

Referring to FIGS. 6 and 7, a collar 120 may optionally be used on an implant 122. While implant 122 may be similar to implant 10 of FIG. 1 or implant 60 of FIG. 4, implant 122 is shown here to be a single-stage surgery implant with an integral transgingival region 124. Otherwise, similar features are numbered the same as with the other implants. Collar 120 may be mounted on a head portion 126 by press fit, threading, adhesive, welding, connectors and so forth. The collar 120 may be a separate component from the head portion 126 or the collar 120 may be a surface treatment. The collar 120 may also be built-in to the head portion 126, i.e. the entire head portion 126 would be made up of the same material as the collar 120. The collar 120 has an exterior surface 128 configured to promote soft tissue attachment and may be made of high density polyethylene (HDPE), polyester, zirconium, ceramic or other similar surface treatments.

It will be understood that the structure for any of the implants disclosed herein can be applied to a single-stage surgery implant with a transgingival region 130—or a one-piece implant with an integral abutment 132—as shown in FIG. 1 in dashed lines for exemplary purposes.

While the illustrated forms are shown to be dental implants, it will be understood that such structures, with porous metal or porous tantalum portions cooperatively secured by an apical and coronal portion, may be applied to implants used on other areas of a human or animal body, whether or not such an implant is to be inserted into bone.

While this invention has been described as having a preferred design, the present invention can be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains and which fall within the limits of the appended claims.

What is claimed is:

1. An implant extending along an axis, comprising:
  - a head portion including a first externally threaded surface configured for engaging bone; a non-bone, porous intermediate portion, including:
    - a bore axially extending throughout the intermediate portion, and
    - a porous wall extending from a porous exterior surface of the intermediate portion to a porous interior surface of the intermediate portion, the porous interior surface defining a perimeter of the bore, wherein the perimeter defines a diameter of the bore that is substantially constant in an axial direction;
  - an initially separate stem portion configured to engage the head portion so that at least the head portion and the stem portion cooperatively secure the intermediate portion on the implant without the intermediate portion being bonded to the head and stem portions, the stem portion including a second externally threaded surface configured for engaging bone;
  - a core having a core diameter approximately equal to the diameter of the bore, the core extending axially from at least one of the head portion, the stem portion, and both the head and the stem portions.
2. The implant of claim 1, wherein the intermediate portion is porous for the ingrowth of bone.
3. The implant of claim 1, wherein the porous material includes tantalum.
4. The implant of claim 1, wherein the intermediate portion comprises pores that are at least partially filled with a filler material.

5. The implant of claim 4, wherein the filler material is a resorbable material.

6. The implant of claim 4, wherein the filler material is at least one of a resorbable polymer and a non-resorbable polymer.

7. The implant of claim 1, wherein the intermediate portion is made of at least one of a resorbable polymer, a non-resorbable polymer, synthetic bone material, and collagen.

8. The implant of claim 1, further comprising a locking mechanism configured to secure the head portion to the stem portion.

9. The implant of claim 8, wherein the locking mechanism is configured to secure the head portion to the stem portion by at least a press fit.

10. The implant of claim 8, wherein the locking mechanism includes threads on the head portion and the stem portion that mate with each other.

11. The implant of claim 8, wherein the porous portion comprises a sleeve portion.

12. The implant of claim 11, wherein the locking mechanism is formed on the core, and the core is configured at least partially extend into the sleeve portion.

13. The implant of claim 12, wherein the core is integrally formed with at least one of the head portion and the stem portion.

14. The implant of claim 12, wherein the core comprises a coronal portion extending from the head portion and an apical portion extending from the stem portion, and the coronal portion and the apical portion having engaging distal ends that form the locking mechanism.

15. The implant of claim 12, wherein the core has two opposite longitudinal ends, each end engaging an opposite one of the head portion and the stem portion.

16. The implant of claim 12, generally defining a longitudinal axis, and wherein the head portion and the stem portion each have a retaining shoulder extending radially outward from the core and relative to the axis, the shoulders facing each other and the sleeve portion assembled on the core to retain the sleeve portion between the shoulders.

17. The implant of claim 8, wherein the locking mechanism includes at least one axially extending post on one of the head portion and the stem portion, and at least one axially extending bore that receives the post on the other of the head portion and the stem portion.

18. The implant of claim 1, further comprising a collar mounted on the head portion, and the collar having an exterior surface configured to promote soft tissue attachment.

19. The implant of claim 1, wherein the stem portion comprises an opening for receiving bone while threading the implant into the bone.

20. The implant of claim 1, wherein the implant is a dental implant and the intermediate portion is configured to engage the mandible or maxilla.

21. The implant of claim 1, wherein the intermediate portion has a non-circular outer periphery.

22. The implant of claim 1, wherein the core is a non-threaded core, and wherein the intermediate portion extends around the core.

23. The implant of claim 22, wherein the intermediate portion is connected to the core solely by a friction fit.

24. The implant of claim 23, wherein a locking mechanism formed by the head portion and the stem portion retains the intermediate portion of the core.

25. The implant of claim 1, wherein at least one of the first externally threaded surface and the second externally threaded surface includes one or more self-tapping threads.