VŠEOBECNÁ FAKULTNÍ NEMOCNICE V PRAZE

1. LÉKAŘSKÁ FAKULTA Univerzita Karlova

KARIM 1.LF UK A VFN V PRAZE

Predikce DAM, algoritmy, videolaryngoskopie

Jan Horejsek

KARIM VFN Praha

XVII. konference Akutně 22.11.2025

Obtížná intubace

- Incidence obtížné OTI:
  - Na OS: 5-10 %
  - Na JIP+UP: **až 27 %**
- Selhání OTI: 0,15-0,6 %

Cochrane Database Syst Rev. 2018; 2018(5): CD008874. PMCID: PMC6404686
Published online 2018 May 15. doi: 10.1002/14651858.CD008874.pub2 PMID: 29761867

Airway physical examination tests for detection of difficult airway management in apparently normal adult patients

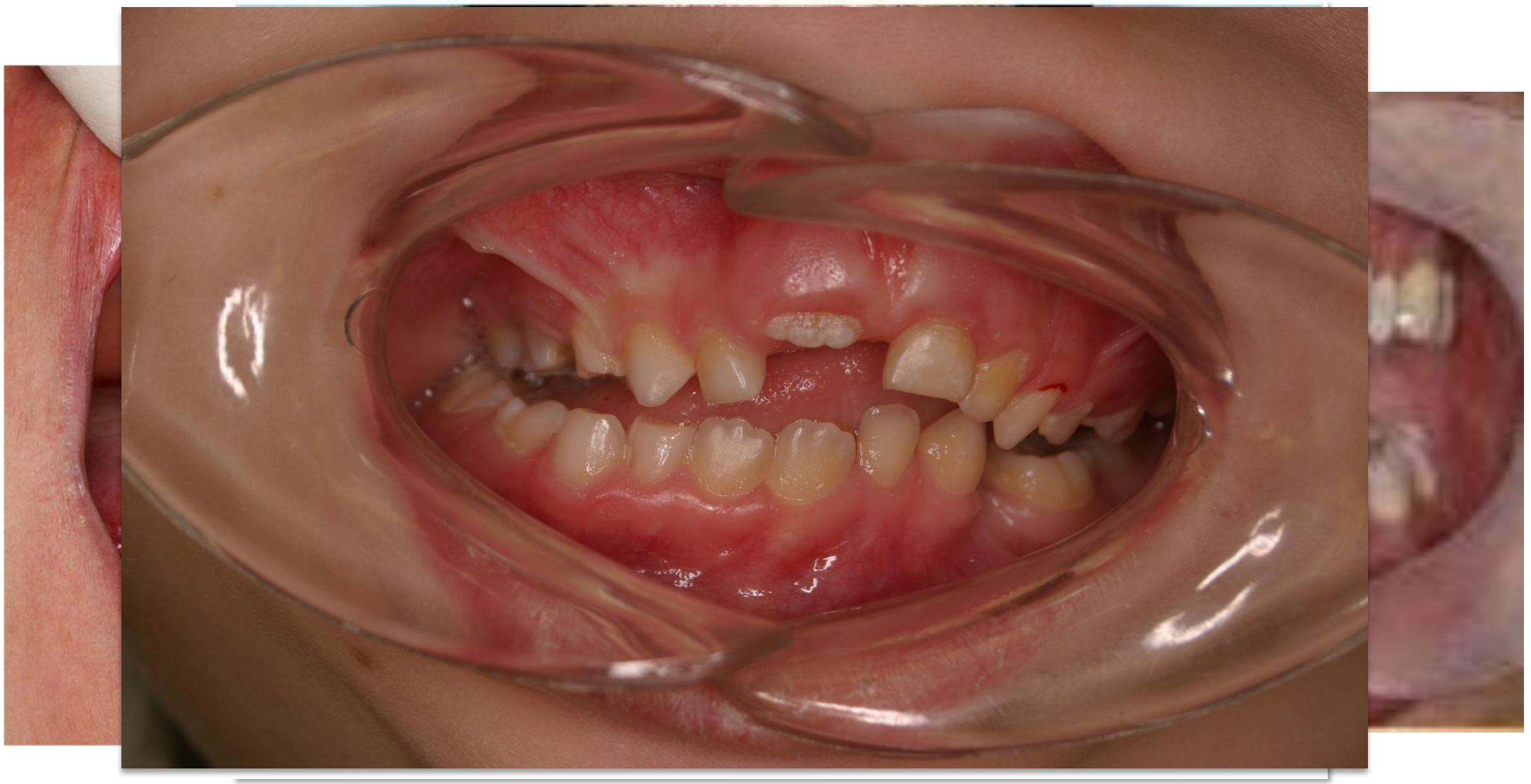
Monitoring Editor: Dominik Roth, Nathan L Pace, Anna Lee, Karen Hovhannisyan, Alexandra-Maria Warenits, Jasmin Arrich, Harald Herkner, and Cochrane Anaesthesia Group

Anaesth Intensive Care. 2012 Jan;40(1):120-7. doi: 10.1177/0310057X1204000113.

Incidence of difficult intubation in intensive care patients: analysis of contributing factors

Jan F Heuer [1], Thomas A Barwing, Juergen Barwing, Sebastian G Russo, Elisa Bleckmann, Michael Quintel, Onnen Moerer

