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## Laryngeal *Tirit* (Bridge): for Microlaryngeal Surgery Shake

### ABSTRACT

**Objective:** To design an instrument for steadying instrument handling during microlaryngeal surgery using an operating laryngoscope.

**Method:** Our device design takes its cue (pun intended) from professional billiards players like our very own Efren “Bata” Reyes. The laryngeal *tirit* (bridge or rake) draws inspiration from the billiards bridge (locally known as *tirit*) used to extend the player’s reach when the cue ball is too far to make an accurate shot.

**Setting:** The laryngeal *tirit* was used and tested by senior residents in microlaryngeal surgeries done in our institution.

**Result:** The laryngeal *tirit* greatly improved the accuracy required in laryngeal surgeries without adding up huge set up or expensive equipment.

**Keywords:** *Laryngoscopes, instrumentation*

**EVEN THE** world’s number one billiards player, Efren “Bata” Reyes, uses a rake or bridge, locally termed as *tirit*, to extend his reach on a shot and win many tournaments. The device, sometimes called a “rake” or simply “bridge” is used to extend a player’s reach on a shot where the cue ball is too far away to achieve accurate hand bridging (Figure 1). It is from this simple device that we drew inspiration to solve the problem of hand shaking or tremors that many ENT surgeons encounter when performing microlaryngeal surgeries.

Microlaryngeal surgery is a delicate procedure which involves fine hand movements and skills. In a process which demands fine motor skills in a small operating field, steady and precise movement in instrument handling is difficult to achieve for many surgeons. The instrument, which we will fondly name the microlaryngeal *tirit*, was designed to address the problem of shaky handling of instruments during microlaryngeal procedures.

The microlaryngeal *tirit* operates in similar principle to that of the billiard player’s bridge or rake when making a shot at the cue ball. By reducing the shaky handling of instruments, the surgeon can now focus on the precise microlaryngeal surgical procedure at hand.

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**MATERIALS AND METHODS**

The instrument was made of 14-centimeter stainless steel wire (Figure 2) with the distal end flattened and trimmed to form a V-shaped prop or bridge (Figure 3). Its greatest diameter was 1.5mm. The proximal end was curved and designed to fit to the lip of the laryngoscope for enhanced precision (Figure 4).

**RESULTS**

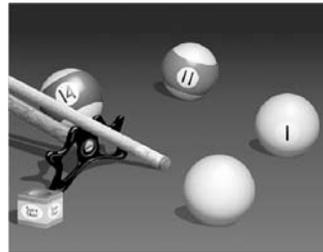
The laryngeal *tiririt* was utilized on four microlaryngeal surgeries done in our institution. The device was not found to be obtrusive to the already narrow operating field. Since the *tiririt* was thin, it did not present any intrusion when using the microlaryngeal instruments (Figure 5). No slippage of instruments resting on the *tiririt* was experienced. The distal V-shaped end of the *tiririt* could accommodate up to two microlaryngeal instruments at a time. The *tiririt* also served as a guide, as well as a bridge, for most of the laryngeal instruments used (Figures 6, 7).

**DISCUSSION**

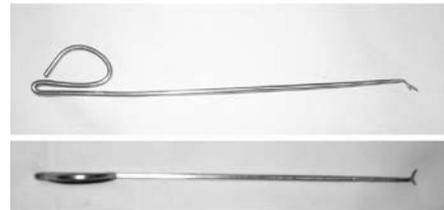
The development of rigid endoscopes for ENT surgery has brought our sight closer to the operating site in spite of the narrow operating field<sup>1,2,3</sup>. Extended instruments facilitate microlaryngeal surgery through the operating laryngoscope. However, this makes handling of the instruments unsteady. Various tables have been used to deal with shakiness and strain during surgery by serving as elbow or arm rests. This reduced strain but did not necessarily resolve unsteady handling. Similarly, handles for laryngeal devices<sup>4,5</sup> (Karl Storz cat. no. 8597, ExplorENT cat. no. 632025) do not necessarily offer a rest for shaking of the distal end of laryngeal instruments. The laryngeal *tiririt* adds stability in handling instruments during surgery, addressing shakiness and unsteady handling by acting as a mechanical bridge and greatly improving the precision required in microlaryngeal surgeries without adding bulky set up or costly apparatus.

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**FIGURE 1:**  
Billiard Bridge  
("Billiards" printed with permission from  
The Art of Chuck Currey, page 8 available from  
[www.xaraxone.com/Featured Art/mar04/html/08.htm](http://www.xaraxone.com/Featured Art/mar04/html/08.htm))



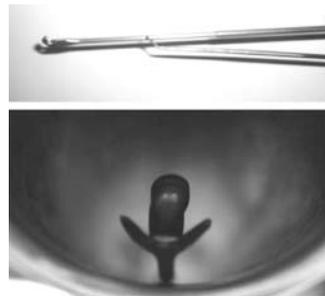
**FIGURE 2:**  
top, lateral view; bottom, antero-posterior view



**FIGURE 3:**  
V-shaped distal end



**FIGURE 4:**  
Proximal end of the *tiririt* mounted on an  
operating laryngoscope



**FIGURE 5:**  
Cup forceps resting on the *tiririt*



**FIGURE 6:**  
*Tiririt* with laryngeal ligature needle mounted



**FIGURE 7:**  
Laryngeal *tiririt* with cup forceps