

The sound of distress

A breathtaking case

A premature start

Pregnancy

- IVF, normal ultrasounds, NIPT normal XY
- Cervical shortening with dilation
 - > Fetal lung maturation and tocolysis

Birth

- PML 26w 2/7
- 1110g
- Caesarean due to footling breech presentation and repeat
- AS 4-5-9
- RDS with 100% FiO₂ required in delivery room and lack of respiratory drive
 - > intubation ET 3.0 and surfactant



A premature start

Neonatology

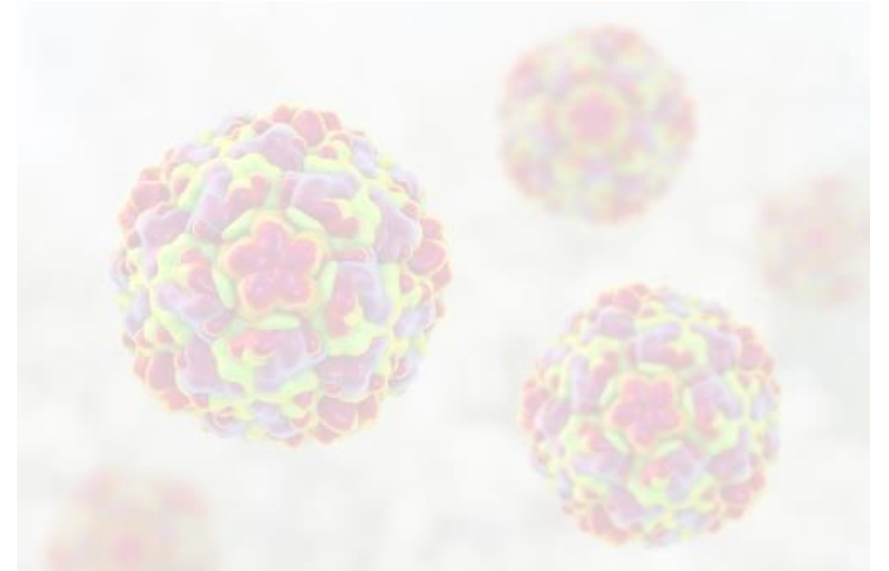
- +1h extubation to nasal CPAP
- +42h severe apnea of prematurity > reintubation
- +90h extubation to NIV-NAVA with high dose coffein and doxapram
- Day 29 weaning to nasal CPAP
- Day 35 stop doxapram
- Day 42 weaning to high flow nasal cannula
- ... uncomplicated course of NICU stay

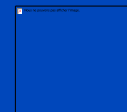


A bump on the road

DAY 58 – PML 34 4/7

- Morning round:
 - New onset stridor
 - Increased work of breathing
 - Progressive desaturations
 - Parents are worried
- Rhinovirus +
- R/ upscale high flow nasal cannula support
- R/ dexamethasone trial





