Mesh4U is a grade 5 titanium individualized mesh, produced by Selective Laser Sintering (SLM). It should be filled with a mix of autologous scrapped bone and bone substitutes on a ratio of 50/50 % over the bone defect, according to the follow steps:

1. Supra crestal incision, surpassing the grafting area at least 10 mm in both sides. Vertical incisions should be avoided (Figure 1)
2. Full thickness flap release with complete periosteum elevation
3. Release tension of the mouth floor by separating the mucosa and milohioideo superficial fibers from the rest of the muscle (lingual side of the mandible), as described by Carlo Tinti and col.(Vertical Ridge Augmentation:What is the Limit?; The International Journal of Periodontics & Restorative Dentistry, 221-229, Volume 16, Number 3,1996), or until the mucogingival line (maxilla) (Figure 2)
4. Preparation of the residual bone by doing perforations of the cortical bone to obtain proper blood supply and cells.(Figure 3)
5. Obtain autologous bone by Scrapping the surrounding areas. If not possible, collect a bone block from the retromolar area or chin and grind with a bone mill (Figure 4)
6. Test mesh fitting, it could be deformed if poor adaptation (Figure 5)
7. When placed, perforate the cortical bone to mark the location of the bone screws.
8. Fix the mesh with screws, on the marked places (Figure 6)
9. Fill the mesh with the mix of autologous and substitute bone by compressing towards the residual bone (Figure 7 a and,b)
10. In alternative to point 8 and 9, you can overload the mesh with the 50/50 autologous/xenogenic bone mixture and apply all together and then secure with the screws (in this case, the mesh´s content should overflow. Remove the excess and slightly compact).
11. Release vestibular flap from tension, by cutting the periosteum 5mm below incision, and in the case of proximity of mental nerve, debriding of the nerve is necessary (figure 8)
12. A thick collagen membrane is needed to cover the mesh, and it should be fixed with mattress suture passing over the extremes of the membrane and from milohioideo muscle to periosteum from the buccal side, using 6/0 monofilament resorbable suture.(Figure 9)
13. Suture technique includes 2 to 4 apical mattress stitches on the mucogengival line with PTFE (preferable 2/0, 3/0) followed by a continuous polypropylene suture, preferable with 5/0 . Single stiches with a 5/0 polypropylene suture to close vertical incisions (if done) (Figure 9)

14. Antibiotic therapy during 10 days (starting the day before surgery)
15. Clinical control 48 hours and 7 days after surgery
16. Remove suture after 14 to 20 days.

