SPECIFICATION

TITLE OF THE INVENTION

Injection-Needle Type Suturing Device

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an injection-needle type suturing device to be used for simply suturing affected parts such as small incised wounds, lacerated wounds, or others of surgical outpatients or the like.

2. Description of the Prior Art

Conventionally, in outpatient treatment of hospital surgery, it is often the case to implement relatively simple suture surgeries such as suture of small skin at one to three needles, suture of punch biopsy, and fixation of an IVH catheter to skin. In such cases, there are needs, without exceptions, of the provision and sterilization of such equipment as suturing needles, suturing threads, needle holders, and scissors, the preliminary preparations such as fitting a suturing thread to a suturing needle, the cleaning, sterilization, and disposal of the equipment after the surgery, and the like.

However, it could be troublesome that such large-scale procedures are involved even for slight sutures of small

incised wounds, lacerated wounds, or the like.

SUMMARY OF THE INVENTION

The object of the present invention is therefore to provide an injection-needle type suturing device which allows convenient suture of affected parts.

The injection-needle type suturing device, according to the present invention, is put into operation through the steps of: fitting the holder portion to the other end of the hollow needle portion formed into a sticking portion by cutting one end of the metallic cylindrical portion; accommodating the suturing thread into the thread accommodating portion within the member coupled into or with the holder portion; and passing the suturing thread through the inside of the hollow needle portion and thereby leading it out from the end of the hollow needle portion. With this arrangement, during the use, the hollow needle portion is stuck to the affected part so that the suturing thread is passed through the affected part, and then the hollow needle portion is turned back and both ends of the suturing thread are bundled together, whereby the affected part is sutured.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a plan view of a first embodiment;

Fig. 2 is a side view;

Fig. 3 is an enlarged plan view of a sticking portion;

Fig. 4 is an enlarged plan view of another sticking portion;

Fig. 5 is a plan view of a second embodiment as it is partly cut out;

Fig. 6 is a plan view of the protective cover;

Fig. 7 is a side view of the hollow needle portion formed into a curved tubular shape; and

Fig. 8 is an explanatory view of an application example.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 is a plan view of a first embodiment, and Fig. 2 is a side view thereof. A hollow needle portion 2 made from a metallic cylinder with an approximately 1 to 4 mm diameter and having one end obliquely cut into a sticking portion 1 is formed into a straight type injection needle shape.

On the rear side of the hollow needle portion 2, a resin-made holder portion 3 is fixed. The holder portion 3 is formed into, for example, a rectangular parallelepiped shape so as to be easy to hold by finger tips, and its interior hollow portion is coupled with the inside of the cylinder of the hollow needle portion 2. A resin-made thread accommodating portion 4 is coupled to the rear of the holder portion 3, so that a

projection 5 provided circumferentially to the holder portion 3 and a groove 6 provided circumferentially within the thread accommodating portion 4 are fitted to each other and thereby fixed. A specified amount of suturing thread 7 is stored inside the thread accommodating portion 4, and the rear portion of the thread accommodating portion 4 is closed by a cover, where, for example, a cylindrical-shaped round cutter 8 for punch-biopsy cutting of skins is mounted as required.

Fig. 3 is an enlarged plan view of the sticking portion 1 at the end. The sticking portion 1 has a U-shaped or V-shaped thread engaging groove 9 for fixing the suturing thread 7. A specified amount of suturing thread 7 is stored inside the thread accommodating portion 4, and the suturing thread 7 is passed through the holder portion 3 and the interior of the hollow needle portion 2, with the end of the suturing thread 7 engaged at the thread engaging groove 9. This suturing thread 7 may be one made of various materials such as silk threads, resin threads composed of nylon, polyester, polypropylene, or the like, synthetic bioabsorbable suturing threads, and catgut or other absorptive threads.

Fig. 4 is an enlarged plan view of the sticking portion 1 of another thread engaging method. In this case, a thread engaging hole 10 is bored in the sticking portion 1, and the suturing thread 7 passed through the cylinder interior of the hollow needle portion 2 is led outside through the thread

engaging hole 10.