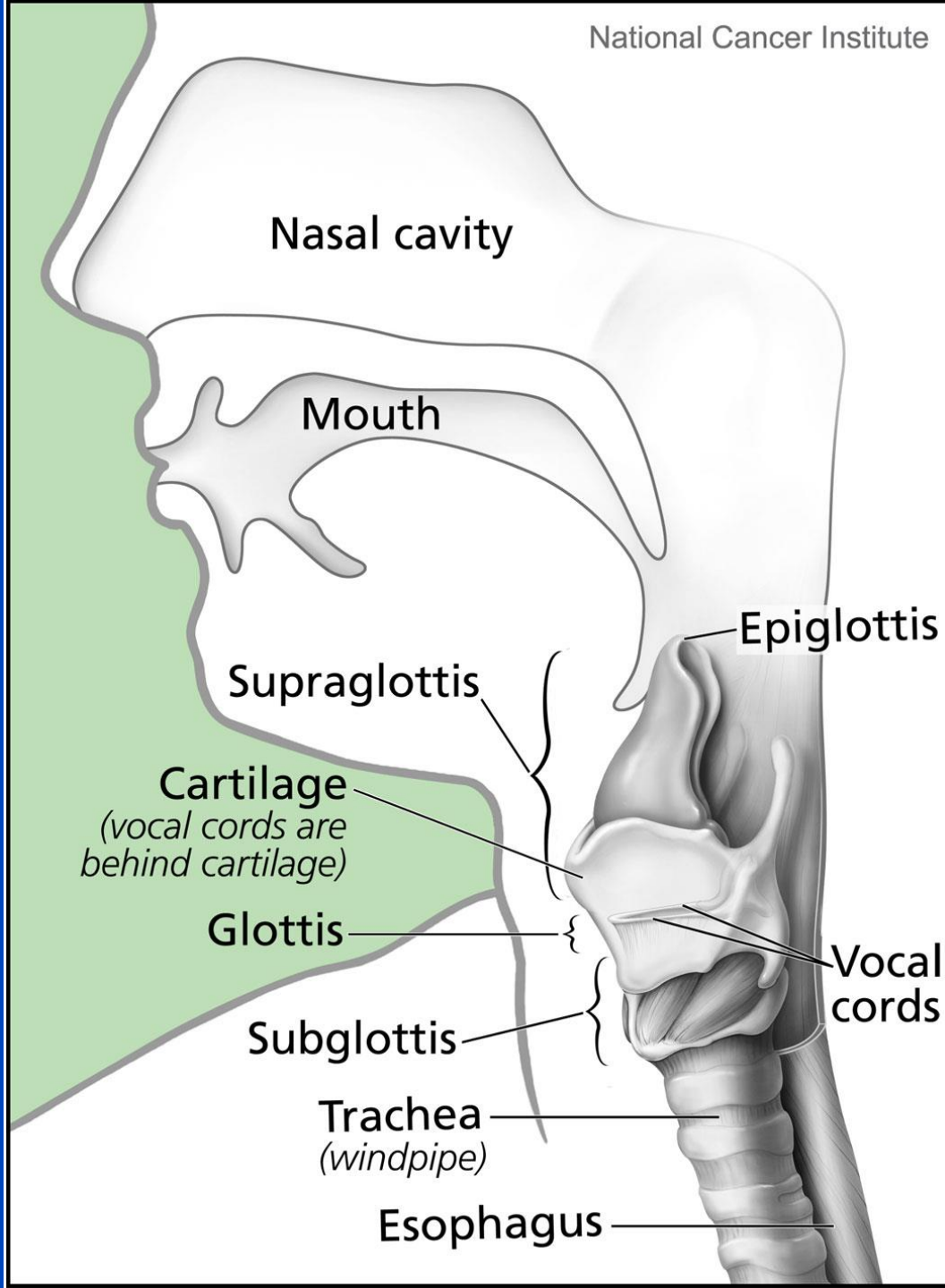
Evaluating stridor

First: evaluate the patient and the sound!

- Onset and progression?
- **Phase?**
- Changes with position or state?
- Voice or cry changes?
- Respiratory distress?
- In need of more support?
- More events on monitor?
- Feeding difficulties?
- Associated symptoms?

Should I be worried?





Localising the obstruction

Inspiratory

- Supraglottic

Biphasic

- Glottic
- Subglottic

Expiratory

- Tracheal

Neonatal stridor differential

Subsite	Conditions
Supraglottic larynx	Laryngomalacia, vallecular cysts, saccular cysts, masses
Glottic larynx	Webs, clefts, vocal fold immobility/paralysis
Subglottic larynx	Subglottic stenosis or cyst, masses e.g. hemangioma
Trachea	Tracheomalacia (primary or secondary), tracheal stenosis

Back to our baby



Evaluating stridor

Then: take a history

- Perinatal events, failure to thrive, previous intubation, cough, fever, ...

Maybe do some tests?

- Imaging: CT, MRI, cardiac ultrasound, ...
- Flexible laryngoscopy / rigid laryngotracheobronchoscopy

And evaluate response to treatment

- Adrenaline
- Corticoids
- PEEP
- Body positioning
- ...



