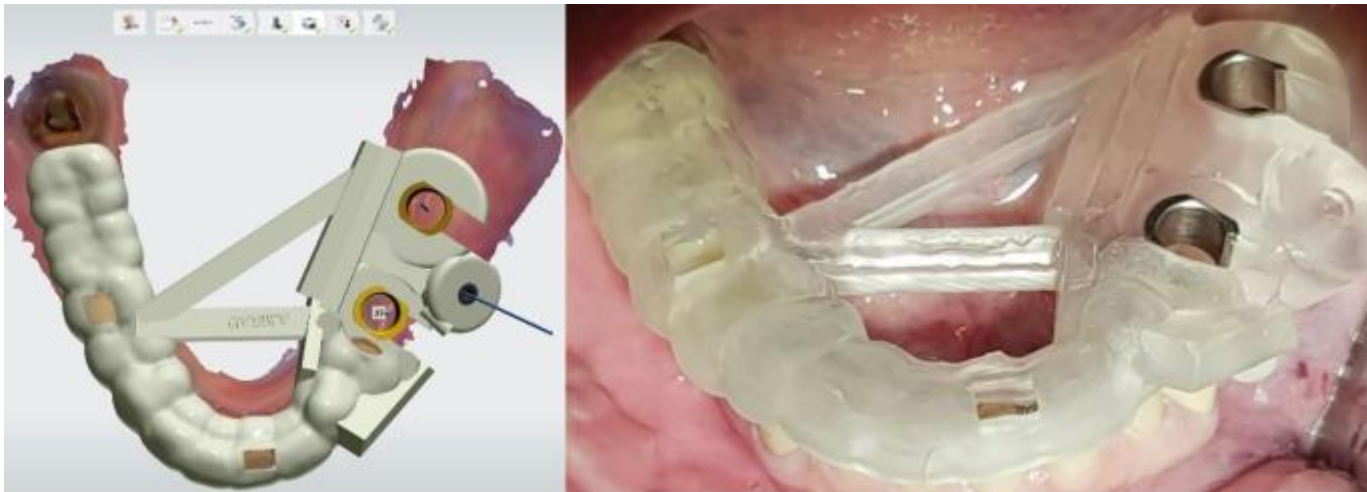
Disadvantages of Surgical guides

- Once if guides are fabricated, they **do not allow any change** or modification from predetermined position if required at the time of surgery
- **Any tissue changes** (e.g. Swelling, loss of abutment teeth) between time of ordering and implant installation can alter fit of the prosthesis ultimately functioning of implant prosthesis
- **Guide dislocation** can occur during surgery if the guide is not stabilized
- **Drill lodgment** in stents
- **Guide dislocation** also occurs when drilling is intended to **penetrate hard bone**, producing torsional forces on the sleeves, thus lifting off the guide
- Start-up **cost** associated with software purchasing
- Greater learning curves

Classification of surgical guide for dental implant

❖ *Based on the area of operation*

- **Guides for partially edentulous sites** (tooth supported or bone supported-depending on amount of the edentulous space) and



Classification of surgical guide for dental implant

❖ *Based on the area of operation*

- **Guides for completely edentulous sites** (mucosa or bone supported).



Types of surgical guide for dental implant

❖ *Based on the support the surgical guides derive*

Tooth supported guides

Minimum three stable teeth should be present to support the guide during surgery



Types of surgical guide for dental implant

❖ *Based on the support the surgical guides derive*

Mucosa supported guides It is used in fully edentulous sites.