Fig. 5 is a plan view of a second embodiment as it is partly cut out. The holder portion 3 and the thread accommodating portion 4 integrally form a cylindrical main body 11, and the rear end of the main body 11 is sealed off by a cover 12. Further, knurlings for prevention from slippage are provided on the outer circumference of the main body 11.

Fig. 6 is a plan view of a resin-made protective cover 13. The protective cover 13, purposed for covering the hollow needle portion 2 to protect the sticking portion 1, is formed into a cylindrical shape with its tip closed, and its base portion is removably fitted with the holder portion 3. In addition, the protective cover 13 may be either to cover the entire hollow needle portion 2 or to cover only the sticking portion 1.

Also, the hollow needle portion 2 may be formed into a curved needle type besides the straight needle type of the embodiment, and the degree of curvature may also be set freely. For example, if the hollow needle portion 2 is formed into such a curved shape as shown in Fig. 7, it becomes very easy to use depending on the place of suture.

This injection-needle type suturing device is supplied to hospitals or the like as it has been sealed and packaged with, for example, a sheet-like sealing material after wholly sterilized. Accordingly, when it is used, the sealing

material is broken and this injection-needle type suturing device is taken out. Then, for example, for use of punch biopsy cutting, an affected part S is cut out in a columnar shape as shown in Fig. 8(a) with a cutter 20 provided at the rear end.

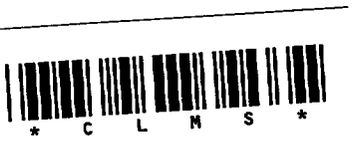
Next, with the protective cover 13 removed, the holder portion 3 is held by finger tips, and the affected part S to be sutured is raised as shown in Fig. 8(b) so that the sticking portion 1 of the hollow needle portion 2 is stuck thereto, and then the suturing thread 7 is projected toward the opposite side to the affected part S along with the sticking portion 1. Subsequently, with the suturing thread 7 retained as shown in Fig. 8(c), the hollow needle portion 2 is turned back toward the original position and thereby pulled out, where the suturing thread 7 is left in the affected part. Further, as required, this process is repeated once or twice. Next, both ends of the suturing thread 7 are held and bundled together as shown in Fig. 8(d), and unnecessary part of the suturing thread 7 is cut by a cutter or the like as shown in Fig. 8(e).

As seen above, if the injection-needle type suturing device is previously sterilized and packaged, it can be applied, as it is, for use, and discarded after use, so that opportunities of bacteria infections or the like can be avoided. Further, if the sticking portion 1 is protected by the protective cover 13, the injection-needle type suturing device can be prevented from accidental needle sticks or the like when

it is unsealed before use, or when discarded after use.

Also, over a wide range of combinations of types, dimensions, or colors of suturing needles and suturing threads, the injection-needle type suturing device becomes applicable to expanded rages of use, so that an injection-needle type suturing device of various types matching to different cases can be prepared and utilized.

As described above, the injection-needle type suturing device according to the present invention has a constitution that the suturing thread drawn from the thread accommodating portion is preliminarily passed through the holder portion and the hollow needle portion so as to be led out from one end. This constitution allows reduction in the work involved in the preparation of sterilizing and other equipment before use as well as in the post-treatment work. Further, if the injection-needle type suturing devices are individually sterilized and packaged, they become disposable after use, so that they can be used for suturing operations in successful conditions at all times with reduced possibilities of bacteria infections and the like.



What is claimed is:

1. An injection-needle type suturing device comprising: an injection-needle like hollow needle portion formed from a cylindrical metallic body with one end obliquely cut into a sticking portion; a holder portion coupled with the other end of the hollow needle portion; a thread accommodating portion for accommodating a specified amount of suturing thread into a member coupled into or with the holder portion; and a suturing thread passed from the thread accommodating portion through inside of the hollow needle portion so as to be led out from the sticking portion.

2. An injection-needle type suturing device as claimed in Claim 1, wherein a thread engaging portion is formed in proximity to the sticking portion, and one end of the suturing thread is engaged with the thread engaging portion.

3. An injection-needle type suturing device as claimed in Claim 1, further comprising a protective cover for covering the hollow needle portion.

4. An injection-needle type suturing device as claimed in Claim 1, wherein the hollow needle portion, the holder portion, the thread accommodating portion, and the suturing thread are sterilized and seal-packaged with a sealing material.