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NEEDLE GUIDE FOR MEDICAL INJECTIONS

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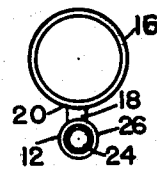
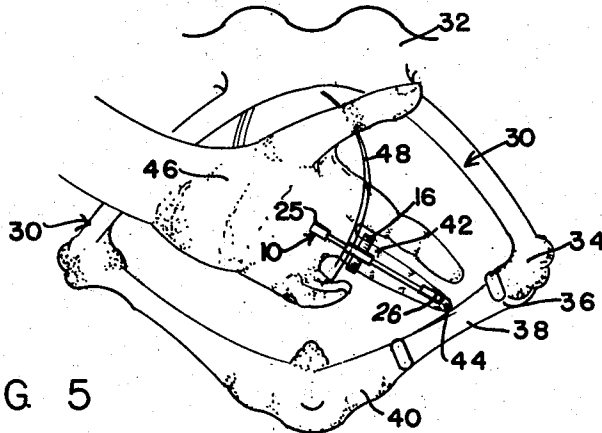
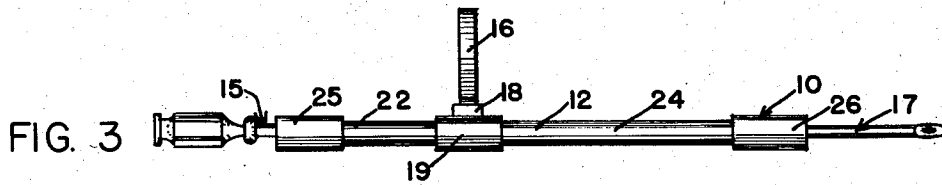
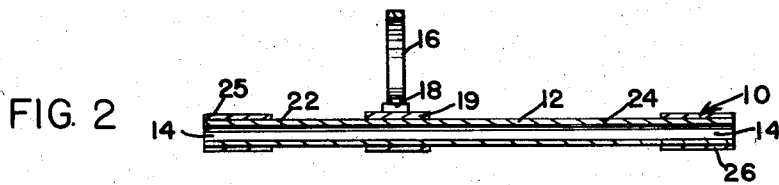
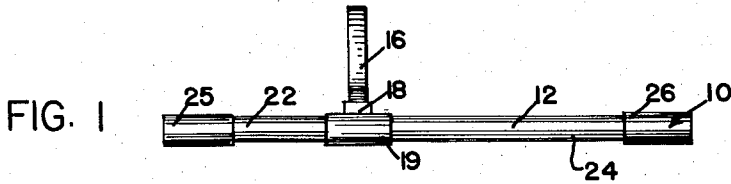


FIG. 4

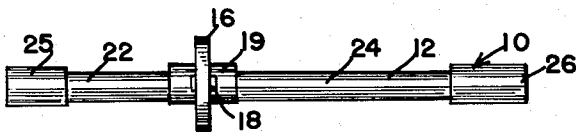


FIG. 6

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NEEDLE GUIDE FOR MEDICAL INJECTIONS

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6 Claims. (Cl. 128—215)

This invention relates to a needle guide for medical injections and particularly to a hand guide and locating medical apparatus of this sort for needle injections. Therefore, this invention is in the overall and general field of surgical instruments.

The apparatus disclosed herein has particular application in giving a local anesthetic and especially in giving a transvaginal pudendal block in obstetrical use in delivering babies.

The perennial shortage of anesthetists and anesthesiologists, together with the exigencies of the delivery room, have made conduction types of anesthesia increasingly popular in obstetrics. Of these, pudendal block has the advantage that it can be quickly administered by the obstetrician under almost any circumstances. For many years, it has been used satisfactorily by members of both the visiting staff and the regular staffs of various hospitals. In 1956 in one large hospital in Atlanta, Georgia, 74% of the 4924 deliveries were conducted under local anesthesia, including pudendal block. This group included not only spontaneous normal deliveries but low forceps, rotations of the head, mid-forceps, breech deliveries, including forceps to after-coming head, repair of lacerations and elective perinioplasty.