Surgical protocol in pictures

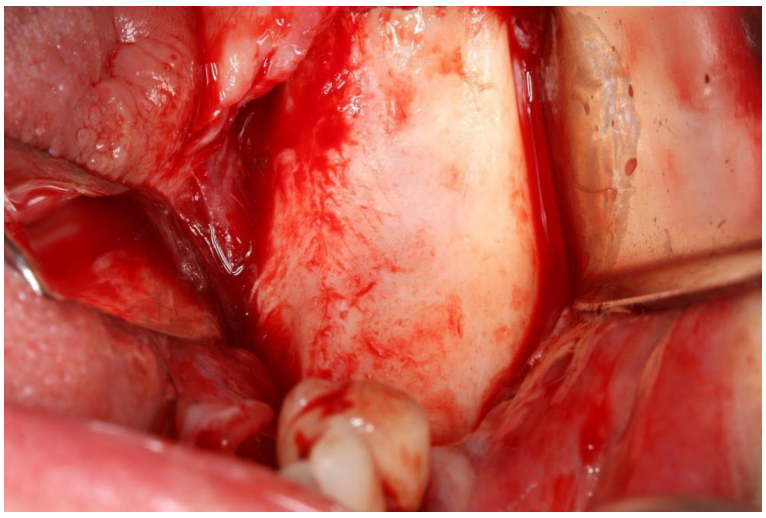

Figure 1

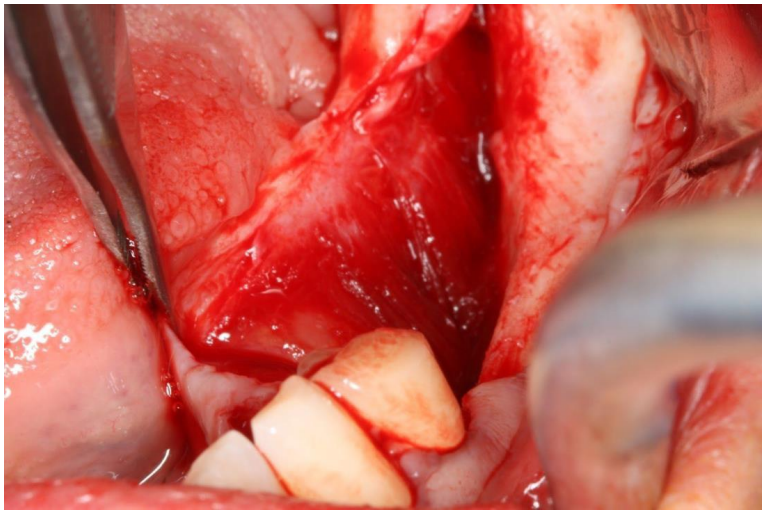

Figure 2

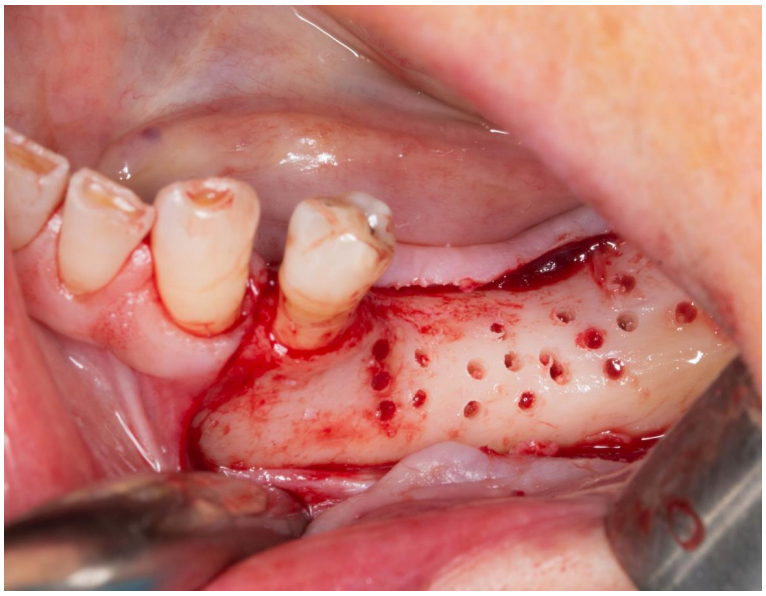

Figure 3

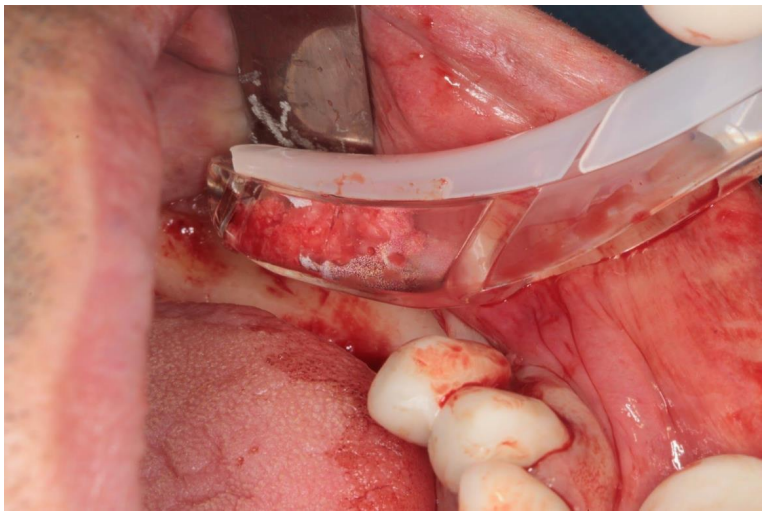

Figure 4

