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Bodzin

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[54] **SUBCLAVIAN VENA PUNCTURE DEVICES**

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[51] **Int. Cl.**[2] **A61M 5/00;** A61M 25/00

[58] **Field of Search** ..... 128/214.4, 221, 2 F, 218 R, 128/347, 348, DIG. 16

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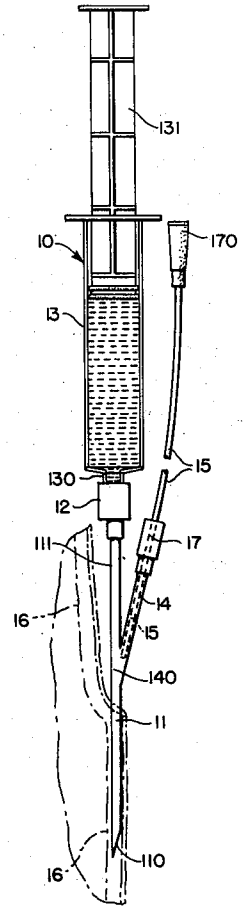
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Primary Examiner—Dalton L. Truluck
Attorney, Agent, or Firm—Everett G. Wright

[57] **ABSTRACT**

An improved subclavian vena puncture device comprising the combination of a straight hollow needle having a beveled lower tip and a syringe removably fixed to the opposite upper end thereof, the said needle having a substantially equal sized hollow catheter guide tube fixed to and extending angularly upwardly from one side of the upper portion of the said needle. A catheter temporarily closed by a metal stylet therein is initially telescoped neatly within the lumen of the said guide tube extending downwardly to but slightly short of the juncture between the catheter guide tube and the hollow needle, thereby closing the said guide tube whereby to prevent the free end of the catheter from entering the lumen of the needle during the vena puncture until blood has been aspirated through the needle into the syringe, which assures the surgeon of the correct location of the needle with the vein. The catheter is then pushed downwardly from its initial position within the said hollow catheter guide tube into the lower end of the needle and continues therefrom into the lumen of the vein to the required distance therein. The straight hollow needle is now gently removed by sliding it out of the vein, leaving the soft plastic catheter disposed in the vein through which blood or medicants may be provided as required by conventional intravenous means into the vein after the stylet is removed from the catheter which is immediately connected to the said intravenous means.

