



CUTTING EDGE LARYNGOLOGY 2024

**SHOWCASING THE LATEST ADVANCEMENTS IN
THE FIELD OF LARYNGOLOGY**

7th Cutting Edge Laryngology Conference

The Royal Society of Medicine, London 2-4/October/2024.

Catherine Anderson's notes

I was privileged to be invited to attend the Cutting-Edge Laryngology Conference in London, and appreciate everyone's help in funding my accommodation and travel to attend this event.

These are my notes from the sessions I felt added to the learning of iSGS and the general field of laryngology. Please note that I am not a doctor, so my interpretation can be a little naive, and is aimed at patients rather than the medical fraternity.

It was a fabulous opportunity for networking, I was able to share more than 120 patient-cards linking to the support group and encouraging doctors to invite their patients to join the research panel.





First Laryngeal transplant operation in France

Dr Jean-Paul Marie (France)

In the past, there has been a major issue with rejection of a transplanted tracheal.

- In 2010 a patient received a transplanted trachea in California. This patient has serious issues with swallowing and continues to have a stoma (tracheostomy).
- In 2017 a Polish team transplanted a trachea on a cancer patient. It was more successful, and the patient was able to be decannulated (tracheostomy removed) and is able to eat normally.

The French team has been working together since 2012, joining forces with a doctor in Colombia who had some strong techniques.

One of the key issues is to identify all the vessels and nerves in the trachea in order to reconnect them once the transplant is ready. It is not an easy operation.

They obtained a grant to experiment using a pig. They successfully harvested the donor trachea and transplanted it. All went well with recovery.

Human tracheal transplant

In September 2023 they did their first human. The patient had a total laryngectomy after a long-term intubation and had not spoken or been able to smell for 15 years, so was very hopeful for this operation.

They removed the larynx from the organ donor as soon as the heart had been taken. It was a very challenging and delicate process with removal of the trachea (from donor) taking about 12 hours, then transporting to the hospital where the receiver was being prepared.

It took a further 18 hours to transplant the donor trachea to the patient, carefully preparing the vessels and nerves with the help of a microsurgeon. The size was a good match for the receiver.

There were some initial issues with bleeding, and they did two further operations to fix that, and some injections to help with vocal folds (Hyaluronic acid), and salivary glands (Botox).

12 months later, the patient is still going well. She had a very breathy voice after 2 months, but a voice, nonetheless. A year later, her voice is stronger and can speak louder if she wants to. She can also smell, and her breathing is almost normal. Her main difficulty is with swallowing.



In the future, they would like patients to have an improved voice (though she went from no voice to some voice), and better swallowing.

Dr David Lott at Mayo Clinic in Arizona did a tracheal transplant in April 2024 – the medical fraternity is patiently awaiting to learn the outcome of that operation.

iSGS – where are we now?

Dr Alex Gelbard (USA)

Dr Gelbard presented findings from the Vanderbilt Study, which over 800 group members took part in. If you have not read this paper yet, it can be found here:



<https://jamanetwork.com/journals/jamaotolaryngology/fullarticle/2753766>

In summary, he pointed out:

- Only 2.5% of patients have another family member with iSGS – showing it is not strongly a genetic/inherited disease
- Biopsies often show acute inflammation
- iSGS patients do not have an HLA association, which suggests it is different from other autoimmune diseases. Human leukocyte antigens (HLA) are genes in major histocompatibility complexes (MHC) that help code for proteins that differentiate between self and non-self. They play a significant role in disease and immune defence.

Another study found about 50 family members with the disease, and looked at their genetics (again, many members of the Living with iSGS support group participated). They were unable to identify a single gene that causes this.

- Looking at commonalities, they found that genes which impacted the stroma (Stroma is the part of a tissue or organ with a structural or connective role) were most identified in the patients studied

Another study looked at the cells present in iSGS patient airways. They found that the epithelium is lost in iSGS patients' airways. Epithelium or epithelial tissue is a thin, continuous, protective layer of cells with little extracellular matrix. This means they are weaker, and this creates a flaw in the barrier to the cells beneath.

There are some similarities between iSGS and idiopathic pulmonary fibrosis (iPF) which will be explored in future if secure funding to explore some of the drugs used to treat iPF.



There is a theory that environmental pollutants have an impact on the disease, but so far none have been identified as being causal.

Endoscopic resection

Dr Dale Ekbohm (USA)

The study linked above found that of the dilations, one centre stood out as having far better results than others – Mayo Clinic in Rochdale. They were true outliers in the recurrence rate, so people were interested to know what they were doing differently.

The technique is known as the endoscopic wedge resection. In a normal dilation, doctors tend to focus on removing all the scar tissue. This is also what was originally done in Rochdale, but when a patient had damage to their vocal cords as part of the dilation, they decided to think about how to do things differently.

So, they introduced the wedge resection. Like a normal dilation, it is all done endoscopically – ie through the mouth, but instead of removing all the tissue, they remove three large wedges, leaving three ‘bridges’ of scar tissue, which are then injected with Kenalog (steroids) and Mitomycin C. (*I asked whether they had looked at doing this with and without mitomycin C, as 50%+ of doctors have stopped using it now – it is expensive and there is no evidence it makes any difference. They have not tried this to date, but appreciate it might not make any difference*)

Patients then take medication post op – including a PPI and inhaler. Again, research is required to see which (if any) of these makes a difference to the time between operations.