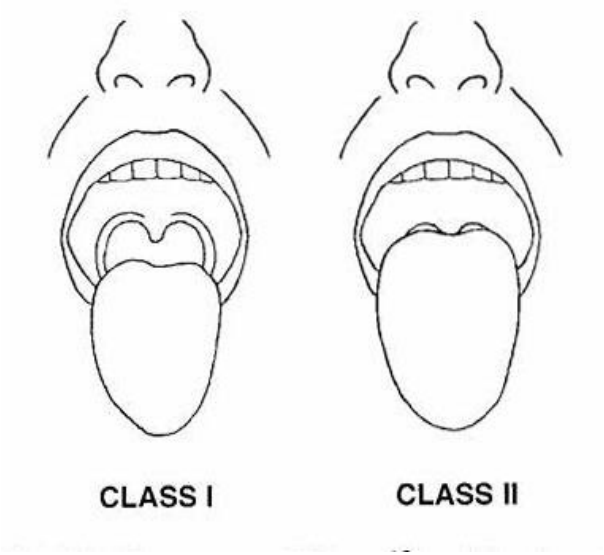
Predikce, skórování

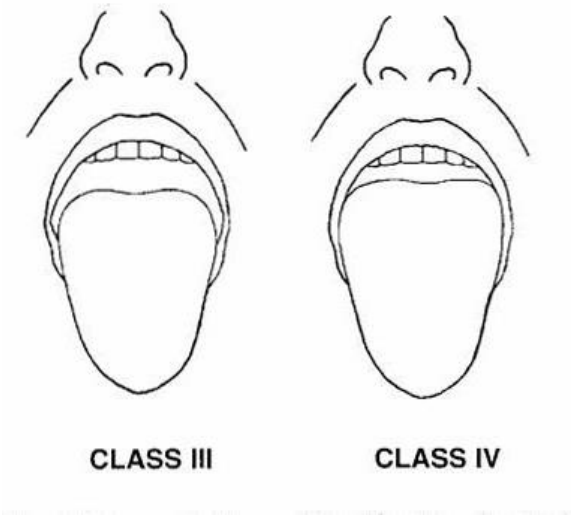


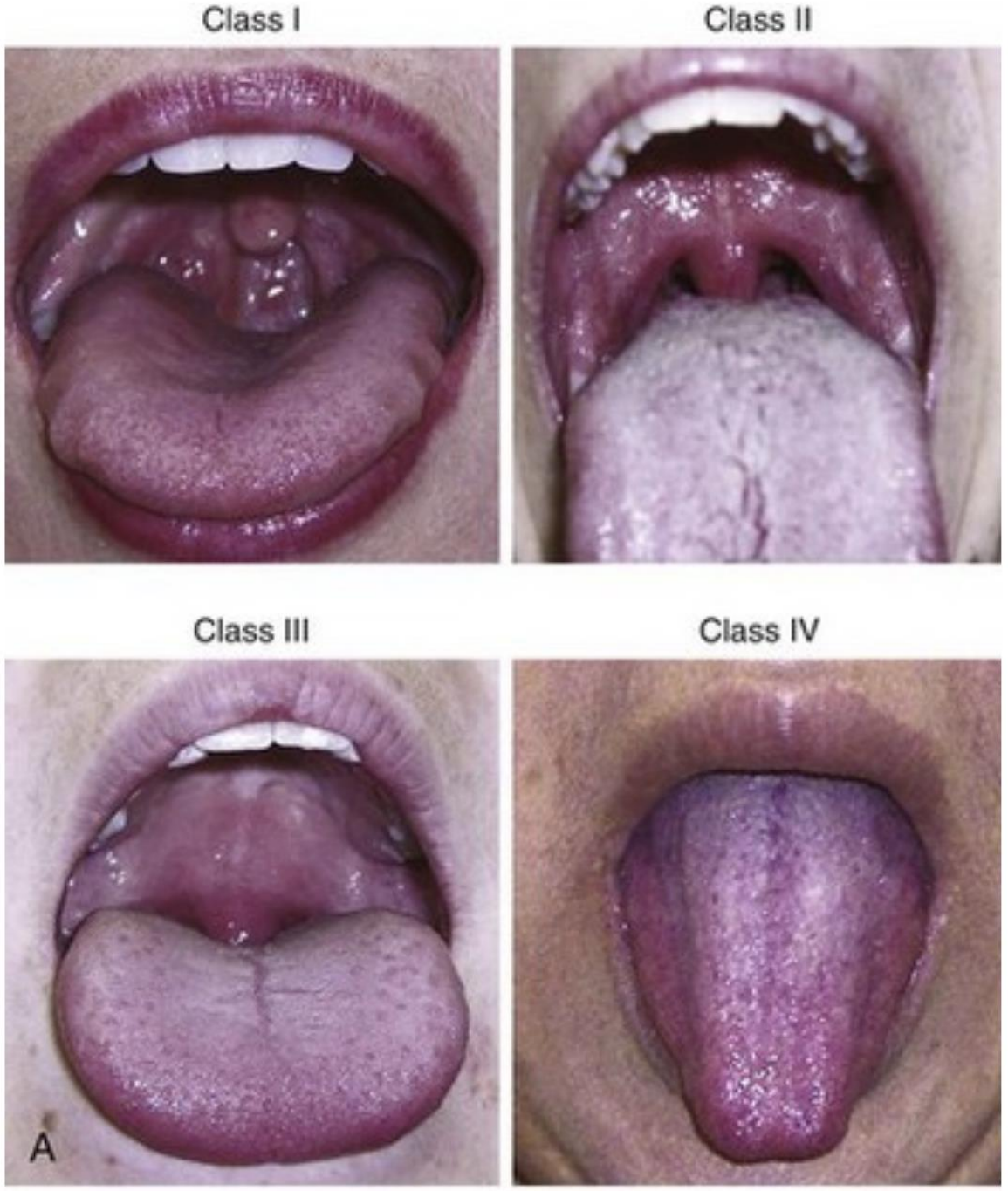
VŠEOBECNÁ FAKULTNÍ NEMOCNICE V PRAZE

1. LÉKAŘSKÁ FAKULTA Univerzita Karlova

Predikce, skórování - Mallampati

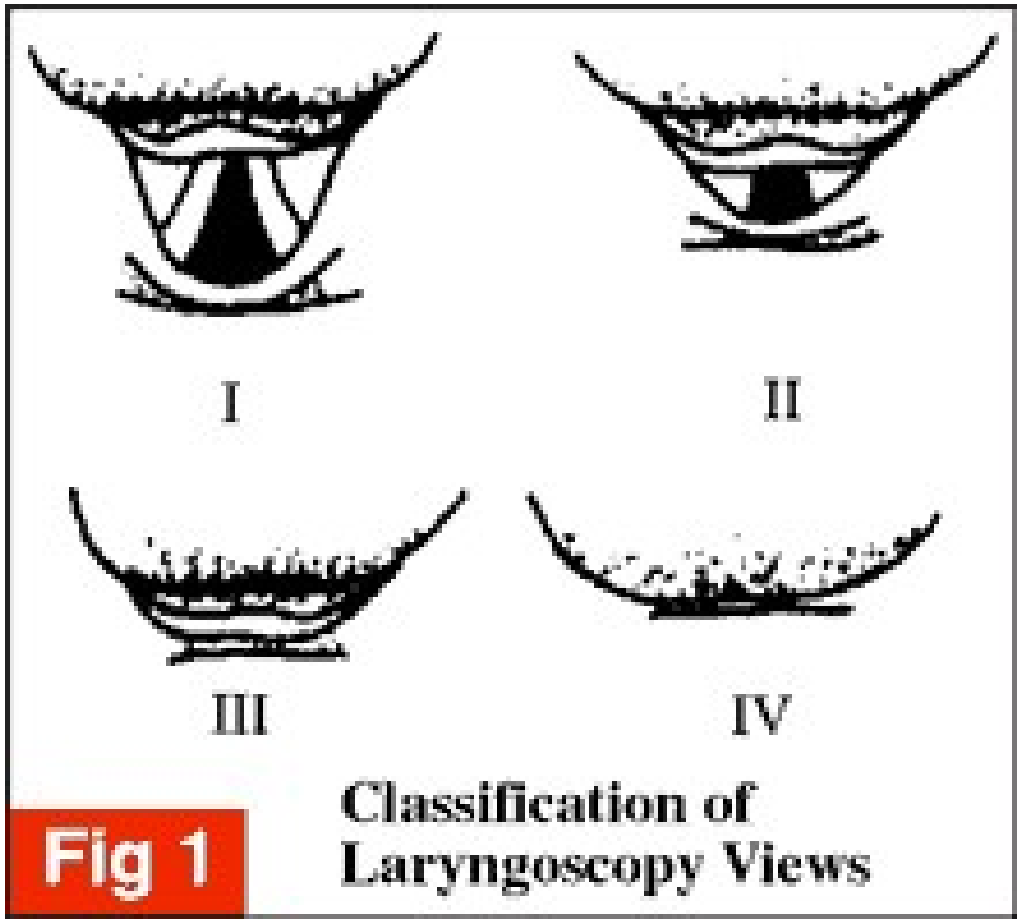


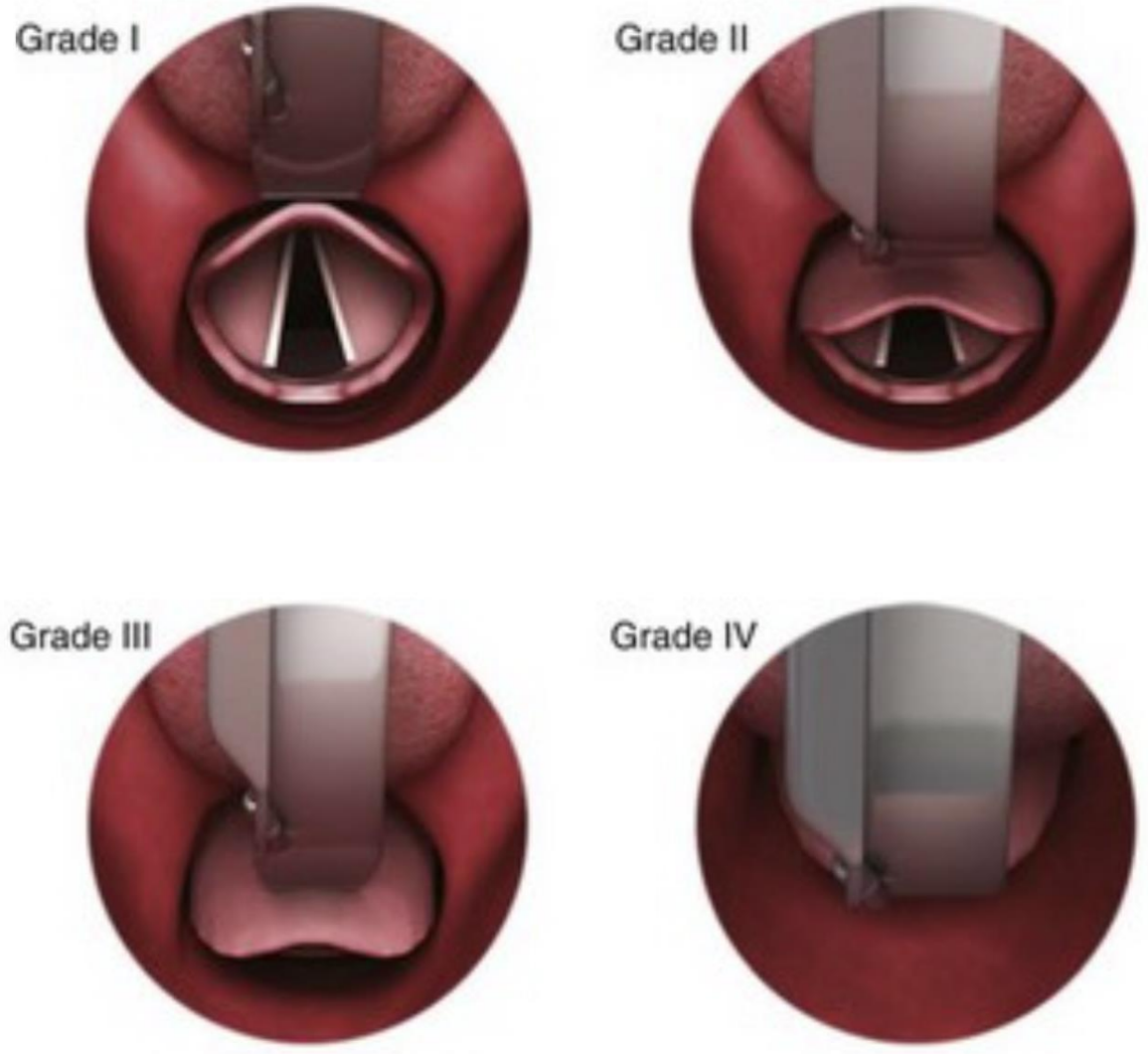




clinicalgate.com/tracheal-intubation/

Predikce, skórování - Cormack–Lehane skore





clinicalgate.com/tracheal-intubation/

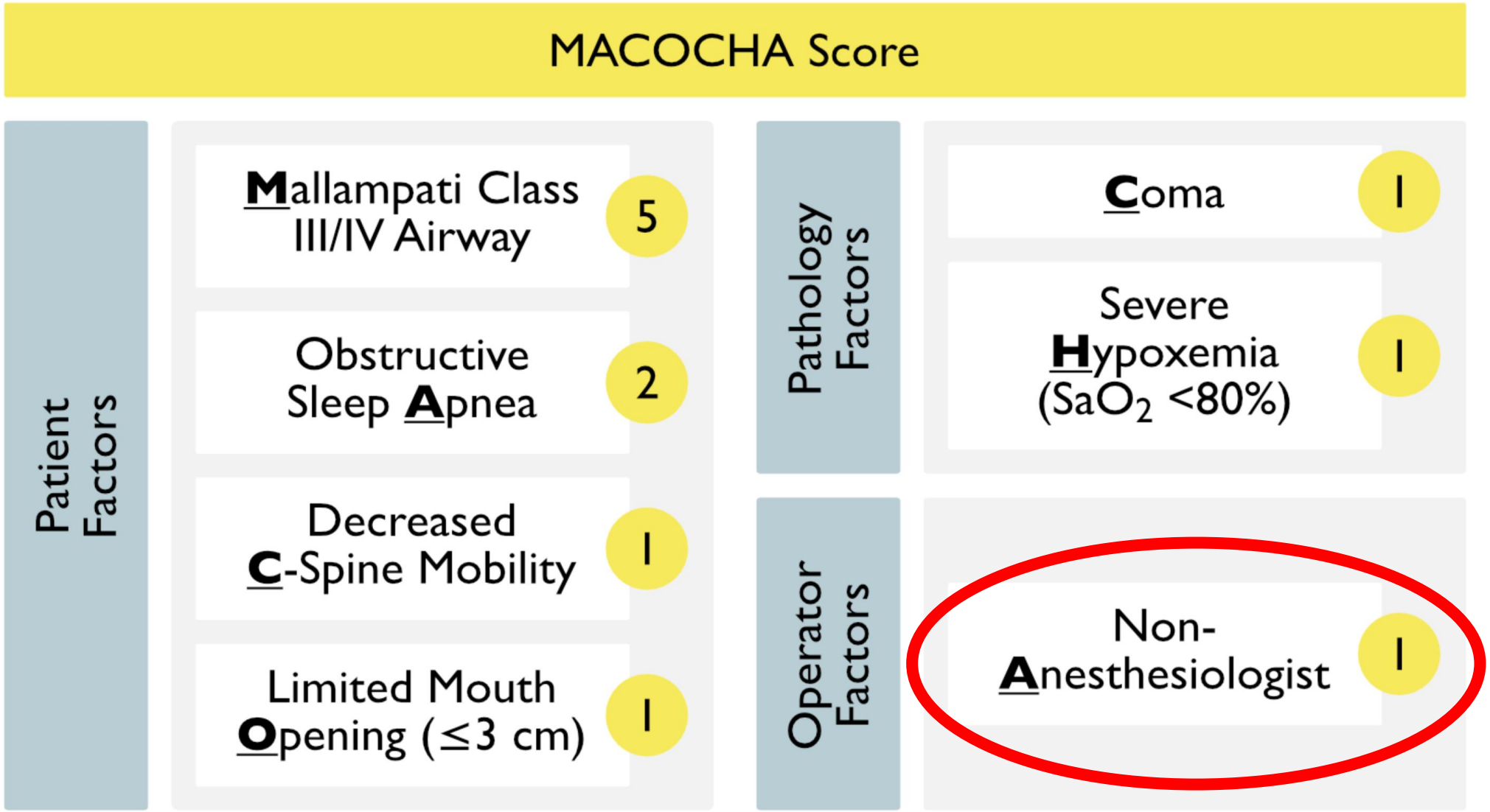
Predikce, skórování - LEMON score

- **L - Look externally**
  (úraz obličeje, velké řezáky, knír či plnovous, velikost jazyka)
- **E - Evaluation** – pravidlo 3-3-2
  (vzdálenost mezi řezáky < 3 prsty, vzdálenost jazylka-brada < 3 prsty, thyroid-mouth distance < 2 prsty)
- **M - Mallampati** – (skóre ≥ 3)
- **O - Obstruction** (přítomnost jakéhokoli faktoru, který může způsobit obstrukci DC)

- **N - Neck mobility** (rozsah pohyblivosti krční páteře)

Soyuncu, *Ann J Emerg Med*. 2009

Predikce, skórování - MACOCHA



Predikce není spolehlivá

Mallampati 1 ≠ snadná OTI

=> preoxygenace

Table 2 Apnoea time required to reduce oxyhaemoglobin saturation (Sa_{O_2}) to 85 % for a standard adult, standard 10-kg infant and obese adult, both with and without preoxygenation

	Time (s) to Sa_{O_2} = 0.85	
	$FA_{O_2 initial}$ = 0.133	$FA_{O_2 initial}$ = 0.87
Standard adult (70 kg)	84	502
Standard infant (10 kg)	41	180
Obese adult (127 kg)	46	171