1 Claim, 4 Drawing Figures



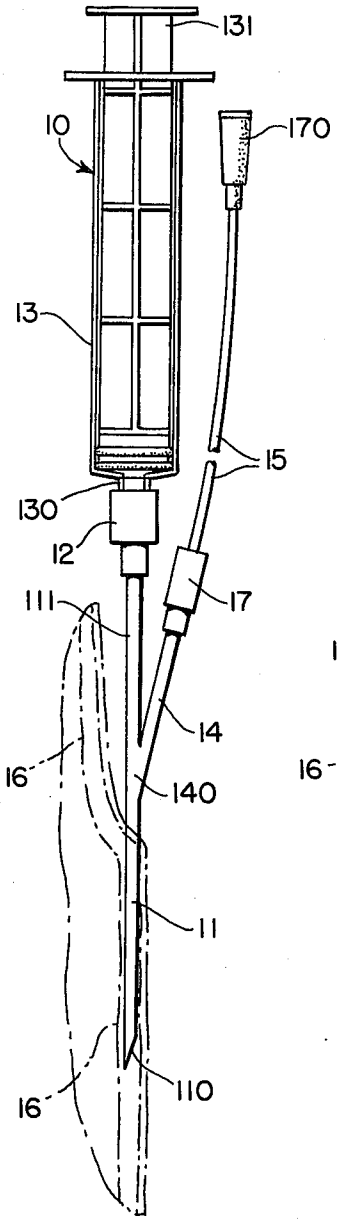


FIG. 1

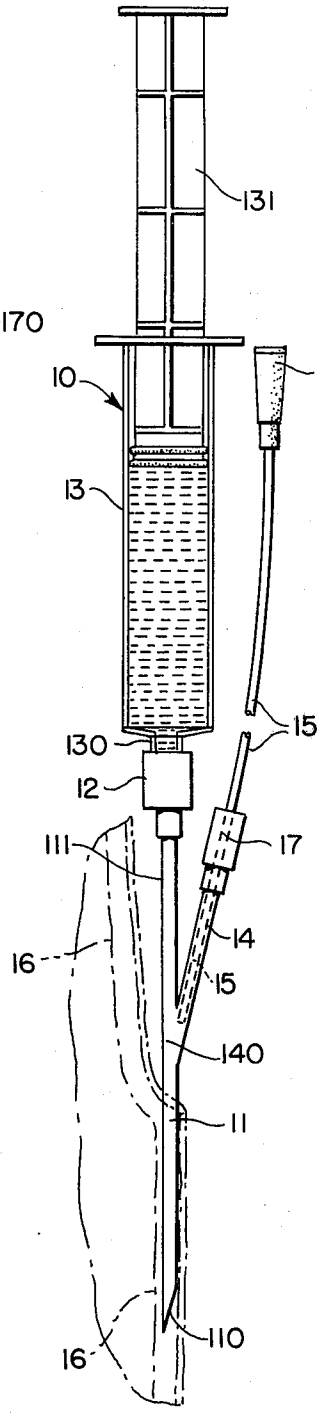


FIG. 2

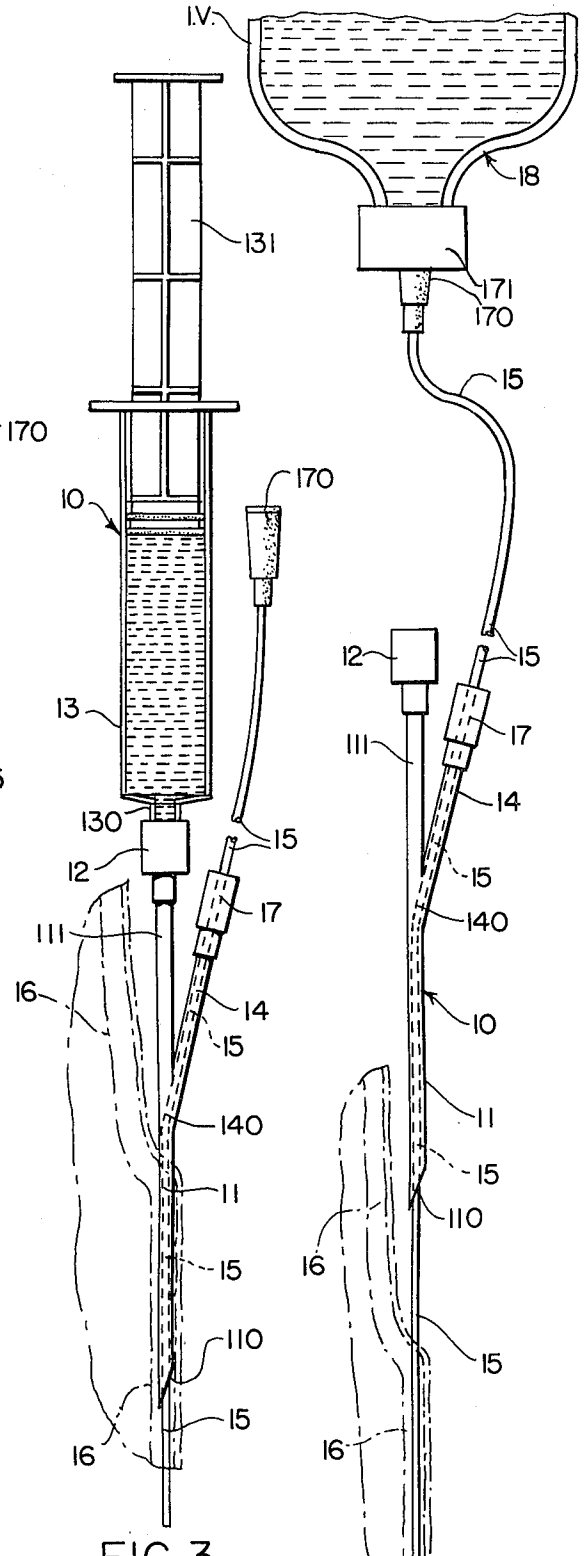


FIG. 3

FIG. 4

SUBCLAVIAN VENA PUNCTURE DEVICES

BRIEF SUMMARY OF THE INVENTION

The improved subclavian vena puncture device of the invention consists of a straight hollow needle having a beveled lower tip and a syringe removably connected to the upper end thereof. An upwardly disposed hollow catheter guide tube of substantially the same size as the hollow needle is fixed to and extends angularly upwardly from one side of the upper portion of the said needle. A catheter temporarily closed by a metal stylet therein is telescoped into the catheter guide tube neatly within the lumen of the said catheter guide tube extending downwardly to a position slightly short of the juncture between the catheter guide tube and the hollow needle. The catheter guide tube is now closed, and blood may now be removed by the syringe from the straight hollow needle, thereby to assure that the said needle is properly located within the vein of the patient. The catheter is then pushed downwardly from its initial position within the hollow catheter guide tube into and through the lower end of the needle, and into the lumen of the vein to a short distance therein. The straight hollow needle may now be removed from the vein leaving the relatively soft plastic catheter disposed in the vein with its upper end portion extending through the catheter guide tube, and with the free end portion thereof closed by any suitable means. The catheter is then connected to a conventional intravenous means through which blood or medicants may be provided to and through the catheter and into the vein of a patient as may be required.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings wherein like reference characters refer to like and corresponding parts throughout the several views:

FIG. 1 is a vertical elevational view of a subclavian vena puncture device embodying the invention showing the lower end of the hollow bevel ended needle thereof punctured through the skin and telescoped into the large subclavian vein in the neck of a patient.

FIG. 2 is a vertical elevational view similar to FIG. 1 except that a catheter closed by a metal stylet has been telescoped into the diagonally upwardly disposed hollow catheter guide tube projecting diagonally upwardly from the upper portion of said needle.