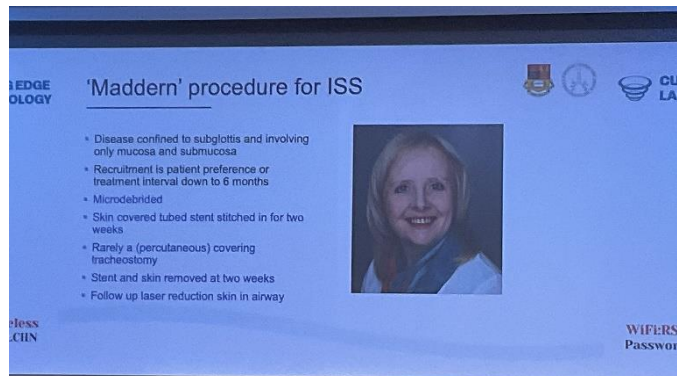
More about this technique here: <https://pubmed.ncbi.nlm.nih.gov/38822766/>



Maddern procedure

Dr Guri Sandhu (UK)

Dr Guri Sandhu along with colleagues developed this technique after his patient, Jan Maddern, requested an alternative to resection, not requiring a tracheotomy and leaving no scar on her neck. Dr Sandhu had a think about the disease, and agreed that resection is not ideal, as iSGS only impacts the skin cells, and not the cartilage beneath, making the removal of cartilage along with the scarred trachea a little excessive.



Patients who are suitable for this treatment are:

- Those with disease confined to the subglottis and only involving the mucosa and sub mucosa
- Patients with dilations every 6 months – or have a preference just to stop worrying about when their next operation will be

The process briefly is as follows:

- The scar tissue is micro-debrided, and a similar size patch of tissue from the thigh is removed. The micro-debrider is an important tool – if the airway is treated with a laser the new skin will not heal
- The thigh tissue is attached to a soft stent and inserted into the airway for two weeks
- The cells from the thigh tissue transfer to the debrided airway and colonise it as healthy tissue
- After two weeks, the stent and the patch of thigh tissue is discarded
- There may be one or two laser reduction ops to remove any excess cells in the airway post surgery

There is work currently going on in London, UK, which is greatly anticipated to grow respiratory epithelium in the lab. As soon as that is successful that can be used instead of thigh tissue. That will be very exciting.

Dr Sandhu takes a blood sample and biopsy from all patients when they visit for a dilation. In 17 years, 16 patients have later been found to have vasculitis and are not idiopathic as first thought.



Success rates from Maddern are good especially with idiopathic patients – with 83% not having any restenosis after 5 years. The Maddern is not suitable for patients with GPA/Vasculitis:

Recurrence free survival rates

	All patients (n=27)	Idiopathic SGS (n=20)	Iatrogenic SGS (n=3)	Vasculitic SGS (n=4)
2-year recurrence free survival	85%	95%	67%	50%
5-year recurrence free survival	63%	83%	67%	0%
10-year recurrence free survival	52%	76%	67%	0%

Complications include:

- One patient had a trachea-oesophageal fistula (an abnormal connection between the oesophagus and trachea.)
- One had subglottic granulation tissue.
- 67% have daily issues with mucous, requiring regular nebulising in the first 4 years post op
- 22% report ongoing mucous issues and cough 5+ years post op
- 13 patients needed 1-2 clean up procedures in the first 2 years post op

Looking at the similarity of iSGS with iPF, there is a suspicion that immunosuppressives will not help.

iSGS and hormones

Given iSGS impacts mostly women, they looked at oestrogen – they already understand it impacts the immune system and stroma (part of tissue with a structural or connective role). They have noticed that patients who already have iSGS and then get pregnant, their oestrogen is 10x the normal levels, and under 40s patients tend to recur most quickly than those who are post-menopausal (though the disease doesn't completely disappear).



With patients with particularly aggressive disease, it may be worth trying them on a progesterone-only regimen birth control. Monthly cycles are up and down, whereas birth control makes the levels more stable.

Comparing iSGS with Granulomatosis with polyangiitis (GPA), it is quite a different disease. GPA affects men and women equally, but the airway disease element impacts 70% women.

Comparing iSGS with patients with airway injury patients – the theory is that more women are impacted because they have smaller airways.... but how does that explain that the risk seems to go away after the age of 60 despite many over 60s women having operations involving having their airway intubated? It strongly suggests that oestrogen has a part to play in it.

Looking at the impact of HRT – one patient recurring every 3-4 months after going onto HRT, but this is not the case with all patients. Finding the target of oestrogen might help this disease.

Why do patients continue with dilations rather than going for a Maddern or resection? Both operations are big – require time to recover, and resections impact voice – patients do not know how much by until they wake up. Endoscopic resection is a good option for patients – longer impact than a traditional dilation, but not as major as a Maddern or resection.

Disease-Modifying Anti-Rheumatic Drugs in Treatment of Idiopathic Subglottic Stenosis

Dr Jaclyn Lee (USA)

What we know is that iSGS only impacts the upper level of epiglottis - a small, leaf-shaped sheet of elastic cartilage that protects your larynx (voice box) and helps you swallow.

While procedural approaches (such as dilations) are primary, doctors and patients want a therapy option to prolong the period between dilations. Many patients are being referred to rheumatologists and nephrologists to trial drugs such as DMARDs and biologics which target particular cells (not as scattergun as chemotherapy drugs).