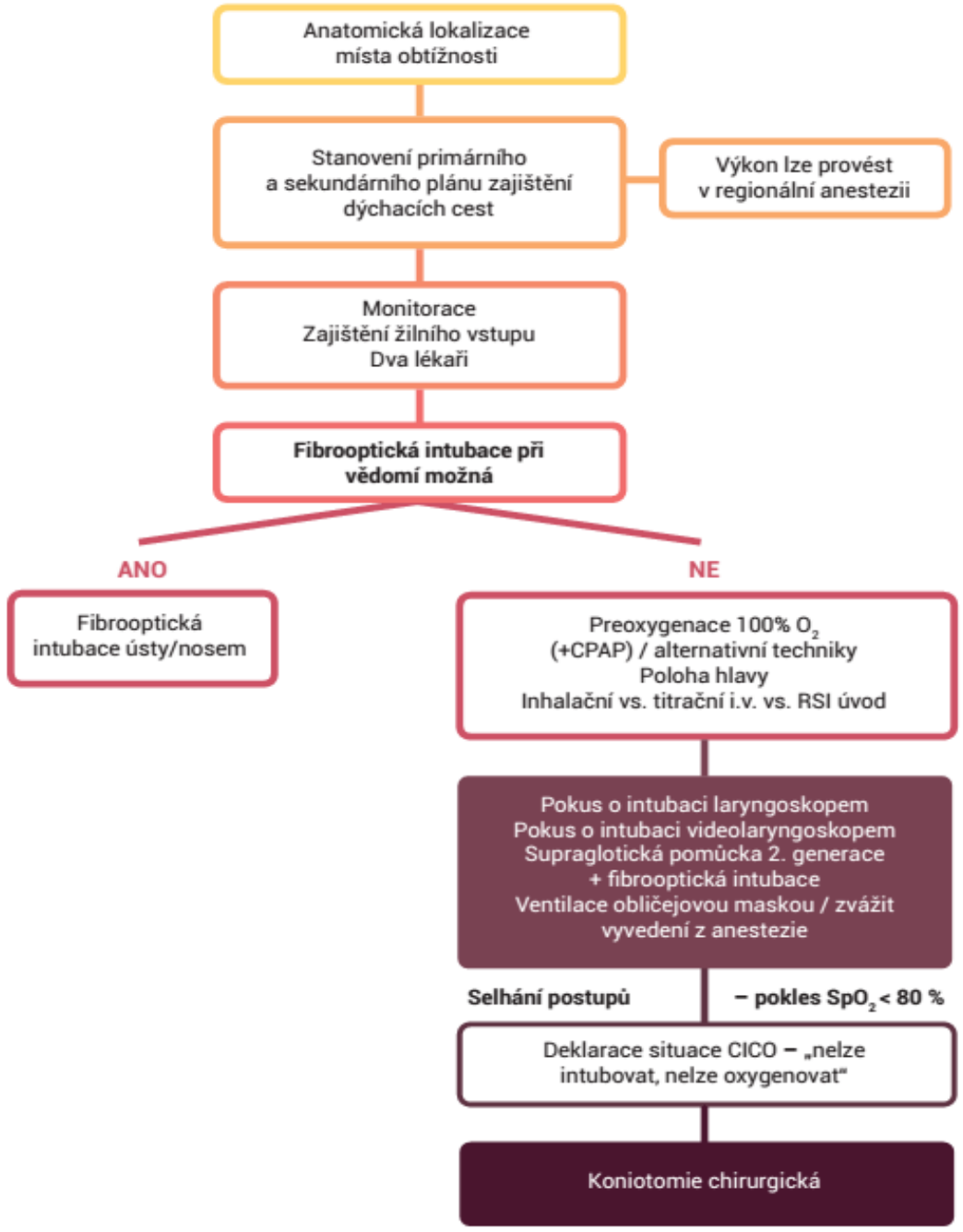
Farmery 1996, Benumof 1997

Preoxygenace

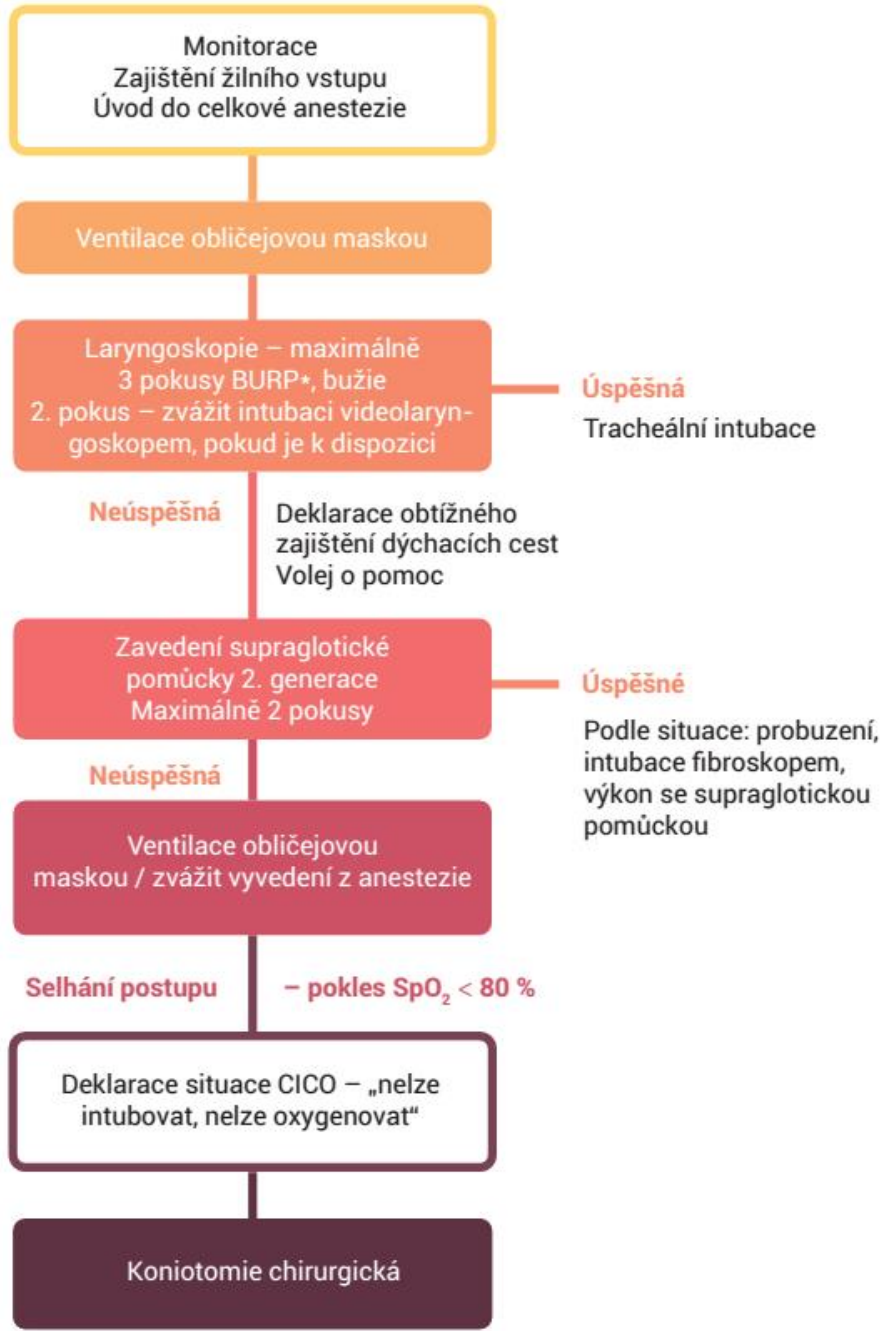
- varianty
  - 3 minuty dýchání s O2 10 l/min
  - 8 hlubokých vdechů během 1 minuty
  - **cílové etO2 90 %**
- Anti-Trendelenburgova poloha
- CPAP/NIV
- Apnoická oxygenace (airway/HFNO/brýle O2)

Preoxygenation and apneic oxygenation for airway management for anesthesia - UpToDate

