First clinical experience with the novel videolaryngoscope i-scoop during spontaneous breathing and conscious sedation

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Background

Serious complications:
45× higher in anticipated difficult vs normal airways
→ 0.3% vs 0.007%[1]

Serious adverse events in ICU intubations:
45% → 150× and >6,400×, these elective rates[2]

Aspiration of gastric content:
>0.2% during in-hospital general anaesthesia[3]
18% in out-of-hospital intubations → 90× higher[4]

Intubation under preserved spontaneous breathing:
0.2% overall; **2.7%** when difficulty is anticipated[1]

- New approach: **keep all patients breathing!**
- Adoption barrier: **limited clinical practicability**
- Potential key enabler:

The i-scoop:

- bladeless, anatomy-guided insertion (LMA-like)
- low force, minimal soft-tissue trauma
- subepiglottic placement of the dual optics and tube-guiding bar
- best possible close-up laryngeal view from two perspectives
- stylet-free, vision-guided intubation
- dual suction automatically position-ed at the oesophageal inlet (arrows →)

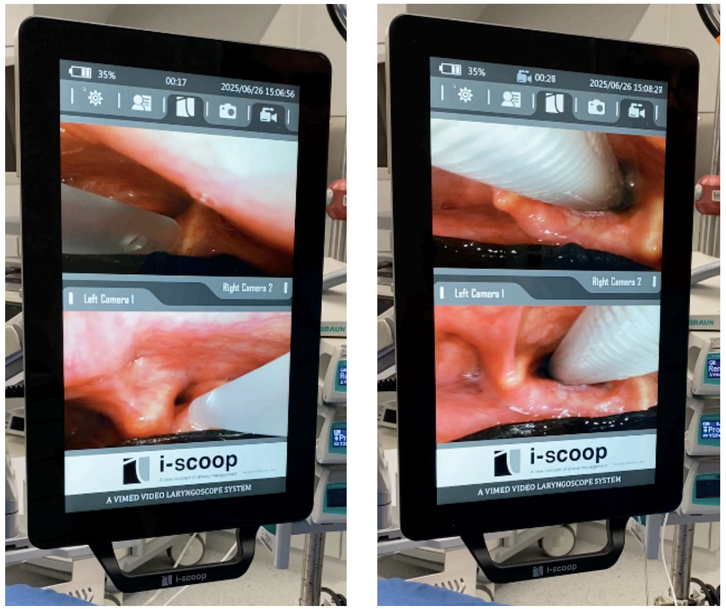
The i-scoop outperformed all other videolaryngoscopes in simulated normal and difficult airways.[5]

Early data in anaesthetised patients are promising.[6]

The performance during spontaneous breathing is not known.

Methods

Design: retrospective analysis. *Study population*: **41 elective urology patients** with written consent for scientific analysis. *Approval*: Ethics Committee, Hannover Medical School. *Population*: first consecutive cases intubated with the i-scoop (Vimed Medical Device, People's Republic of China; Supporting Health Care, the Netherlands) under standardised analgosedation with preserved spontaneous breathing between 13 May and 26 June 2025.



Conscious sedation: remifentanil 0.3 µg/kg (reference weight = height[cm]−100) + propofol 0.6 mg/kg. Maintenance: remifentanil 0.05 µg/kg/min; propofol 2 mg/kg/h. Additional boluses as required: propofol 0.3 mg/kg; max one bolus remifentanil 0.3 µg/kg. Anxiolysis if required: midazolam 1 mg.

Topical anaesthesia: lidocaine 1% orally 3–4 × 5 ml (150-200 mg); endotracheal lidocaine 1% 2 ml (20 mg) via i-scoop-guided catheter (**left panel**); intubation 60–90 s later (**right panel**).

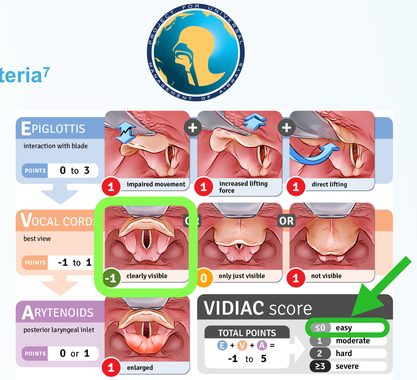
Oxygenation: continuous 18 L/min O_2 from pre-oxygenation to intubation; target end-tidal O_2 ≥ 0.60.

Monitoring: Impedance respirography; continuous CO_2 and O_2 waveforms via nasal cannula to assess spontaneous breathing and end-tidal O_2; in-tube capnography for real-time confirmation of correct placement according to PUMA criteria[7].

Primary endpoint: 'good clinical practicability' of the overall approach if all criteria met:

Safe visual control:
1. glottis clearly visible
2. visual confirmation of correct tube placement according to **PUMA criteria**[7]

Easy intubation:
3. **VIDIAC score ≤ 0**[8]
4. first-pass success
5. less than 3 manoeuvres
6. duration ≤ 1 min



No complications: defined as the absence of
7. awareness of endotracheal topical anaesthesia or intubation; **8.** SpO_2 < 90%; **9.** persistent apnoea; **10.** clinically relevant cardiovascular effects; **11.** aspiration; **12.** symptoms or injuries >3/10 on VAS directly after intervention.

Results

- Median age 62 years (range 33–82); height 176 cm (155–197); weight 81 kg (43–131); BMI 27 (15–48); female 11; El-Ganzouri Index ≥ 4: 9 patients.
- **All criteria for 'good clinical practicability' were met in 35/41 patients (85%).**
- Both CL grade 1 view and VIDIAC score −1 in all patients; median POGO 100% (75–100%).
- Intubation visually confirmed per PUMA criteria[7] in 40/41 (98%) (1 exception: first-time user).
- **No complications.**
- First-pass success 37/41 (90%); ≤2 attempts 40/41 (98%); ≤3 attempts 41/41 (100%).
- Median intubation duration: one experienced operator (n = 34) 18 s after tooth passage (range 6–80 s); three first-time users (soldiers; 7 intubations) 55 s (24–59 s).

Conclusions

- *Key message*: The i-scoop enabled **'good clinical practicability' of the overall approach** to intubation under preserved spontaneous ventilation in nearly nine out of ten patients.
- *Routine and competence:* Key benefits for all patients—**no neuromuscular blockade**, much lower anaesthetic dose, steadier haemodynamics, faster recovery, fewer adverse events—may support default use, building routine and strengthening competence for difficult airways and the critically ill.
- *Potential impact*: This markedly less invasive approach could substantially reduce complications, turn a rare exception into standard practice, and make routine care safe by default.

References

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Ethics Committee approval No.
12063-BO-K-2025

Research partners:

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Morning poster session: 10:30–11:15
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