Disease Modifying Anti-Rheumatic Drugs (DMARDs)		
<p style="text-align: center;">Conventional Synthetic DMARDs</p> <ul style="list-style-type: none"> • Methotrexate • Leflunomide • Sulfasalazine • Hydroxychloroquine • Mycophenolate mofetil 	<p style="text-align: center;">Biologics</p> <ul style="list-style-type: none"> • TNF-α Inhibitors: Etanercept • Anti-TNF monoclonal antibodies: Infliximab, Adalimumab, Goimumab, Certolizumab pegol • B-cell Depletors: Rituximab • T-cell co-stimulators: Abatacept • IL-6 Inhibitors: Tocilizumab, Sarilumab • IL-17 Inhibitors: Ixekizumab, Bimekizumab, Secukinumab 	<p style="text-align: center;">Targeted Synthetic DMARDs</p> <ul style="list-style-type: none"> • Janus kinase inhibitors: Baricitinib, Tofacitinib, Upadacitinib, Peficitinib, Filgotinib

Conducted research with members of the Living with iSGS group. Found 217 patients taking DMARD out of total response rate of 1,458 people (15%):

Methods
<ul style="list-style-type: none"> • Study Population: <ul style="list-style-type: none"> • Participant recruitment from “Living with iSGS” Group • Qualitative surveys captured patient experiences • Data was aggregated and coded for analysis • Outcomes Assessed: <ul style="list-style-type: none"> • Side effects (pre-specified) • Changes in subjective patient symptoms • Frequency of endoscopic dilations (before and after)

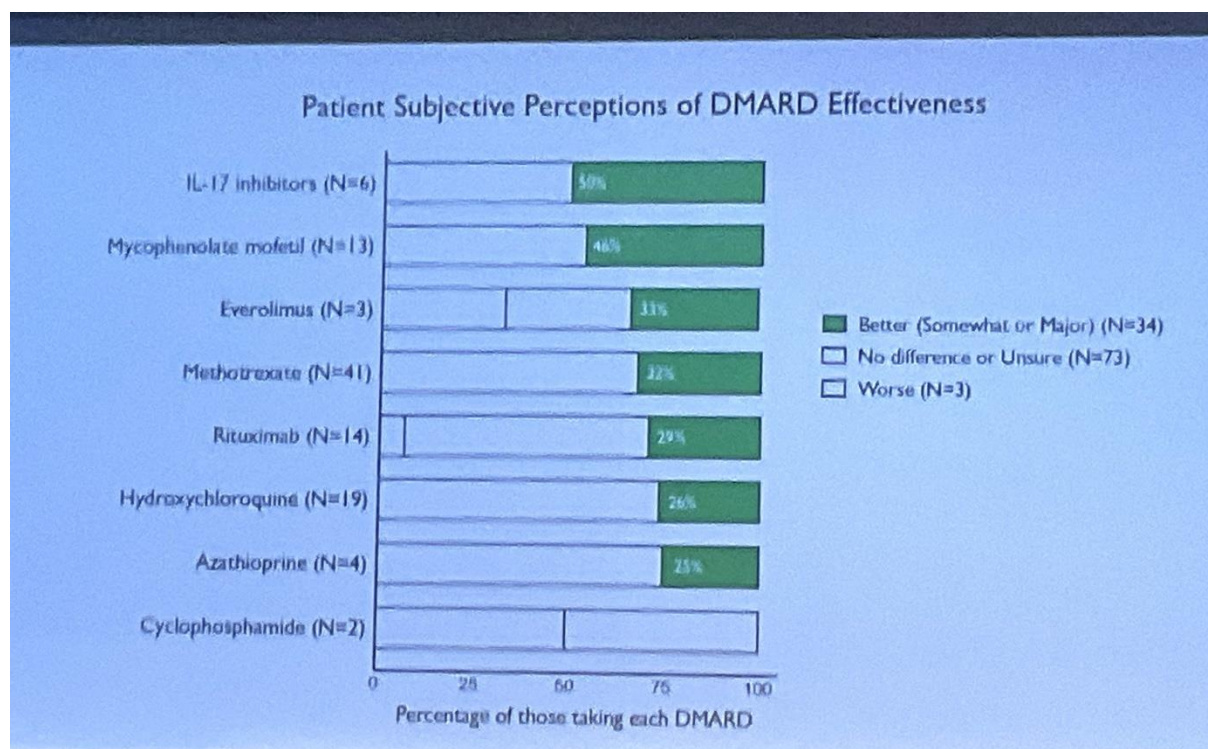


Results:

Results

Table 1. Patient characteristics

Total patients	N = 122
Participant age, median (IQR)	51 (44 - 58)
Gender, Female	122 (100%)
Age at Diagnosis	
Under 30 y/o	13 (10.7%)
31 - 40 y/o	37 (30.3%)
41 - 50 y/o	42 (34.4%)
Over 50 y/o	29 (23.8%)
GERD or reflux	27 (22.1%)
Procedures undergone	
Endoscopic dilation	113 (92.6%)
Steroid injection, awake in doctor's office	60 (49.2%)
Tracheostomy	21 (17.2%)
Open Airway Reconstruction	17 (13.9%)