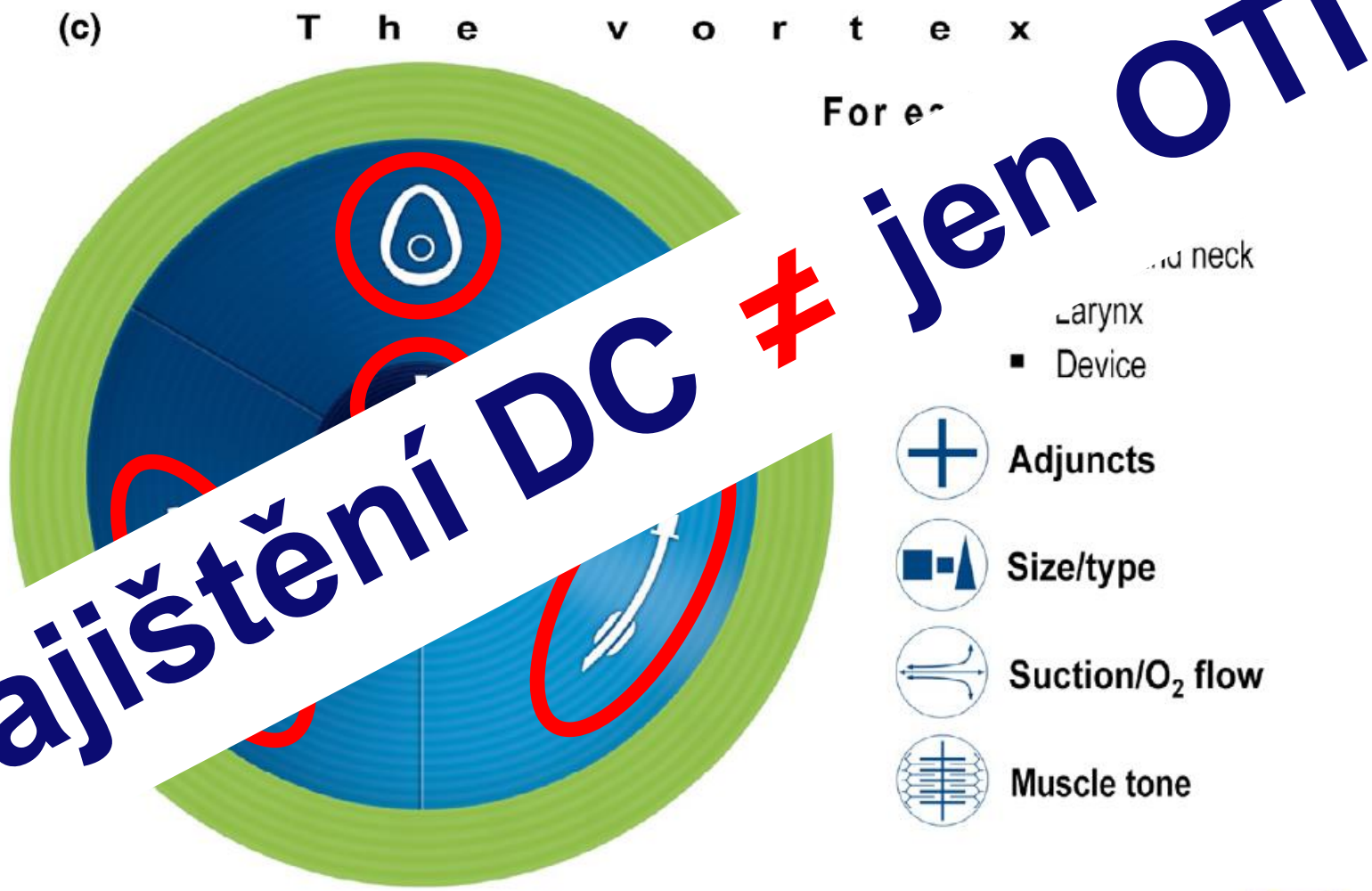
OČEKÁVANÉ OBTÍŽNÉ ZAJIŠTĚNÍ DÝCHACÍCH CEST U DOSPĚLÉHO PACIENTA



NEOČEKÁVANÉ OBTÍŽNÉ ZAJIŠTĚNÍ DÝCHACÍCH CEST U DOSPĚLÝCH



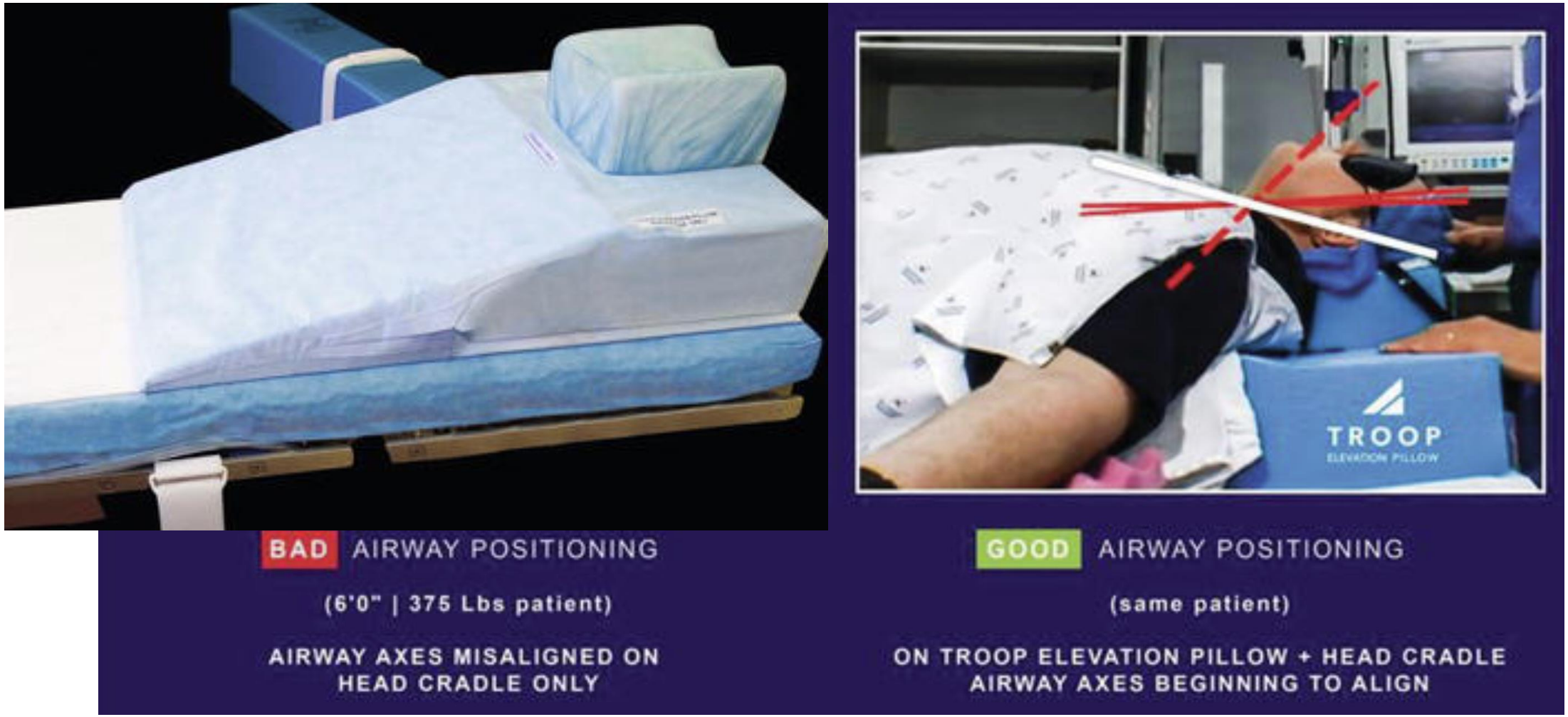
Jednoduše a rychle



zajištění DC ≠ jen OTI

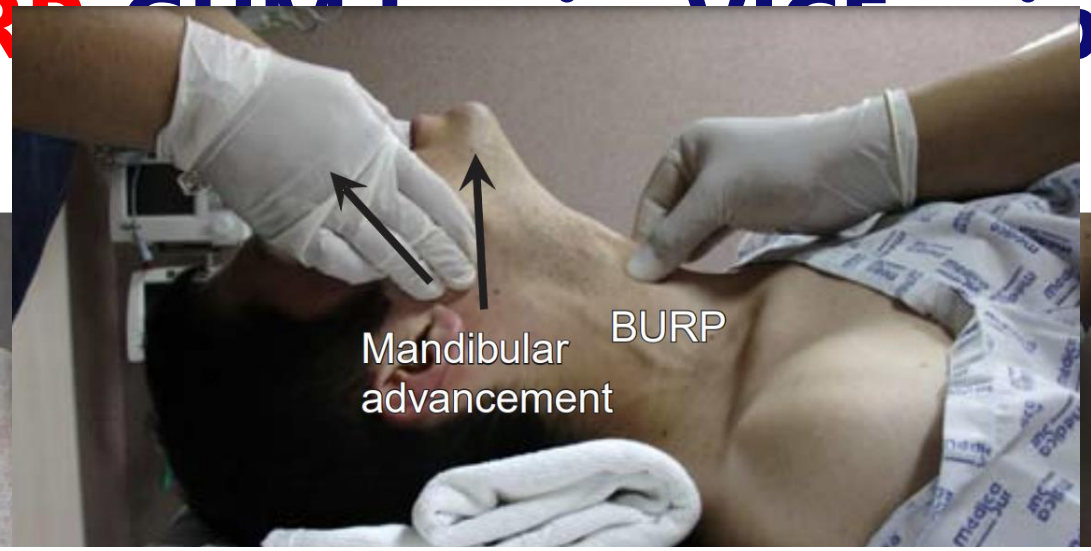
Cook, *Anaesthesia,* 2020

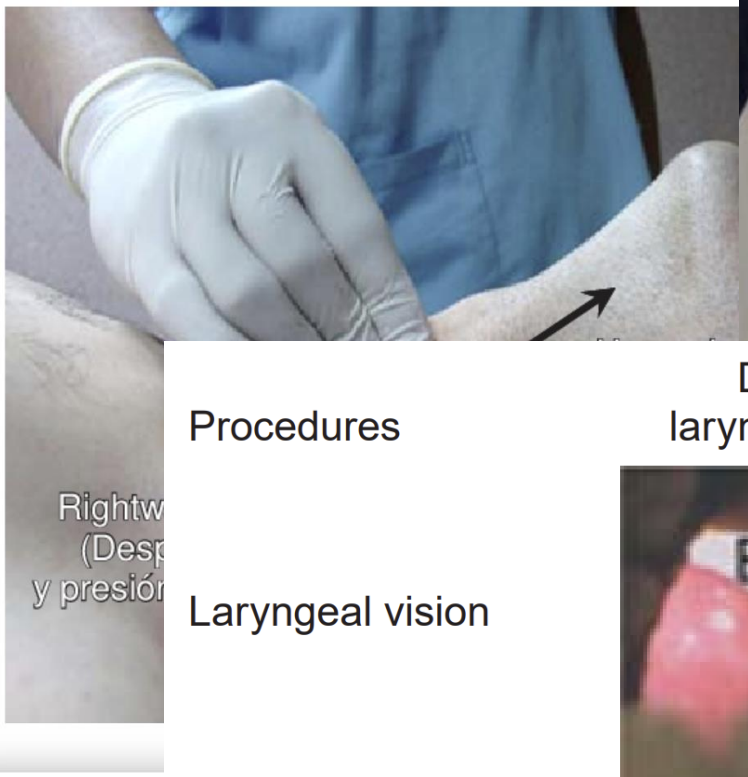
Jak nemít obtížné zajištění DC
- RAMP, BURP, GUM bugie, VICE grip

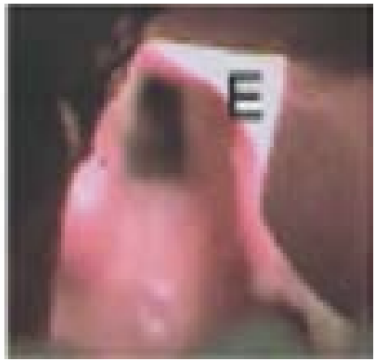


Craig A. Troop, 2018, DOI:10.5772/intechopen.75514, In book: Tracheal Intubation

Jak nemít obtížné zajištění DC
- RAMP, BURP, GUM, ...





Procedures	Direct laryngoscopy	LD + mandibular advancement	LD + BURP	LD + AM *BURP
Laryngeal vision				