Imaging - CT



Another bump

Day 59

escalation to nasal CPAP

Day 60

bedside flexible laryngoscopy

= inflammatory mucosa + reactive edema

R/ intubation awaiting decongestion

(natural evolution / corticoids)

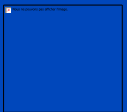


Imaging - MRI

No lesion in the (sub)glottic area,
BUT...

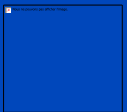


- Movement artefacts
- ETT present, potentially compressing a lesion

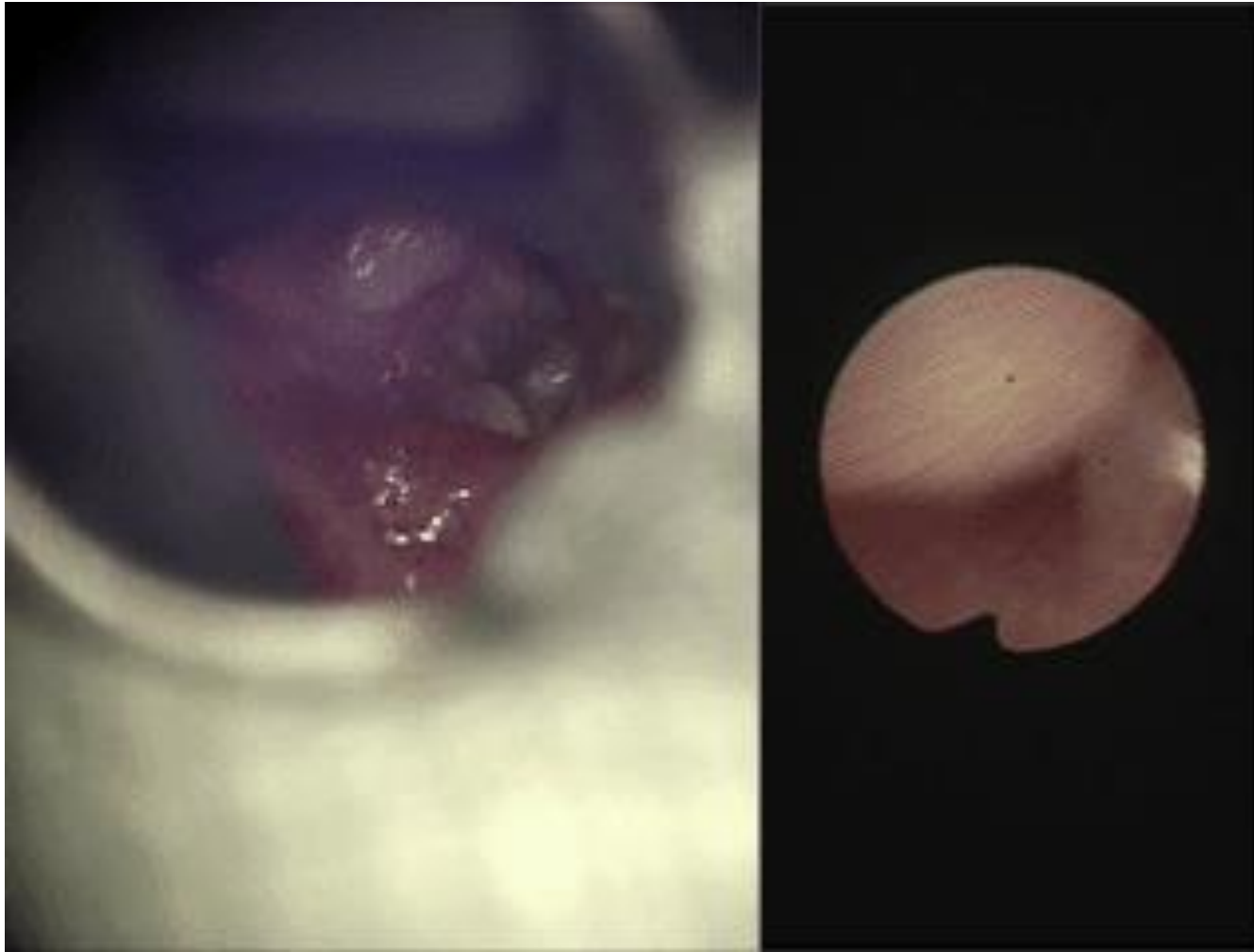


What should we do next?