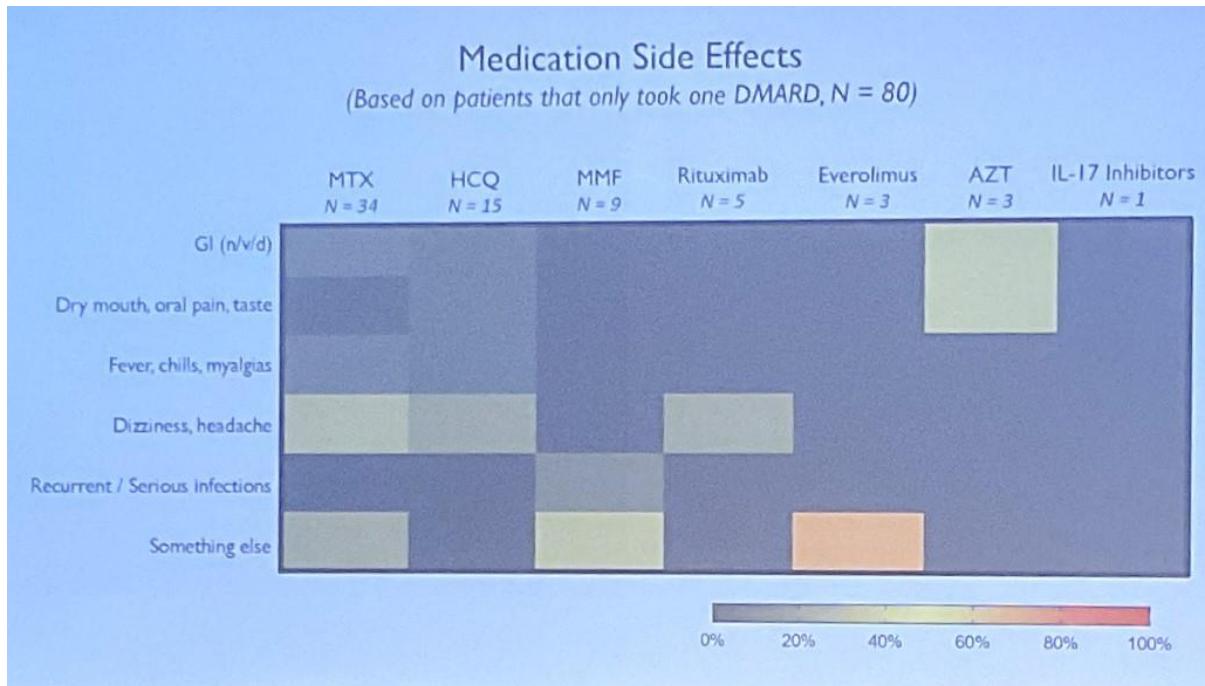
People with a diagnosis other than iSGS were rejected, leading to 122 participants.

Based on patients' subjective views on whether their treatment had been effective in extending the time between operations, those on IL-17 inhibitors and Mycophenolate



mofetil (MMF) were most positive about their results, with 50% and 48% believing their airway was better with the treatment.

All drugs have potential side effects, including these, so these were also studied:



Only 1/6 patients taking IL-17 inhibitors noticed side effects, and those on MMF also had some infections and other non-common side effects.

Conclusions:

- 15% of patient group had trialled a DMARD
- Methotrexate (50%) and Hydroxychloroquine (24%) are most common
- Most frequent side effects are dizziness or headache (16%)
- Hydroxychloroquine had the fewest side effects
- Also IL-17 inhibitors – but only one patient
- 31% reported improvement with DMARD – 66% reported no benefit and 3% reported worsening breathing
- Self-reported dilation frequency decreased among those who reported improvement

Full paper for this is due to be published soon and will then be shared with the group.



Development of a Core Outcome Set (COS) for studies of interventions in adults with laryngotracheal stenosis (LTS)

Dr Gemma Clunie (UK)

Dr Clunie also thanked the Living with iSGS group with their participation in this study, which had fabulous response rate in round 1, and a reduced, but good rate in round 2. I am unable to share the results as the paper is being submitted at present.

The results have been distilled down to a core set of 7 items which can be used in future research to monitor the success rate of treatment for airway stenosis patients.



Solid, measurable criteria help reinforce findings and ensure patients get treatment which improves or maintains all aspects of their lives, not just breathing.

Open laryngotracheal reconstruction for iatrogenic posterior glottic stenosis in adults: international multicentre experience

Dr Emilie Dronkers (Netherlands)

Although not strictly iSGS related, this might be relevant to some group members. This concerns stenosis at the area of the vocal cords (not above or below) which has been caused by an operation, frequently by the rubbing of the tube when intubated.

This was a multi-centre study which followed 43 patients – 72% were breathing with a tracheostomy, and often also had other health issues.

Key findings (also relevant to iSGS patients):

- A BMI of 35 or more means the patient is less likely to have their tracheostomy removed after a resection
- A BMI of 35 or more means the patient is more likely to need further dilations within 2 years of a resection surgery
- Patients with diabetes are more likely to develop a new stenosis after a tracheal resection

Inflammation prevents healing, and obesity causes inflammation.



Key learnings:

- Posterior glottic stenosis is rare, but once a patient has it, is chronic
- Open resection significantly improves breathing outcomes with minimal complications in patients who have a healthy weight and few other health issues
- Grafts from the patient and/or taken from a donor (ie deceased organ donor) are safe to use and perform equally in ensuring the patient can breathe without a tracheostomy and need no more intervention
- Patients with diabetes, chronic kidney disease and/or obesity should be considered carefully as they are more likely to restenose post op. GLP-1 drugs can be considered to aid in weight loss.

More research is on the books for this area, including an international collaboration.

Keynote - 30 years of laryngology, what did I learn?

Dr Marc Remacle (France/Luxemburg/Belgium)

He talked about:

- The advancement of technology and treatments, particularly the use of laser and learning it is an equation of power vs time, and minimising char (burned areas) – practicing on pieces of raw meat!
- The introduction of the CO2 laser with fibre – the laser is always straight, but using mirrors bounces off the sides and can go around corners to use in different situations
- The new equipment is the Exoscope which looks promising. The exoscope provides a long-working distance, high magnification, and field depth to permit neurosurgery without surgeon obstruction. It's used in neurosurgery but now ENT.
- The development of more office-based procedures, keeping patients out of the operation room is financially more cost effective with often better outcomes for patient recovery and life
- Collaborating with voice therapists is really important – they should be a part of the team always when dealing with airway/voice



Challenges in the management of vocal cord palsy (vocal cord paralysis)

Dr Nick Hamilton (UK)

Working with hyaluronic acid – injected into the vocal cord – some success. Hyaluronic acid is a natural substance found in the fluids in the eyes and joints. It acts as a cushion and lubricant in the joints and other tissues. Different forms of hyaluronic acid are used for cosmetic purposes. Hyaluronic acid might also affect the way the body responds to injury and help to decrease swelling.

There is also the Vois implant which is new in Europe which helps.

APrevent® VOIS is specifically designed for medialization thyroplasty procedure for treatment of unilateral vocal fold paralysis and/or glottic insufficiency.