The transvaginal technique for pudendal block has been described by Kovak, Evans and Johnson in a publication "American Journal of Obstetrics and Gynecology," 71: 981-988 of May, 1956, and is used by many obstetricians. In some cases of delivery there is a rapidly descending fetal part that tends to crowd the operator's fingers against the vaginal walls as he attempts to use the transvaginal pudendal block technique and interferes with proper and most effective insertion of the needle. This could cause the needle to be inserted accidentally into the fetal part or could cause the operator to miss the best location for the insertion or to miss the change to administer the local anesthesia at all. My invention facilitates the transvaginal technique insofar as the needle insertion is concerned and my invention can be used in other situations of similar circumstances.

Generally described, without limitation on the scope of coverage found in the appended claims, my invention consists of a rigid, elongated metal, or similar material, tube which in one form could be about 10 cm. long and with a longitudinal bore which permits the passage of a needle, such as a size 20 "Luer" needle. The shaft of a commonly used 13 cm. (5 inch) needle would thereby be longer by 3 cm. than the guide. A finger ring is welded or otherwise affixed with a portion of its outer arc on top of the tube at a point near the junction of its proximal and middle thirds. This ring should fit loosely over the proximal phalanx of the obstetrician's middle finger. The distal portion of the shaft of the guide should be long enough to reach within 1 cm. of the tip of the palmar surface of the finger. The proximal, or shorter, end of the shaft should reach the center or thereabouts of the palm of the hand. Both ends of the shaft should be rubber tipped or similarly soft cushioned to prevent injury

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to the vaginal mucosa and the presenting part of the fetus, and to minimize damage to the operator's glove.

The technique is a matter of placing the instrument on the hand and using same by the length thereof as a guide on both sides to locate the tip of the ischial spine, the left hand being used for the left side of the pelvis and the right hand for the right side thereof. The distal end of the guide is then placed against the ischial spine and the needle is introduced through the guide and made to penetrate the mucosa for injections therein.

Other and further objects and advantages of my invention will be apparent from the following specification taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a side elevation view of my invention.

Fig. 2 is a central, longitudinal vertical section view taken with the invention in the position of Fig. 1.

Fig. 3 is a view identical with Fig. 1 and with a conventional injection needle inserted through the bore of the invention.

Fig. 4 is a front end elevation view of the device in Fig. 1.

Fig. 5 is a diagrammatic view of the female pelvic area receiving a hand positioning the present device for the technique of operation thereof.

Fig. 6 is a top plan view of the device in Fig. 1.

Following the numbered references to the accompanying drawings and initially to Figs. 1 and 6 thereof, it is seen that the device generally designated at 10 comprises an elongated, hollow tube guide member 12 with a central, longitudinal bore 14 forming an open, unobstructed conduit or passageway throughout the length of the tube member 12. In one embodiment, such a tube could be approximately 10 cm. long with an opening at the bore in diameter to permit the passage of a size 20 "Luer" needle 15; and the shaft 17 of the needle 15 being 13 cm. (5 inches) would protrude when inserted fully about 3 cm. A solid, rigid ring member 16 is welded, soldered, brazed or otherwise fastened at 18 to collar 19 with a bottom outer arc 20 thereof on the collar 19 which is around the outer surface of said tube member 12. The ring is located intermediate the length of the tube 12 and could be positioned at about the third the length thereof or a little over. With this arrangement the short, or proximal, end 22 of the tube 12 is considered as the rear thereof and the longer end 24 beyond the ring 16 is considered as the front end.

A cushioning means is provided at the terminal ends of the tube 12 in the form herein of a rear collar 25 of soft surgical tubing or the like and a front collar 26 of the same material. This material on the terminal tips of the tube 12 protects the vaginal mucosa or other tissue around the device from injury, cushions any contact of the tube 12 with the fetus, and minimizes any damage to the operator's surgical glove.

In constructing the device for various sizes of hands, the front end 24, or distal end in medical terms, should be approximately long enough to reach within 1 cm. of the tip of the palmar surface of the finger. The proximal or shorter end 22 should reach the center of the palm of the hand or thereabouts.

The technique of operation and use of my device follows closely, in obstetrical use, the procedure of transvaginal pudendal block method outlined by Kovak cited heretofore. In the diagrammatic view of Fig. 5 is shown purely diagrammatically for simplicity and illustration portions of the pelvic area 30 of a female wherein 32 is the symphysis pubis, 34 is the tuberosity of the ischium, 36 is the ischial spine, 38 is the sacrospinous ligament and 40 is the sacrotuberous ligament (cut).

