VL Combined With a Novel Single-Handed Steerable Introducer: Indications and Success Rates—A Six-Year Review

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Introduction

Advanced intubation equipment such as intubating supraglottic airways, flexible intubating scopes (FIS), and optical stylets can be used for anticipated and unanticipated intubations. Reported rates of failure to rescue with advanced equipment range from 22–32%. [1] Reported first-pass success for difficult intubations with common stylets and introducers ranges from 37–98 %. [2]

A combined technique using video laryngoscopy (VL) for visualization and FIS as a steerable introducer is recommended by ASA difficult airway guidelines. [3] A novel single-handed steerable introducer (Runnels Steerable Introducer, Ru-SI™) was developed to enable a single operator to perform this combined technique.

Methods

This is an IRB-approved retrospective study of reviewed electronic medical records (EMR) from the University of Utah's airway management database. The requirement for written informed consent was waived by the IRB.

Design: Retrospective EMR review

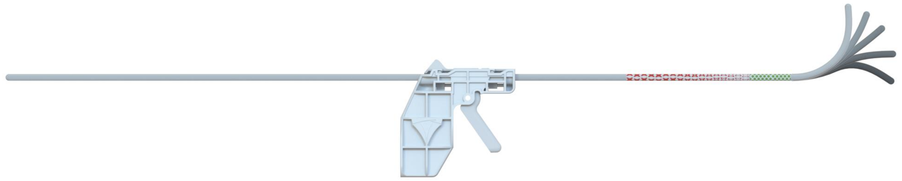

Figure 1. The Runnels Steerable Introducer™ (Ru-SI; TTCmed.com, LLC, Salt Lake City, UT).

Results

Indication	First Pass Success	Overall Success
Anticipated difficult intubation	112/126 (88.9%)	343/358 (95.8%)
Novice User	96/103 (93.2%)	101/103 (98%)
Unstable C-Spine	17/18 (94.4%)	17/18 (94.4%)
Double lumen tube	2/3 (66.7%)	3/3 (100%)
Nasal Intubation	8/10 (80%)	10/10 (100%)
Awake intubation	4/4 (100%)	4/4 (100%)
Glottic edema	4/4 (100%)	4/4 (100%)

Table 1. VL and a single-handed steerable Introducer used as a rescue approach to intubation for various indications. First pass success and ultimate success rates.

Methods (continued)

We reviewed 27,841 consecutive intubation notes from December 2017 to September 2023 at a large teaching hospital. Cases using VL combined with a Runnels Steerable Introducer (Ru-SI™) as the primary intubation approach were identified. Each case was analyzed for indication, user experience (novice vs experienced), first-attempt success, and overall success.

Conclusions

This retrospective review demonstrates that a single-operator combined technique using video laryngoscopy and a steerable introducer can be effectively applied across a broad range of clinical scenarios, achieving high first-pass and overall success rates. Further studies are needed to compare this method with other advanced airway techniques.

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Disclosures

The authors have no conflicts of interest.

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