Cormack-Lehane	III **	II	II	I *

Backward **U**pward **R**ightward **P**ressure

Carrillo-Esper, BURP maneuver, IMAGES IN ANESTHESIOLOGY,2008

Jak nemít obtížné zajištění DC
- RAMP, BURP, GUM bugie, VICE grip

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Základy úspěchu:

- Pozice Macintosh lžíce ve vallecule
- Laryngeální tlak (BURP – technika sníží grade 3 z 9.2% na 1.6%) *(Takahata,1997)*
- Rotace ETT proti směru hodinových ručiček při zavádění. *(Hinds a Michalek,2007)*

- Úspěšnost 94.3% i když nejsou hlasové vazy viditelné (grade 3)

(Hodzovic,2003)

Jak nemít obtížné zajištění DC
- RAMP, BURP, GUM bugie, VICE

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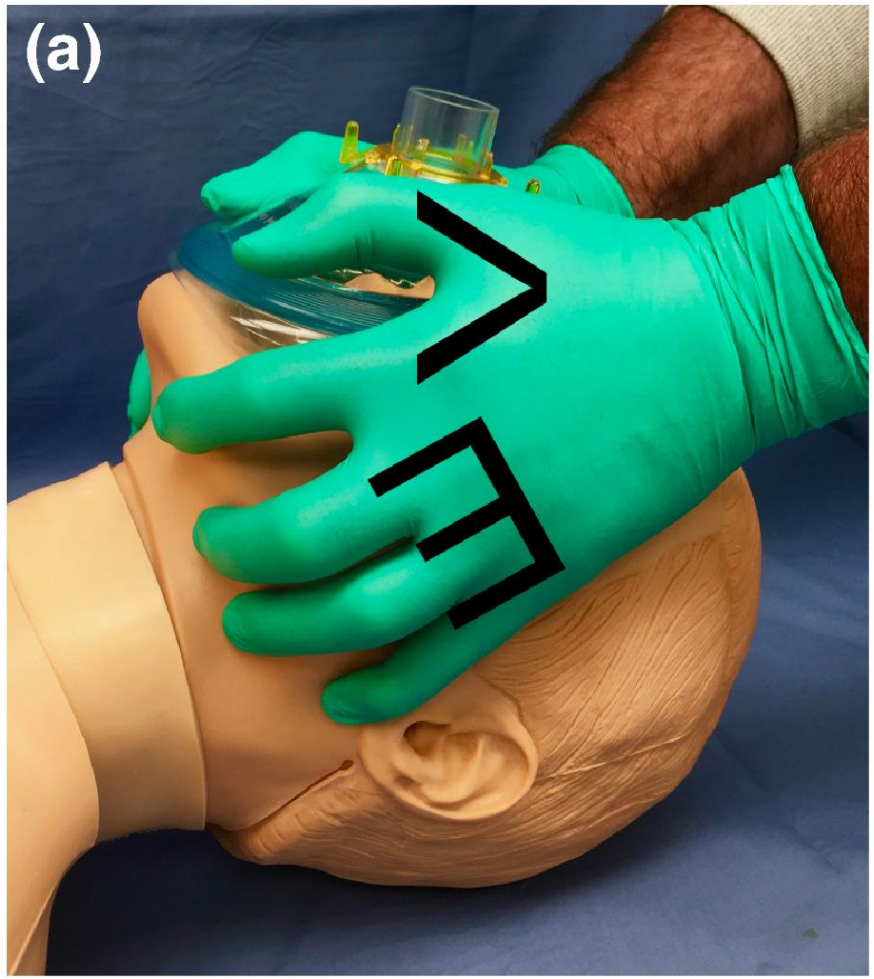