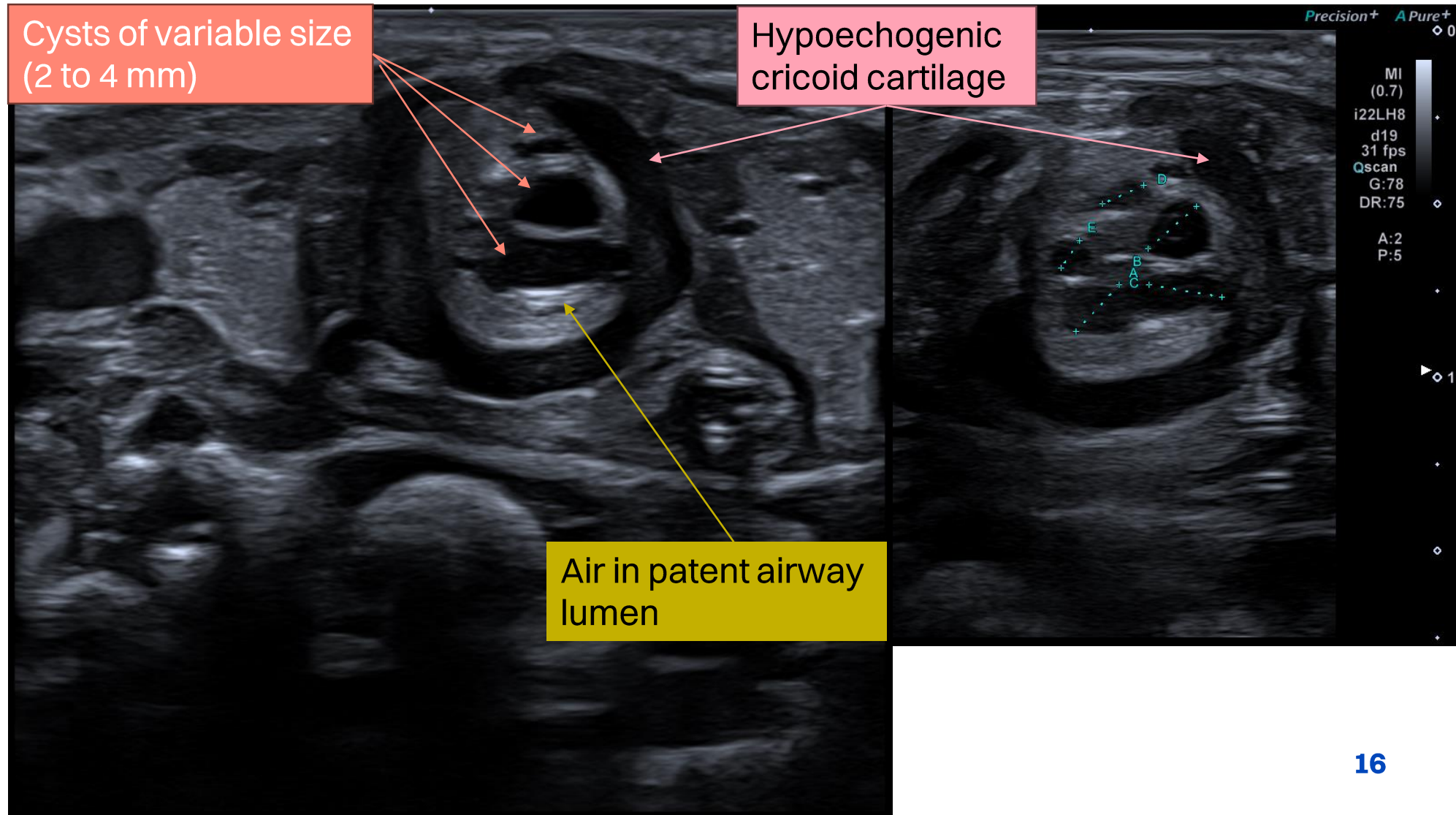
- Repeat imaging with better sedation
- Repeat/intensify steroid course
- Direct airway examination via endoscopy
- Start a beta-blocker trial
- Wait out the rhinovirus infection