FIG. 3 is a vertical elevational view similar to FIG. 2 except that the catheter has been extended downwardly through the diagonally upwardly extending hollow catheter guide tube to and through the lower beveled end of the said needle, and into the subclavian vein of the patient therebelow.

FIG. 4 is a vertical elevational view similar to FIG. 3 showing the syringe removed from the upper end of the needle and the needle immediately capped; the upper end portion of the catheter is then closed temporarily by a suitable connector whereby to permit the catheter to be connected to a conventional intravenous (I-V) device through which blood or medicants may be provided to and through the vein of the patient as required.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

The improved subclavian vena puncture device **10** disclosed in the drawings comprises the combination of a straight hollow needle **11** having a lower beveled tip **110** and an upper end **111** which is removably secured by such means as a suitable connector **12** to the lower stem **130** of a syringe **13.** The upper central portion of the hollow needle **11** has a substantially equal sized hollow catheter guide tube **14** fixed thereto at **140** and extends angularly upwardly from one side of the said needle **11.**

A catheter **15** temporarily closed by a customarily employed metal stylet therein is telescoped downwardly through the said catheter guide tube **14** to a position just short of the lower end of the said catheter guide tube **14,** leaving the main portion of the straight hollow needle **11** clear whereby to permit blood to be aspirated from the subclavian vein **16** by the syringe **13** responsive to the withdrawal of the piston **131** of the said syringe **13.** This provides the surgeon with an opportunity to be assured with respect to proper location of the needle **11** within the vein of the patient.

The catheter **15** with its stylet therein is now pushed downwardly from the catheter guide tube **14** into the lower end portion of the straight hollow needle **11** and is continued therefrom into the patient's subclavian vein **16** to a selected distance therein as determined by the surgeon. The stylet is now removed from the catheter providing a clear passageway through the catheter **15.** Suitable connectors **17** are employed as required to close or open the catheter passage when and as required.

The straight hollow needle **11** is now gently removed from the patient's vein **16** by sliding it out of the vein, leaving the relatively soft plastic catheter **15** disposed in the vein through which blood or medicants may be provided to the patient as required by the use of conventional intravenous (I-V)) means **18.**

The preferred subclavian device **10** of the invention is made sterile by employing conventional means, and is made ready for use with the needle **11** thereof removably connected at its upper end to the lower stem **130** of the syringe **13.** By holding the syringe **13** in one hand and guiding the needle **11** in alignment within the subclavian vein **16** of the patient with the other hand, the lower beveled tip **110** of the needle **11** is caused to penetrate the skin of the patient and enter the lumen of the vein.

The catheter **15** is then slowly pushed downwardly from its initial position in the catheter guide tube **14** into the lumen of the needle **11** and continues downwardly therefrom into the vein **16** of the patient to the required distance therein. The syringe **13** may now be disconnected from the upper end of the needle, and the needle immediately capped.

The upper end of the catheter **15** is now connected to the bottom of the neck of a conventional intravenous (I-V) means **18** providing the patient with whatever intravenous fluids as may be required and/or allowed by the surgeon. The straight needle **11** is now gently removed by sliding it out of the patient's vein **16,** leaving the relatively soft plastic catheter **15** therein.

It is important that, during the carrying out of the foregoing procedures or other procedures that may be substituted therefor, at no time should the lumen of the catheter or needle be exposed to ambient air. Also, during the insertion or removal of a stylet into or out of a catheter **15,** and during the use or the removal of connectors or caps **12, 17, 170** and **171** is being accomplished, such items should be closed by use of a temporary cover-up thereover as may be required to prevent the intake of ambient air into the system.

Although but a single embodiment of the subclavian vena puncture device of the instant invention has been disclosed and claimed herein, it is obvious that many changes may be made in size, shape, arrangement and detail of the several elements thereof, all without departing from the spirit and scope of the invention as defined by the appended claim.

I claim:

1. A subclavian vena puncture device comprising

a. a straight hollow needle having a beveled lower tip and a syringe removably connected to the upper end thereof,

b. an equal hollow catheter guide tube fixed to one side of the upper central portion of said needle extending angularly upwardly therefrom,

c. a catheter temporarily closed by a metal stylet therein telescoped downwardly neatly through the said catheter guide tube to a position having its lower end disposed just short of the lower end of said catheter guide tube thereby leaving the main portion of the straight hollow needle clear whereby

to permit blood to be aspirated from the subclavian vein responsive to partial withdrawal of the piston of the syringe,

d. whereafter the temporarily closed catheter is pushed downwardly from the catheter guide tube into and through the lower portion of said needle and into the subclavian vein of the patient to a distance selected by the surgeon,

e. thereafter the stylet is removed from the catheter providing a free passageway therethrough, the free end of the catheter immediately capped, the syringe removed from the upper end of the needle, and the top of said needle removably capped;

f. and finally the straight hollow needle is gently removed from the patient's vein by sliding the said needle upwardly therefrom leaving the catheter in the vein through the upper end of which blood and/or medicants may be provided to the patient when and as required employing conventional intravenous (I-V) means.

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