<https://www.apreventmed.com/en/products/doctor?id=2>

Artificial intelligence and Laryngology

Several sessions talked about AI, so here are the key things mentioned from across all of those, and potential applications in airway stenosis.

AI in medicine has increased since 2010, and especially since 2016 when AI software was first approved in the medical world.

Potentially AI could screen and triage patients – especially where there is no laryngologist available – for example at local doctors/GPs and in smaller towns with no trained ENT at hospital.

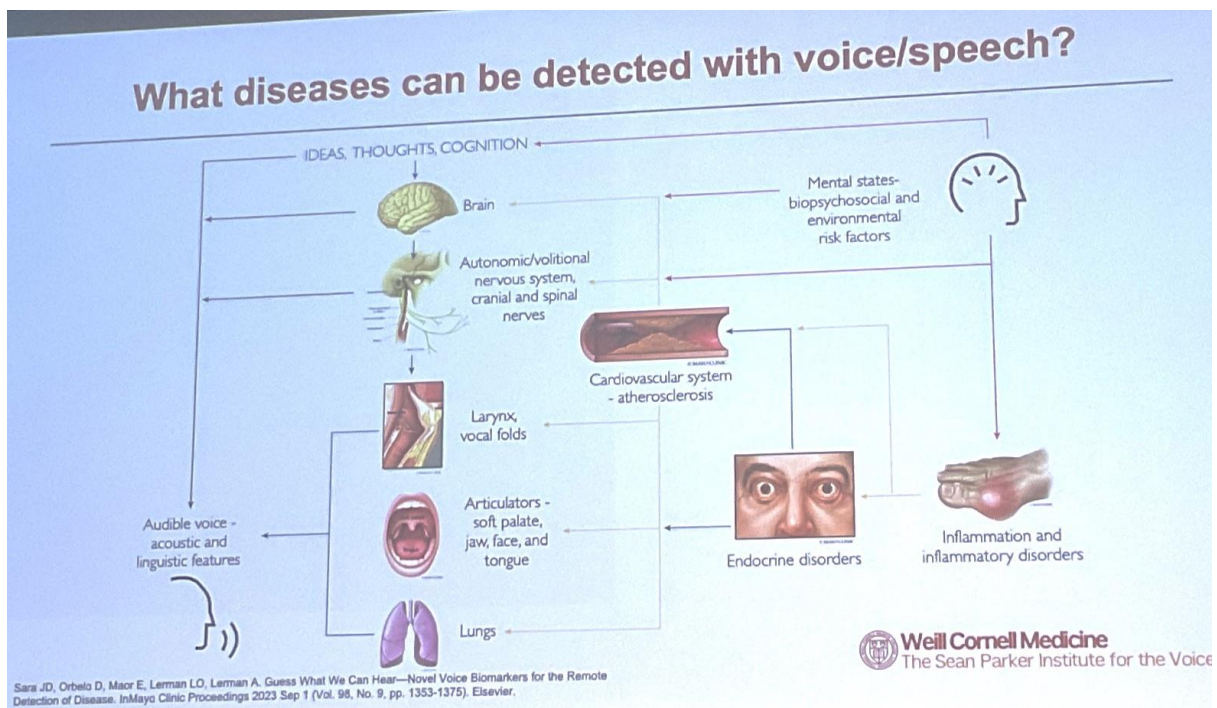
It is worth doing some reading about what Apple is doing in the area of voice.

Using voice to diagnose, screen and learn

- Subglottic pressure is an important contributor to the strength of voice. So when the subglottic area is closing up, it will impact voice.
 - This is along with glottic efficiency – ie the ability of the vocal cords to work as they should, and oral airflow – ie no masses in the mouth area to prevent sound
- Smartphones can offer opportunities for voice research, making use of voice recordings (as long as the ambient noise is 50db or below – ie not too much background noise)
- Voice quality can be a biomarker of health
 - It is possible that audiomics (the study of voice strength) could potentially monitor the progression of subglottic stenosis



- AI could learn the subtle changes in voice to diagnose disease – for example throat cancer
- *Imagine if GP used AI when a patient presented with breathing difficulty – identify an upper airway blockage from the sound of stridor vs asthma from the sound of a wheeze.*
- Biomarkers – such as blood – empower the doctor rather than the patient, and are rarely taken as they are expensive, and often do not give clues to the diagnosis – whereas others may help
- Digital biomarkers are non-invasive and continuous – eg Apple watch which monitors sleep, heart rate, breathing
- ChatGPT and similar AI models are increasingly explored for medical applications
- AI is currently being used to enhance workflow, data collection and scientific writing
- Potential applications include:
 - Early disease detection
 - Screening
 - Prognostics
 - Tele-monitoring
 - Outcome measures
 - Rehabilitation
 - Precision medicine





Google is also entering voice monitoring for health

Challenges:

- Who is monitoring big data?
- Are they protecting peoples' voice recordings? It is often used as a biometric identifier ie voice can be used as an identifier for bank accounts
- Lack of demographic data at present
- How does language and accent impact the results?
- What about cybersecurity and voice cloning/deep fakes?

Have done tests with AI vs doctors.

Results: ChatGPT vs. Otolaryngologist

- Complexity Ratings:
 - Low: 3
 - Moderate: 9
 - High: 15
- Mean consistency rating of ChatGPT responses: 0.55
 - ChatGPT responses were significantly more consistent for low complexity cases than high complexity cases $p=0.03$
- Mean correctness of ChatGPT responses: 0.72
 - No statistical difference in overall correctness between low and high complexity cases
- Interclass correlation coefficient for stability of correctness of ChatGPT was 0.369
- Interclass correlation coefficient for stability of consistency of ChatGPT was 0.318

LSU

Results improved when the AI was given more information such as context. It was decided that at this stage, AI shows potential as a supportive tool, but currently lacks clinical judgement and consistency seen in experienced practitioners.