The ring member 16 is positioned loosely on the proximal phalanx 42 of the obstetrician's middle finger

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44 of his hand 46 with the distal or longer portion 22 of the tube 12 reaching within 1 cm. of the tip of the palmar surface of his finger. The shorter end is in the palm of the hand 46 reaching somewhere about the middle thereof. In Fig. 5 the wavy lines 48 by the palm of the hand 46 represent the vaginal tissue and the vaginal opening through which the hand is inserted for the application of this device. With the device on the finger 42, the tip of the ischial spine 36 is located one side, the left hand being used for the left side of the pelvis and the right hand for the right side. After locating the ischial spine 36 on one side, the needle is then introduced through the tube 12 and made to penetrate the mucosa for injection of 3 to 4 cc. anesthetic drug anterior to the spine and 6 to 7 cc. posterior thereto. The procedure is then repeated on the opposite side using the other hand. An injection of "Zylocaine," 2%, has given excellent results in use as to extent and duration of the anesthesia in obstetrical cases.

The use of the device 10 is of great value in cases of a rapidly descending presenting fetal part which tends to crowd the operator's fingers against the vaginal walls and interfere with insertion of the needle.

While I have shown and described both a specific form of my invention with suggested sizes for one application this is not to be construed as any sort of limitation on my invention since various changes, alterations, variations, substitutions and eliminations can be made in the particular embodiments outlined herein without departing from the scope of coverage found in the appended claims.

I claim:

1. A surgical and medical device for administering an injection with a syringe and injection needle comprising an elongated, rigid needle guide means having an elongated, straight needle guide portion defined therein to receive and guide a needle, a finger retaining member on said needle guide means and having a portion thereof engageable with a finger on the hand to hold said needle guide means on the hand, said needle guide having a needle insertion entrance positioned by said finger retaining member adjacent said finger within the confines of said hand and having a needle exit positioned by and beyond said finger retaining member adjacent said finger tip.

2. A surgical and medical device for administering an injection with a syringe and injection needle comprising an elongated needle guide member having a longitudinal open guide portion to receive and guide an elongated needle therein, and a finger retaining means on said needle member at a point intermediate the length thereof for engagement with a finger on the hand to position and engage said needle guide therewith, said needle guide member being positionable by engaging said finger re-

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taining means on one hand and the needle being insertible in said guide to guide same to the proper location, whereby one hand may be used to locate the spot of insertion and the position maintained while the needle is inserted.

3. A surgical and medical device for administering an injection with a syringe and injection needle comprising an elongated needle guide tube member having a longitudinal open bore to receive and guide an elongated needle therethrough from one end thereof to protrude from the other thereof, an arcuate finger retaining member fixed on the outside periphery of said tube member at a point intermediate the length thereof to protrude upwardly therefrom, said retaining member defining an arcuate portion into which a finger may be inserted and on which said retaining member will remain in loose engagement with the finger thereby engaging the needle member with the hand, said tube extending generally in the direction of the finger on which it is retained and having one end adjacent the palm of the hand and the other end adjacent the end of the finger, whereby the finger may be used to locate the proper spot for the injection and the position maintained with the tube member until a needle is inserted through said tube for injection into the tissue of the spot determined.

4. The device of claim 3 wherein each end of said tube is covered with a soft member, and each soft member being open to permit access to the bore of said tube.

5. A surgical and medical device for administering an injection with a syringe and long injection needle comprising, an elongated needle guide tube member having a longitudinal open bore to receive and guide the needle longitudinally therethrough from one end thereof through and to protrude from the other end thereof, a ring finger retaining member having a portion of the outside periphery thereof fixed on the outside periphery of said tube with the ring upstanding from said tube, said ring being attachable on one of the fingers of the hand of the injection operator to place the tube substantially coextensive with the finger with one end adjacent the palm of the hand and the other end adjacent the end of the finger on which the tube is retained, whereby the finger tip can be used to locate the proper spot by touch and thereafter held in place in said spot until the needle is inserted through the tube and into the tissue near the end of the tube, by virtue of which the injection is accurately at the proper location.

6. The device of claim 5 wherein a soft, protective material covers each end of said tube, there being openings in said material for access to said tube ends.

References Cited in the file of this patent

UNITED STATES PATENTS

2,740,404 Kohl ----- Apr. 3, 1956