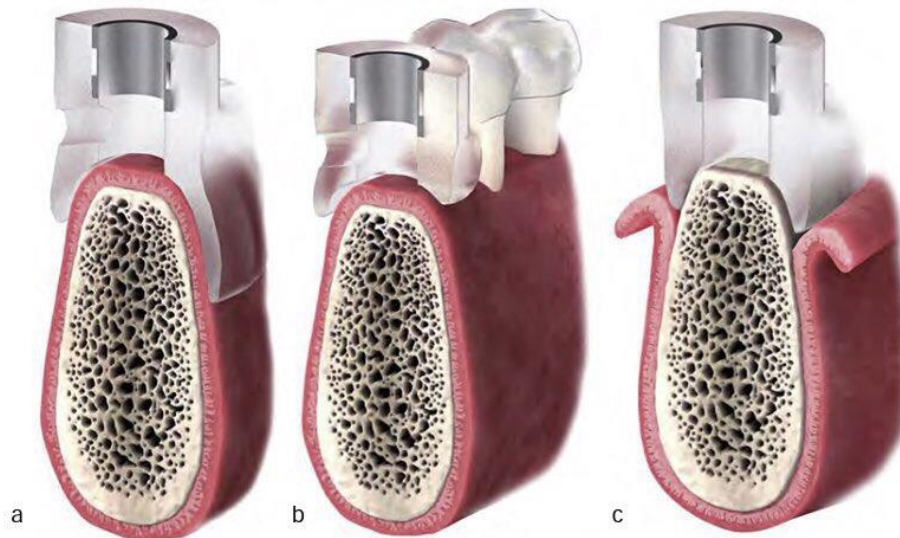


Types of surgical guide for dental implant

❖ *Based on the support the surgical guides derive*

Bone supported guides

They are used in partially edentulous sites and completely edentulous sites. Bone guides are especially used when edentulous sites possess thin bone. Raised flap should provide a good view to implant sites and insertion of guides



Types of surgical guide for dental implant

❖ *Based on Utility*

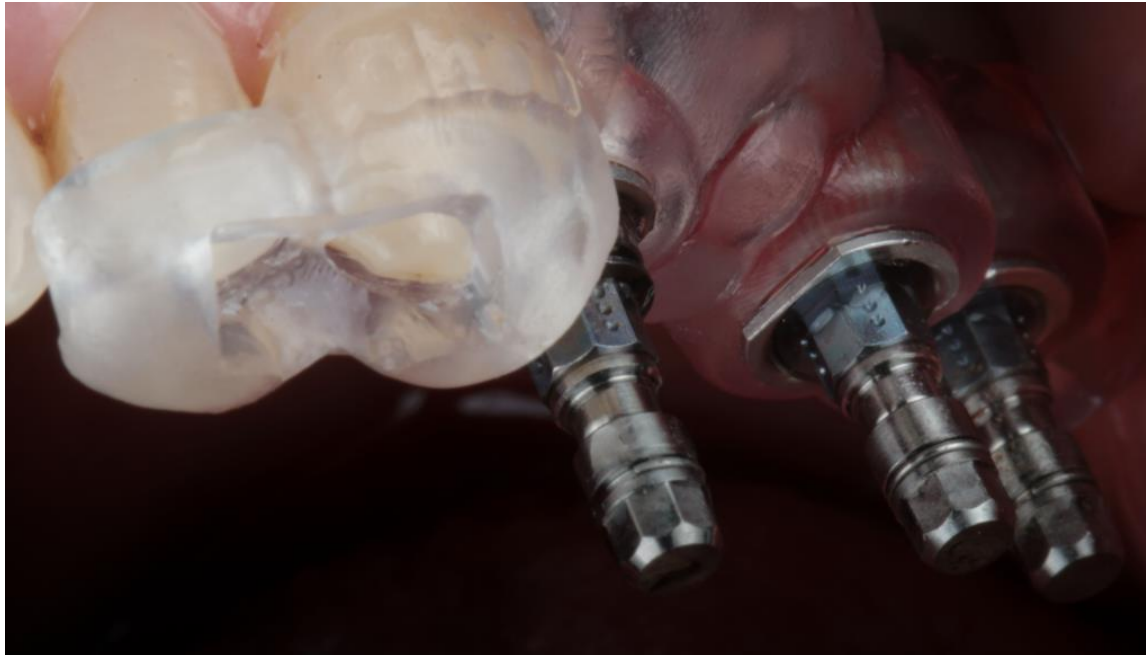
- **Pilot guides** - The sleeves only allow pilot drills. Angulation control is achieved. Depth control is to be obtained manually by assessing markings on drills. Later, the surgical guide is removed, and osteotomy site is expanded in the absence of surgical guide



Types of surgical guide for dental implant

❖ *Based on Utility*

- **Complete drill guides** - It uses drill keys or sleeves. Different sleeves for different diameters of drills, which are changed concomitantly as osteotomy is widened. Angulation as well size of osteotomy is controlled by guide; depth is controlled manually



Types of surgical guide for dental implant

❖ *Based on Utility*

- **Safe guides/easy guides** - Uses drill key or sleeves as above with additional implant stopper that controls the depth of drilling. Allows both osteotomy preparations with surgical drills and installation of implants.



Types of surgical guide for dental implant

❖ *Based on Materials*

Self/light cure acrylic resin, metal reinforced acrylic templates; vacuum formed polymers, milling, CAD-CAM prosthesis, stereo lithographic models. The surgical accuracy of manually processed resin and vacuum formed guides is less in comparison to the latter mentioned milling, CAD-CAM prosthesis or stereolithographic models.