There are a few issues at present:

- Currently identifies a normal vs hoarse voice – but not what the patients have



- People often speak louder when they are being recorded, so it is not natural
- Other (non laryngology related) diseases also impact voice – eg dementia, Parkinson's, mental health issues

Pfizer paid \$100 million to an Australian company that created an app that identified the COVID cough successfully in 92% of cases

<https://www.mobihealthnews.com/news/anz/pfizer-offers-au100-million-australian-company-developed-covid-19-cough-diagnostic-app>

Dr Fei-Fei Li's book – the Worlds I see – recommended to help advance knowledge about AI



Voice restoration field is also very exciting with AI:

Can help synthesise and customize voices.

Voice based technology currently excludes patients with hearing loss, deaf/non standard voices, or those who stutter. They have also noted racial discrepancies – particularly against black people.



So, is AI the future of laryngology?

Yes, but it is not a panacea.

There is potential for entrepreneurship in this field, and with learning, can improve access to laryngologists for patients.

There is limited surgical application – don't want AI doing operations. But it could be used to provide feedback on the patient's health during surgery.

There is potential for Laryngology to work closer with Big Tech (Google, Apple) advocating for patients.

Host-pathogen interactions drive airway immune activation in Granulomatosis with Polyangiitis

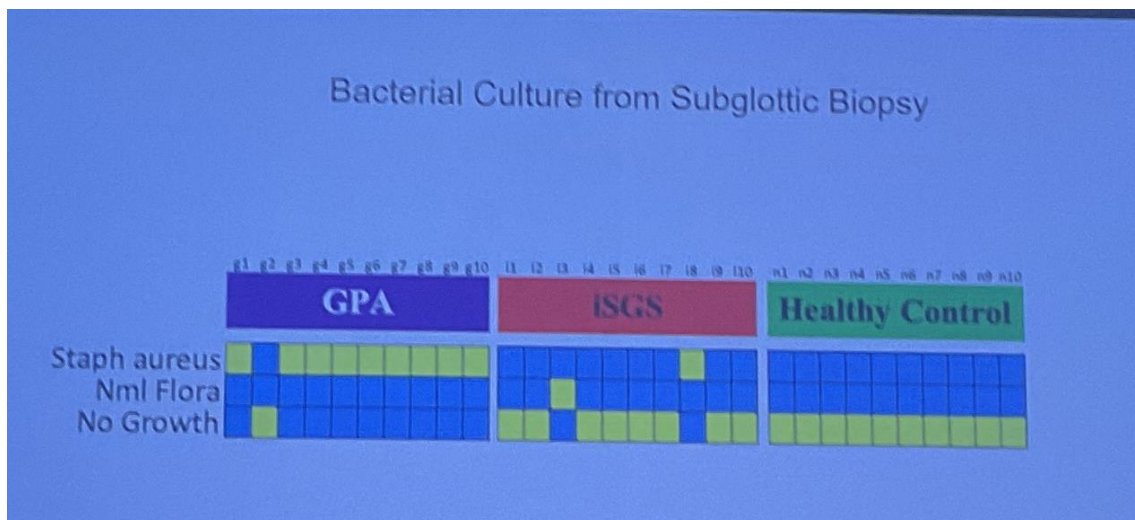
Wenda Ye (USA)

We have some GPA associated stenosis members within the group, so I thought this session was interesting.

Granulomatosis with Polyangiitis (GPA) affects men and women equally, but of the 16% who have a stenosis, the majority of those are women. These stenosis could be in the larynx, subglottis or in the bronchi or a combination of locations.

If an idiopathic patient has stenosis in multiple locations (not just subglottic), it could be assumed they are likely to have GPA.

If tissue from a GPA airway patient is put into a petri dish to see what it grows, it is highly likely to grow Staph. This is far less likely with idiopathic patients.





Conclusions

GPA appears to be a distinct disease process from iSGS

- There is an established GPA genetic risk, primarily expressed in immune cells
- ISGS patients lack the observed HLA association seen in GPA
- There is no overlap in T-cell receptor motifs between GPA, iSGS and post-intubation stenosis

Staphylococcus aureus appears to play a role in GPA airway disease

- S aureus can be cultured from GPA airway scar
- Abundant T cells are present in GPA airway scar
- A T-cell receptor (TCR) targeting a candidate antigen target with homology to S aureus protein is present in GPA airway scar

Treating the Staph (S aureus) in GPA does improve the relapse rate of their airway stenosis. The challenge with GPA patients is that the airway seems to run independently of the other GPA symptoms. When other symptoms are recessed, the airway keeps on closing.

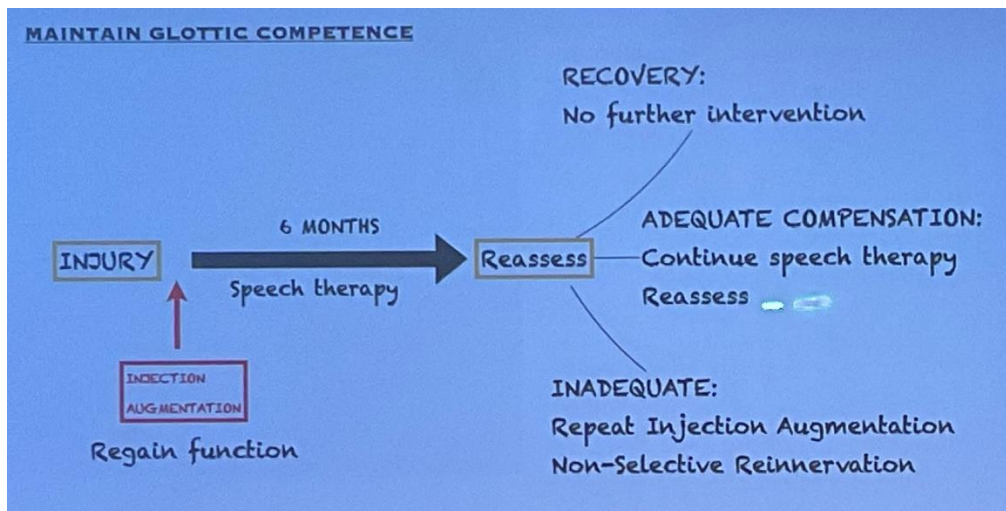
This could explain why Bactrim helps some patients who have a 'GPA' type iSGS diagnosis.