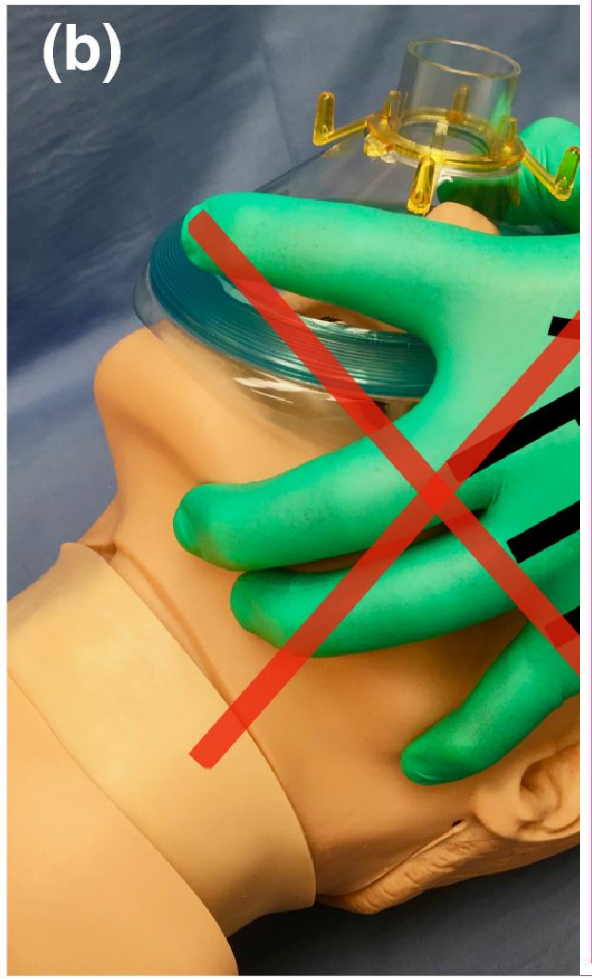

Cook, Anaesthesia, 2020 Brewster, Med J Aust, 2020

Intubace videolaryngoskopem

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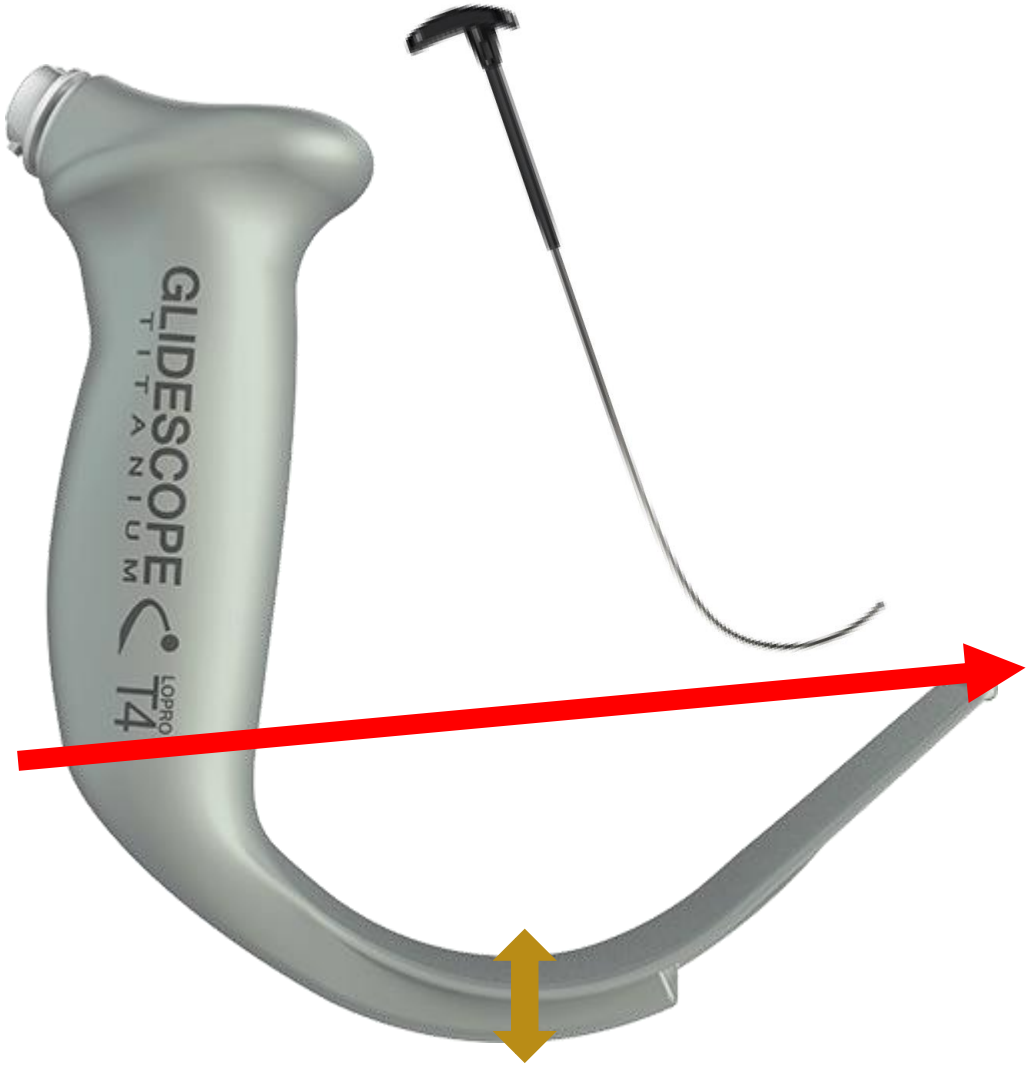
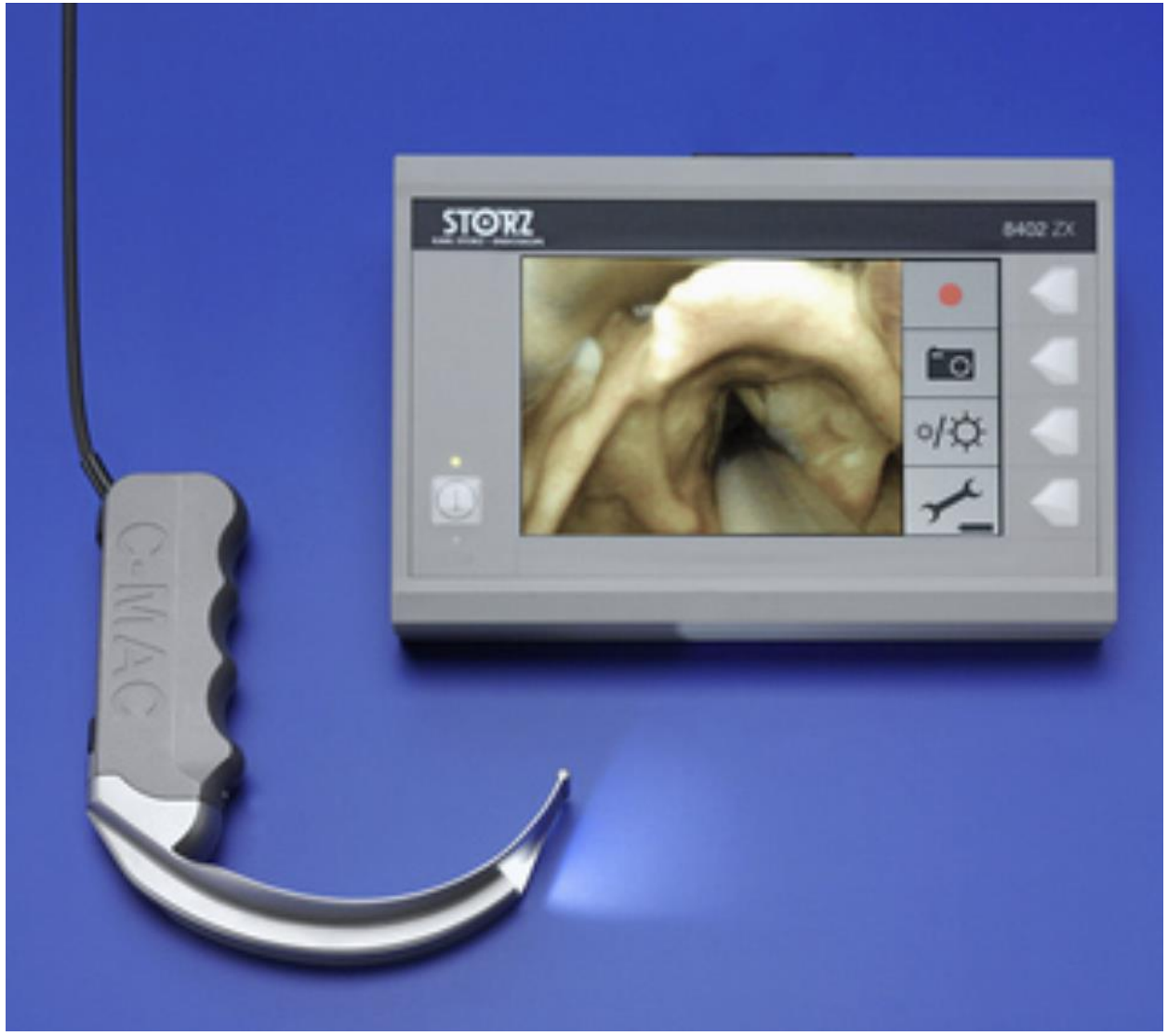
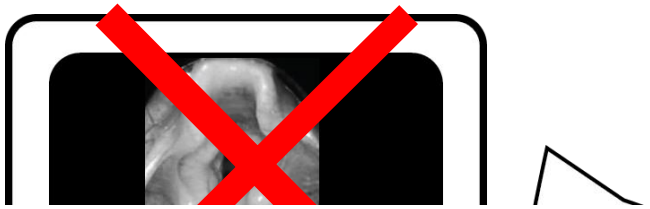
…. za roh! …. vždy se ZAVADĚČEM





Jak na VLS?

