

Novel technique in placement of transesophageal echocardiography probe in neurosurgical procedures

Sir,

Transesophageal echocardiography (TEE) is increasingly becoming popular in managing neurosurgical patients,^[1] particularly for those subsets of patients with anticipated major fluid shifts, risk of perioperative myocardial ischemia, and venous air embolism. The last condition mandates special

attention in patients placed in semi sitting positions during surgery.^[2] Practical problem from which neuroanesthesiologists suffer, while performing TEE is the inadequate accessibility of the oral cavity because of the close proximity of the surgical site and overlying surgical drapes. This makes manipulation of the TEE probe tremendously difficult. Mayo table (Bangalore surgical co, Bengaluru, India), commonly used in neurosurgical

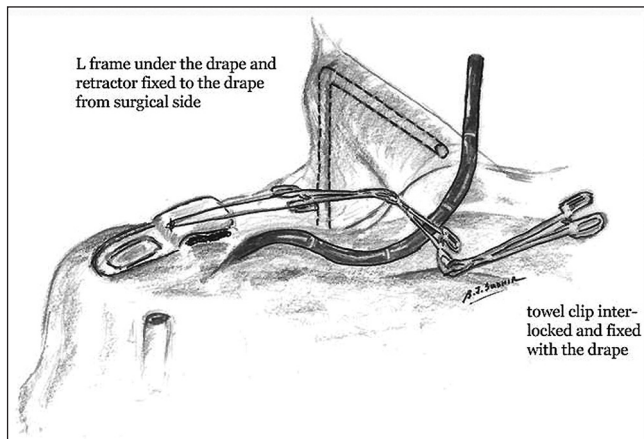


Figure 1: Schematic diagram of L-frame under the drape and retractor fixed to the drape from surgical site for easy manipulation of transesophageal echocardiography probe

theaters, occupies a considerable amount of space overlying the body of the patient, leading to very little available space for accessing the TEE probe. In some centers, Mayo table is not used and surgical drapes are placed directly over the patient making the TEE probe, placed below the drapes, almost unreachable. We have designed a unique, simple, and universal method for placement of TEE probe, which makes the probe manipulation and maneuverability extremely easy throughout the surgery without compromising with the sterility of surgical field or sinking the optimal space needed by the surgical colleagues. We have studied a method of TEE probe placement on 30 patients undergoing various major neurosurgical procedures in supine, lateral or in extreme lateral positions, in which TEE was used as a routine monitoring tool. The method primarily involves placement of “L” frame, with the vertical limb of frame fixed firmly with the operating table and horizontal limb of frame placed one foot above the patient’s chest wall, before the commencement of surgery, ensuring absolutely no movement of the frame relative to the operating table afterwards. Later, the cranial drapes are fixed with the horizontal limb of the frame with the aid of multiple towel clips. Finally, surgical screen is fixed with the “L” frame and further secured with two stands placed on either side of the operating table using towel clips [Figures 1 and 2]. Several towel clips are needed, while securing the drapes to the horizontal limb of the frame, but they are fixed in such a way that accessibility and manipulation of the probe is not affected, thus providing an excellent maneuverability of the TEE probe [Figure 2]. However, this arrangement has one significant limitation. Proper retraction of scalp flap and subsequent surgical dissection becomes difficult due to placement of the “L” frame. We have resolved this problem in a unique manner. Surgical colleagues secure the towel clips attached to the retractors from the surgeon’s side with the surgical drapes fixed to the “L” frame. We then place another set of towel clips from the anesthesiologist’s side of the screen, inter-lock each

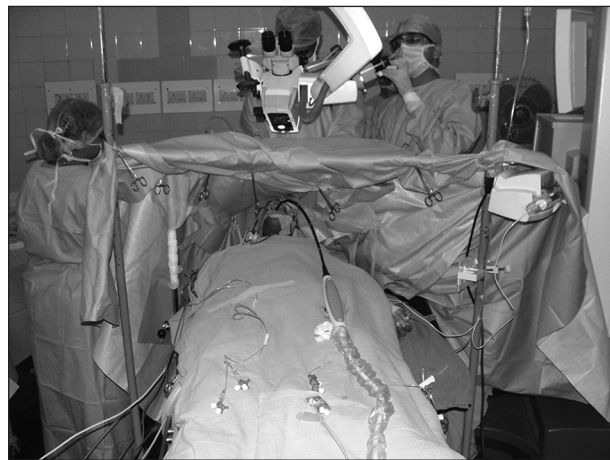


Figure 2: Snapshot showing novel technique in placement of transesophageal echocardiography probe in neurosurgical procedures

set of towel clips, ensuring that both these towel clips, one placed from surgical and another from the anesthesiologist’s side of the screen, are holding firmly. Then, the towel clip on the anesthesiologist’s side is interlocked with another towel clip and finally this is secured carefully to the drape covering the patient, at a place where it provides desirable retraction without interfering with the manipulation of the TEE probe or interfering with its accessibility [Figure 1].

In our view, this technique provides the neuroanesthesiologist a simple, useful and efficient means to manipulate the TEE probe during neurosurgical procedures with adequate retraction of the scalp flap much to the satisfaction of the operating surgeon. However, one limitation for this method is that the patients placed in prone position during surgery, in which this arrangement of TEE probe placement is not possible.

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Dr. Easwer HV. MCh. for assisting and evaluating the arrangements of retractors from neurosurgeons’ perspective.

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