Reinnervation for the management of bilateral vocal fold paralysis – to restore movement, coordinate with respiration and phonation

Kate Heathcote (UK)

Injury to vocal cords is always a risk with airway surgery, or other surgeries where instruments such as a breathing tube, pass through the vocal cords.



This presentation covered the process of augmentation of the vocal cords. Augmentation is the noun for any process or amount that makes something bigger or greater – therefore increasing the size of the vocal cord/s in order to help the patient regain voice.

This is the process she follows – with an injection to help the vocal folds plump up, therefore helping produce a stronger voice. Two types of material are often used:

- Hyaluronic acid injections (HA). This is found naturally in our bodies and so only lasts around 2 to 3 months.
- Calcium hydroxyapatite injections (CaH). This can be natural or synthetic, and so lasts longer, for around 9 to 12 months.

She recommends speech therapy for 6 months to help the patient learn to recover their voice, before a reassessment.



Identification of chronic inflammatory markers in subglottic stenosis and their correlation with severity of stenosis: a case-control study

Dr Raksha Devi Chandayta (Bombay, India)

While idiopathic subglottic stenosis is not seen at all in India, subglottic stenosis caused by injury is. The most frequent injury is caused by a scarf of a sari being caught in the spokes of a motorbike, causing strangulation. *A photo was shown but too graphic to photograph! But you can imagine it.*

Patients almost always end up with a tracheostomy due to the high grade of their stenosis (ie complete or almost complete closure of their airways).

Like elsewhere in the world, they also have iatrogenic stenosis – caused by intubation with an operation.

- In traumatic stenosis – inflammation and trauma present strongly
- With intubation caused stenosis – inflammation and fibrosis (scarring).

When a person has been intubated due to a brain related surgery (66% of the time) – brain haemorrhage, tumour or epilepsy, they found there is less inflammation

Early treatment of posterior glottic injury

Dr Alex Gelbard

I believe this was presented in Milan last year, and therefore I wrote more comprehensive notes last time. Please see those notes for more info. I have jotted down some key points here:

Posterior Glottic Stenosis (PGS) is a life-threatening condition in which the vocal folds are fixed in a midline position. It can be visible even after just 3 days of intubation.

It is caused by the intubation – the scar is caused by the tube which is pushed back by the tongue – it is the equivalent of a bed sore in the back of the larynx.

Stage 1 is the acute injury. The injury is colonised by Staf and strep bacteria

Stage 2 – the immune system takes control and creates a scar

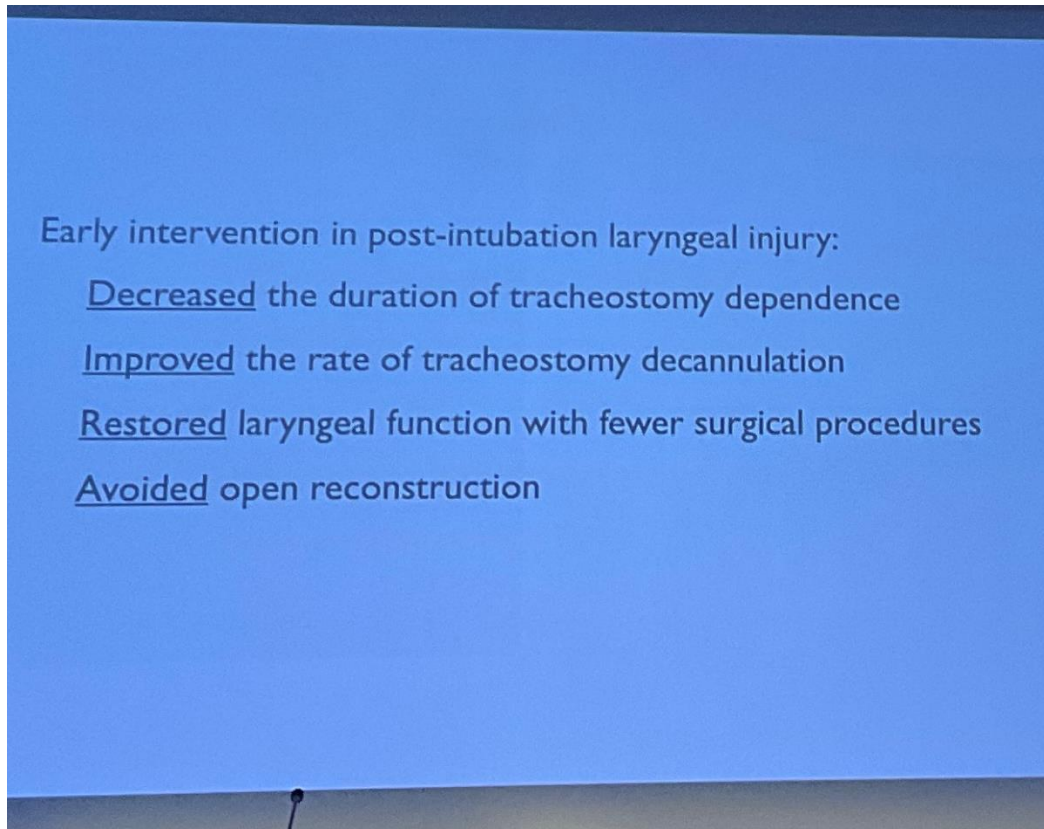
How to treat it?