Direct view and videolaryngoscopy



Subglottic cysts (SGC)



Subglottic cysts (SGC)

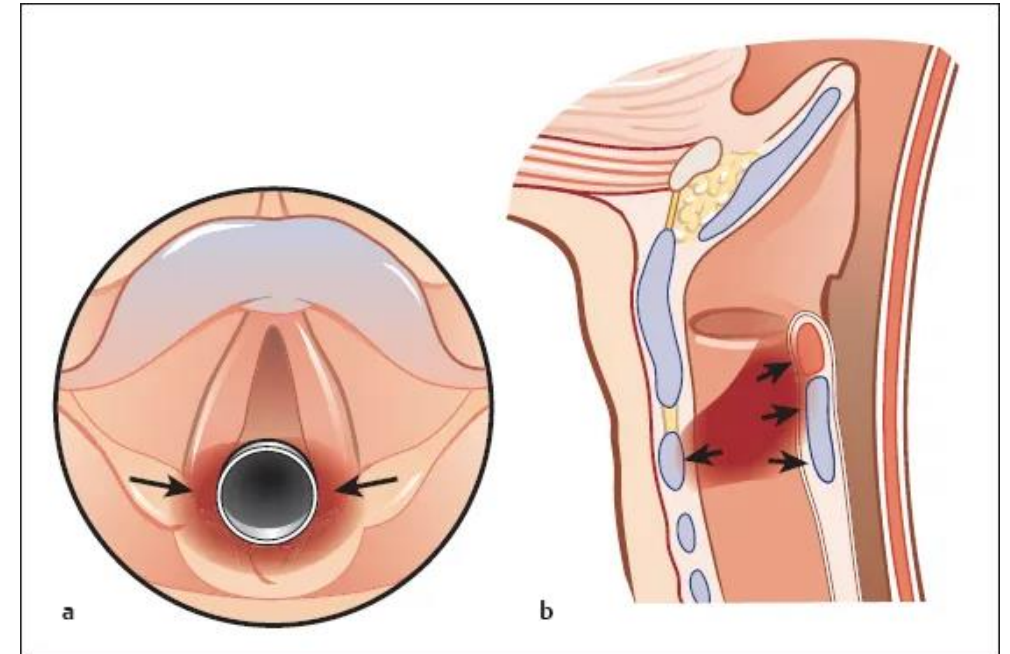
Congenital vs acquired

Theory: mucosal damage

- > fibrotic tissue
- > obstruction of excretory ducts of submucosal glands
- > mucosal retention cysts (solitary or multiple)

Correlation with:

- ETT and intubation period
- Lower gestational age
- Lower birth weight



Subglottic cysts (SGC)

Management

- Endoscopic marsupialisation = gold standard
 - > via instruments or laser +/- microdebrider (shaver)
- Balloon dilatation
- Mitomycin C
- Corticoids
- PPI
- Open approaches / tracheostomy

Prognosis

- Recurrence and repeat procedures = frequent
- Ongoing pathological process with possible small pre-existing cysts:
 - Recurrences sometimes located at different sites
- Surgery complications: subglottic stenosis due to scarring