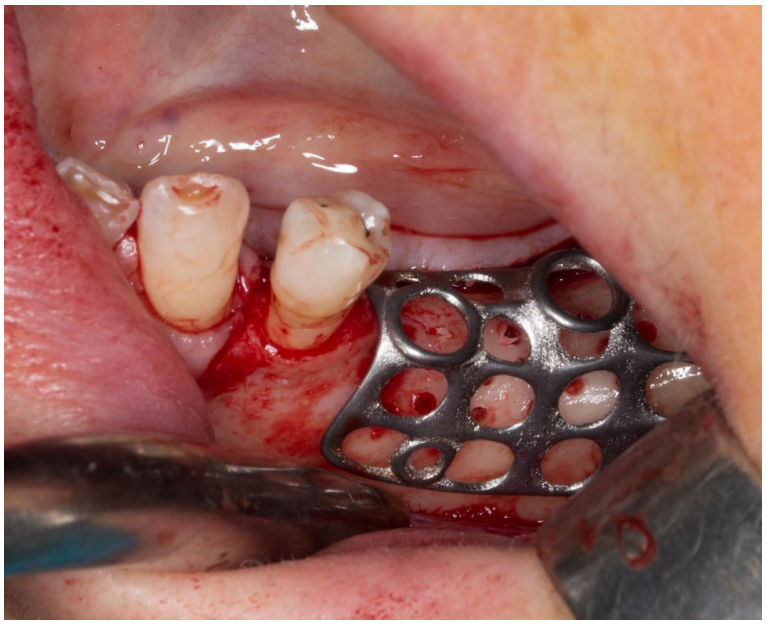

Figure 5

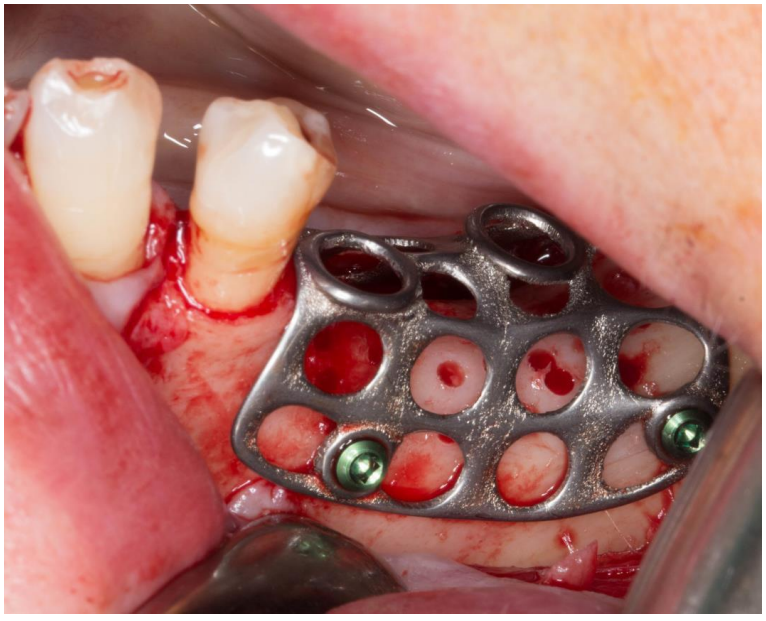

Figure 6

Figure 7a

Figure 7b

Figure 8

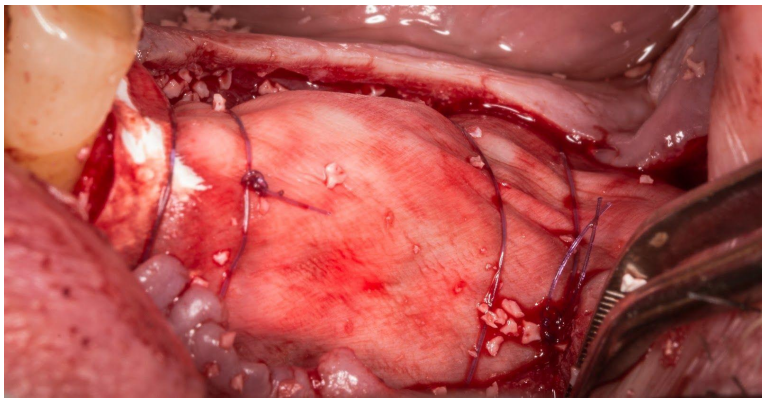

Figure 9

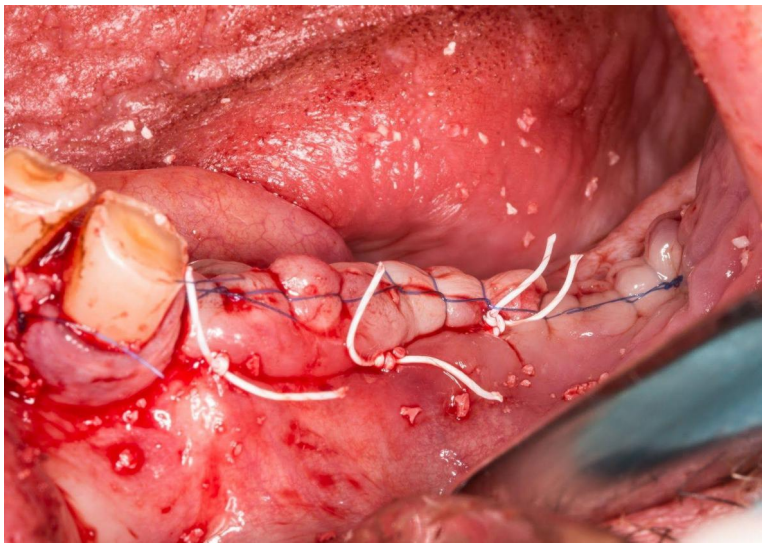

Figure 10