Further modifications for the Frazier suction device

Technical note

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Two modifications of the Frazier suction device are described: a removable distal retractor that is clipped to a modified suction tip and a coupling device that decreases counter-rotational torque.

KEY WORDS □ suction device □ retractor □ instrumentation

Since the initial introduction of the Frazier suction apparatus for use in neurosurgical operative procedures, an extensive number of modifications have been developed for it. A partial list has included the development of a combination suction-cautery tip, a fiber-optic illuminated suction device, a self-retaining multipore-suction tube, a suction device with a split tip to avoid tissue impaction, a malleable suction device, and a variety of suction tips for microneurosurgery. Modifications have been developed to enhance the ability of the neurosurgeon to vary and control the amount of suction more accurately and have also been mounted for use in a stereotaxic procedure. We are reporting two additional adaptations which may at times prove useful. These devices have not been produced commercially and may be adapted for use as desired.

Description of Devices

Retractor

The initial modification is a removable retractor which is clipped to the distal end of a suction tube (Fig. 1). The suction tip diameter has been reduced to 0.106 in. to accommodate the clip of the retractor. The small blade can be rotated and extended or retracted. It offers the neurosurgeon greater ease in retracting soft tissue at the time that suction is required, enhancing the ability of the surgeon to visualize the operative field without occluding the tip of the suction tube with soft tissue. In addition, when the suction cautery technique is required, use of the distal retractor makes coagulation possible without occluding the tip of the suction catheter as readily, and the new device is easily cleaned.

Several sizes and shapes of retractor tip have been developed (Fig. 2) to accommodate a No. 8 French suction tip. The large retractor tip measures 17.5 × 3 mm and is made from No. 10 needle stock. The retractor has been utilized in intracranial extra-axial surgery and in spine surgery. We have found it to be most useful in lumbar disc procedures.
Modification of Frazier suction device

Rotating Coupling

The second modification is a 360° rotating joint mounted in line with the suction device (Fig. 3). One major disadvantage of mounting the flexible suction hose directly on the suction tip is the counter-rotational torque that occurs when the position of the suction tip is changed by the surgeon. This can be annoying and is partially ameliorated by the insertion of this coupling device. The coupling utilized has a 10-32 thread and can be mounted into the Frazier suction tube which itself has a 10-32 thread for removal of the vacuum line adapter. Further modifications can be envisioned, such as the development of a completely universal joint capable of maintaining adequate suction, as opposed to the simple rotational device that is illustrated here.

References


*Swivel coupling device, Model 15050, manufactured by Clippard Instrument Laboratory, Inc., Cincinnati, Ohio.

Manuscript received January 10, 1987.
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