The road continues

Day 91

- Diagnosis > tracheostomy

Day 98

- Trial laser marsupialisation of one cyst > immediate cyst collapse

Day 105

- Re-filling of treated cyst

6 months

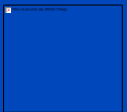
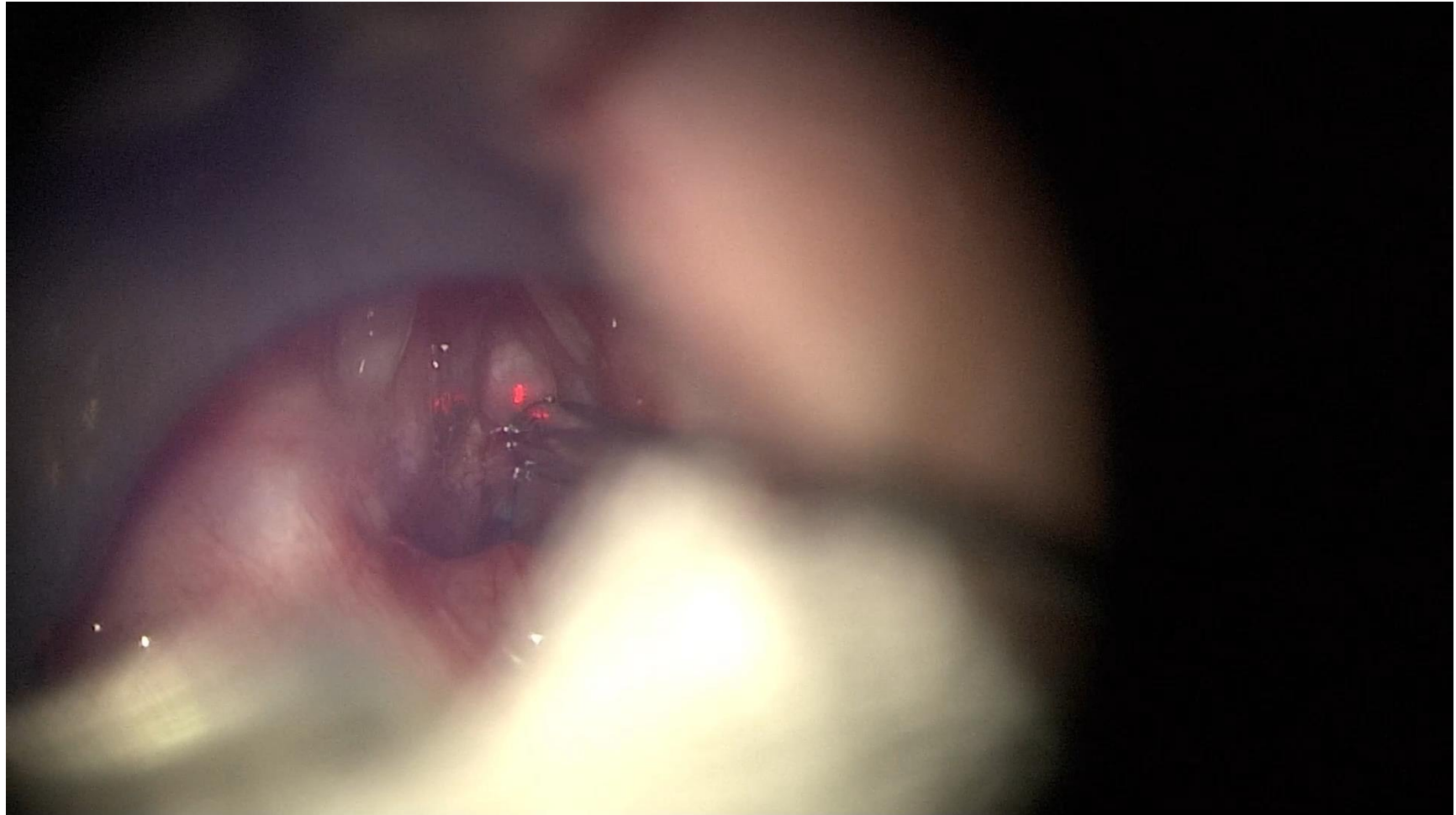
- Lasering + 4mm balloon dilatation