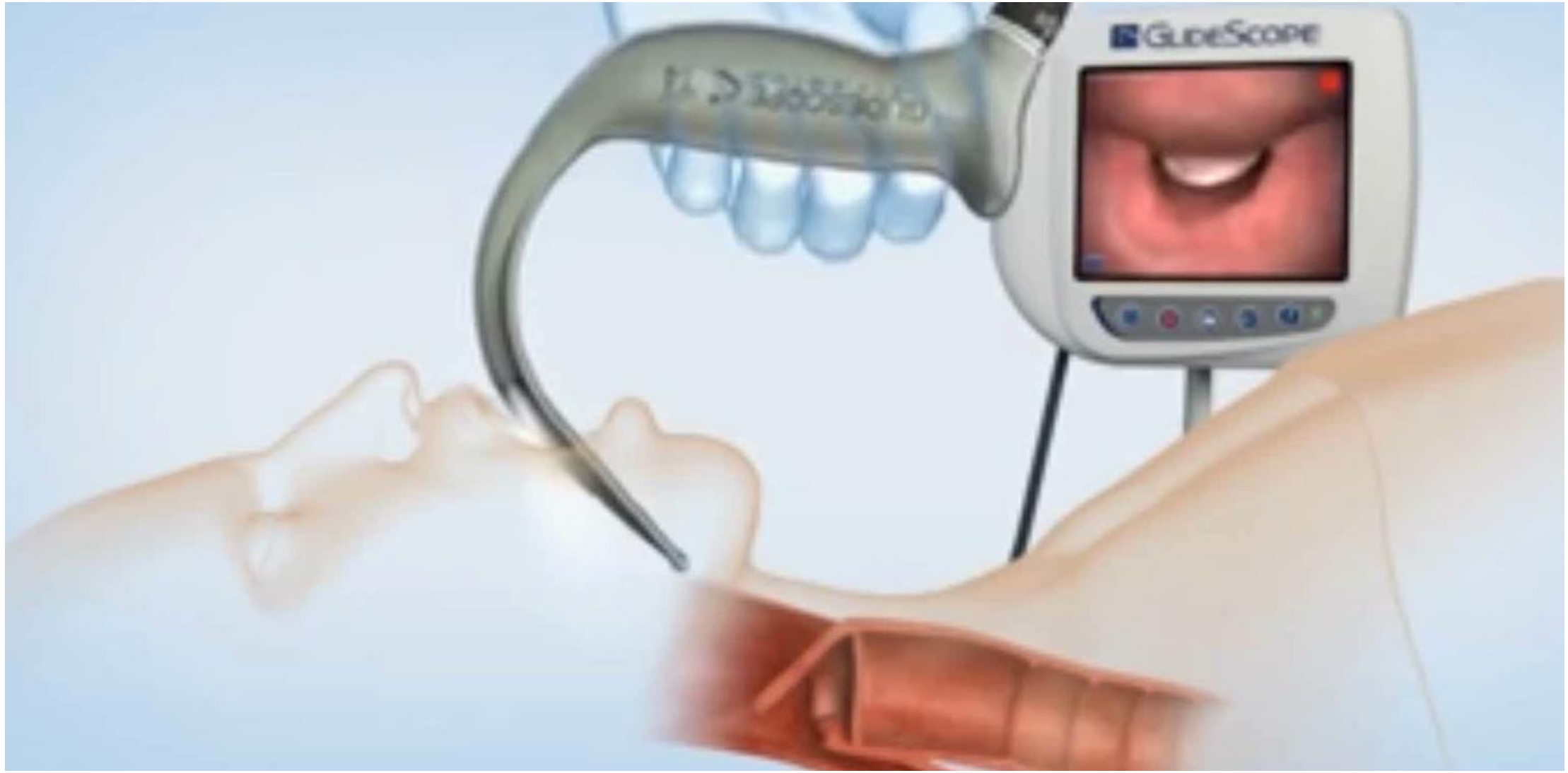


- Neutrální poloha
- Zavádění středem
- Ne moc hluboko

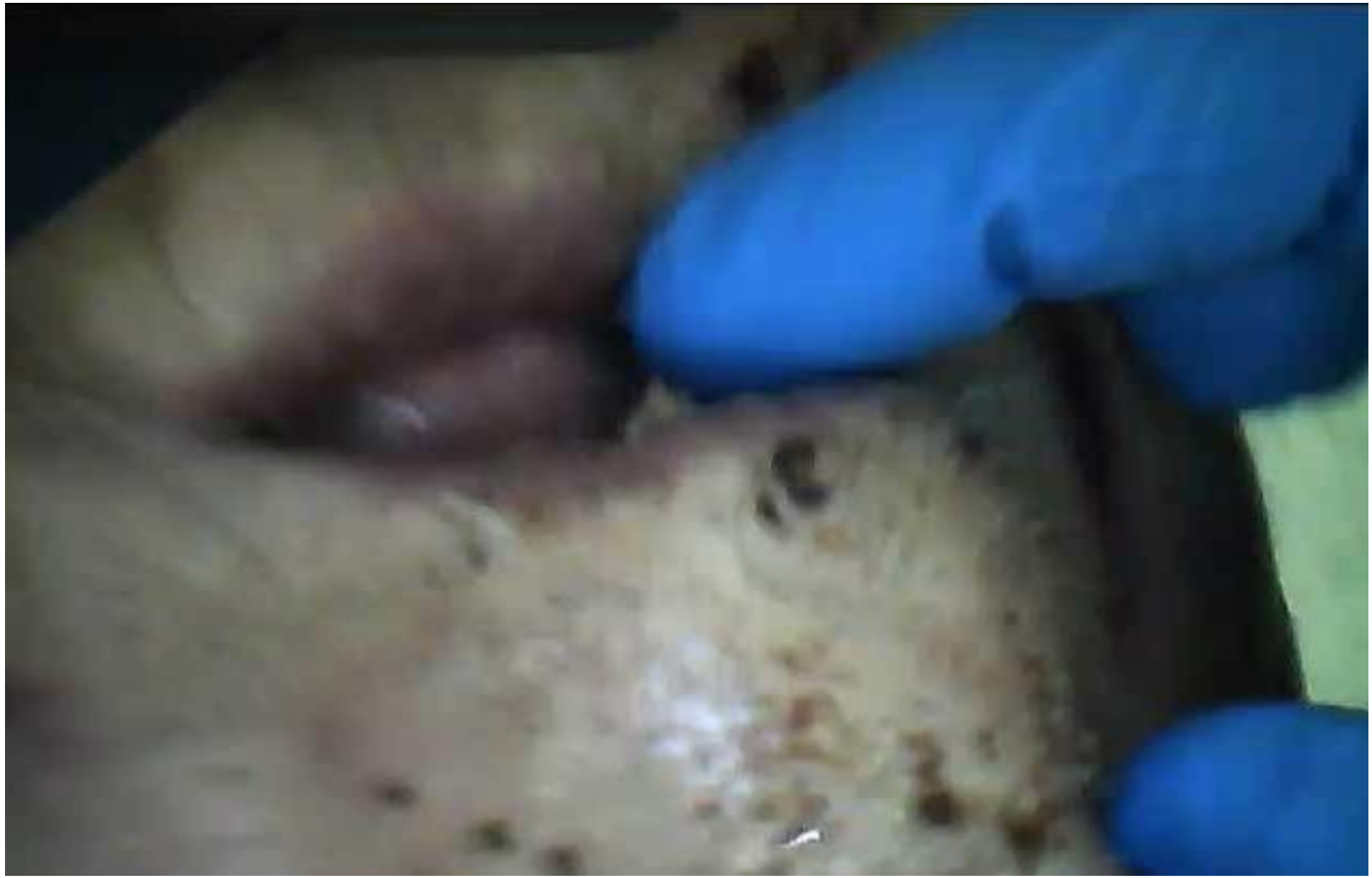
s
- BURP
- Tah za čelist

CAVE: Vidět neznamená zaintubovat!

https://airwayjedi.com/2015/07/30/tricks-intubation-glidescope-technique/



https://www.verathon.com/glidescope-titanium-reusable/ https://www.youtube.com/watch?v=UnjhyYedm8Q



Závěr

- Obtížnou OTI **nelze vždy předpokládat**
- **Pomůcky, plán B**
- **Preoxygenace** dává čas navíc (**etO2 90 %**)
- Vidět neznamená zaintubovat
- **Zajištění DC ≠ jen OTI**

Děkuji za pozornost.