8.5 months

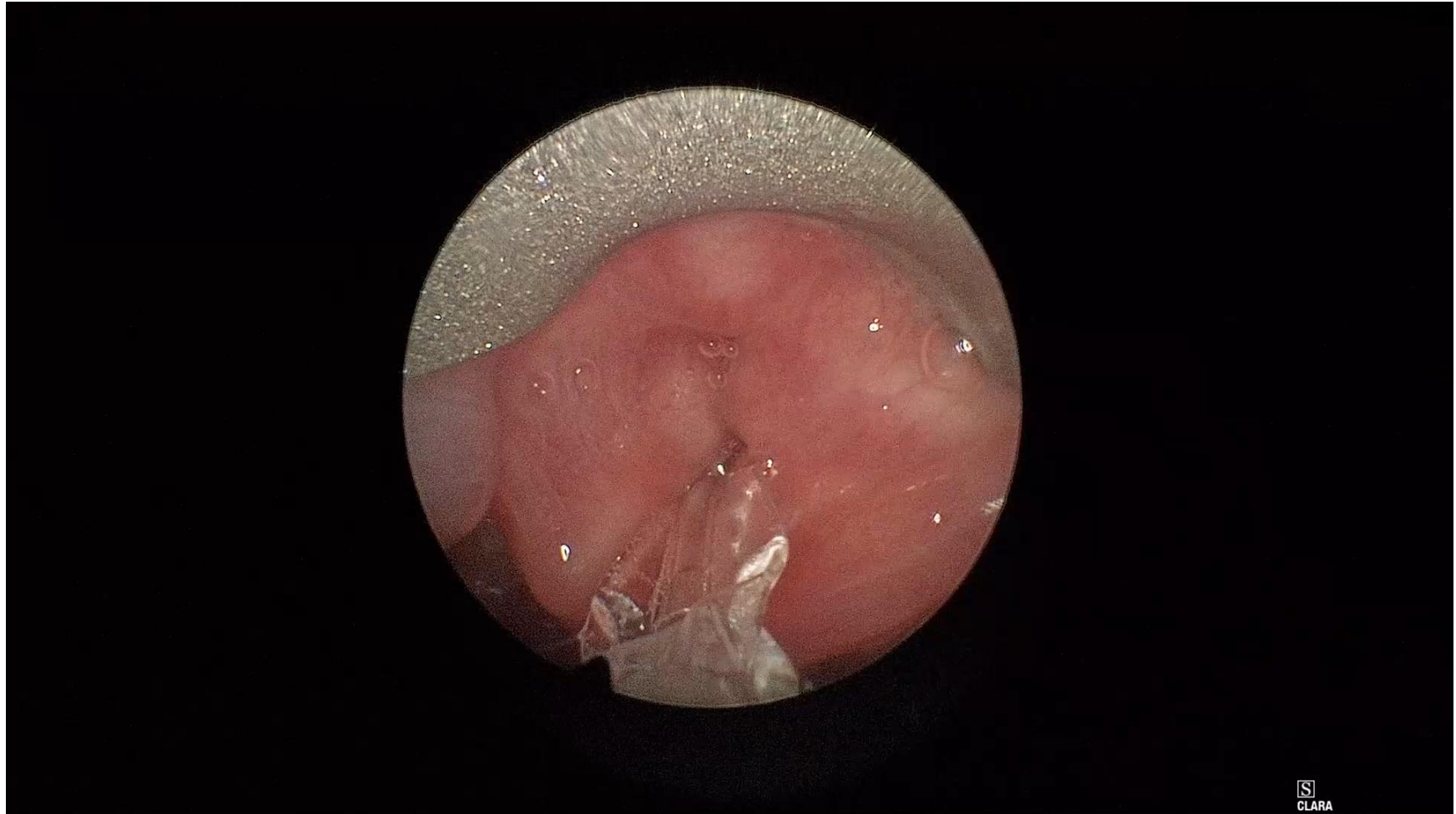
- 8mm balloon dilatation and local dexamethasone application in small residual cysts



Laser incision



Balloon dilatation



To conclude

Listen to the stridor

- The respiratory phase can help localise the obstruction

In an ex-premature infant with stridor, think about the subglottis

- Even if only intubated briefly

A negative scan does not exclude a significant airway lesion

- If the story doesn't fit, keep on looking!



Goede zorg laat niemand achter

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