- Ideally notice it early – eg at extubation
- Check your patient at 2 weeks – it can be noticed at this point



- At 6 weeks the scarring will be quite advanced, and it is likely the patient will contact about issues breathing/speaking
- Once the injury is mature, it is much harder to treat

Early intervention:



COVID raised the importance of monitoring cuff pressures to prevent subglottic injury, so people have got better at this, but glottic injury still happens, and is not necessarily looked for.

Using smaller tubes would help.

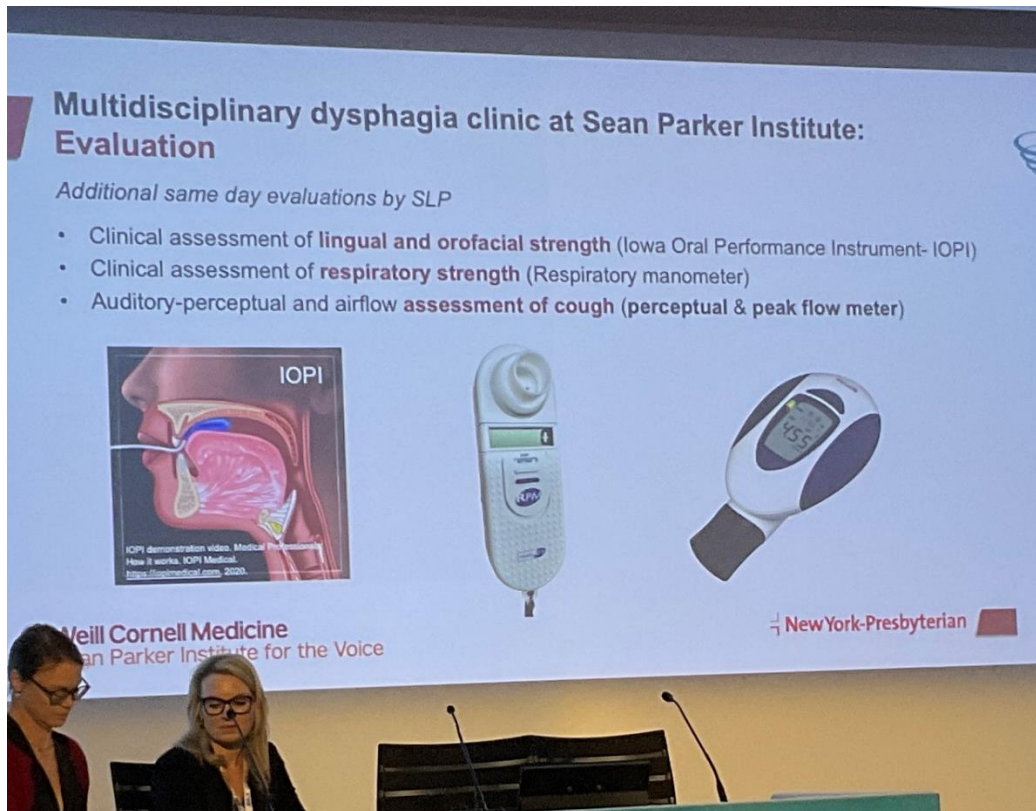
Need to educate critical care people that smaller tubes do not hinder patients' recovery from serious illness.



Office-based assessment and management of dysphagia

Dr Anais Rameau (USA)

This presentation looked at the multiple tools for measuring breathing and cough.



One of the key pieces of advice ENTs forget to tell their patients is the importance of good oral hygiene. People often forget this as not covered by insurance or poor access to national health dental practitioners. But essential for so many aspects of health. It is worth paying for a hygienist annually/twice annually and following good dental practices.



Interesting takeouts from the airway case study sessions Q&A

These are where a doctor presents a real case and a panel of doctors from different countries all discuss their personal approaches. Where stenosis was mentioned, I took note!

- Treating supra-glottic stenosis (stenosis above the vocal cords). Initial treatment should involve a biopsy and take bloods, and do a balloon dilation with steroid injections. SILSI (serial intralesional steroid injections) can be a successful treatment with this audience.
- SILSI possible side effects include hormonal disturbance/irregular period/high oestrogen and with some, mood swings
- With all stenosis patients encourage peak flow measurement – at least once a week – more if possible
- There has been no link found between Covid and stenosis.
- Treating subglottic stenosis
 - Some worry the balloon can potentially cause more damage as have seen longer segment stenosis spreading 4cm....the balloon is also 4cm...not proven or disproven but something to look out for
 - Laser when used gently and accurately at lower power can be very good at giving a surgery free period to patients – longer than using cold steel or rigid approach
 - Thoracic surgeons often use rigid tools which damage the airway (*If you have been referred to a thoracic surgeon, recommend considering a second opinion from a laryngologist with experience with airway stenosis*)
 - Biopsies should be checked for microbiology – if it grows Staf, then consider GPA as it is very rare for it to be iSGS
 - Coblation as a dilation technique – uses cooler temperatures – but these surgeons recommend only to use for granulation tissue. Why? The coblator is a big instrument and is cheap to use, but it can cause additional damage to mucosa and soft tissue. Some doctors have found a coblator causes an extension of the stenosis.
- How do you persuade a nephrologist/rheumatologist to treat a patient who is negative for ANCA as though they have vasculitis? Is their stenosis frequently returning?
 - If there is inflammation, then it is an easier task – they understand that their medication treats chronic inflammation
 - When it works, it can improve patients from having dilations from an average of 8 monthly to an average of 33 months. Call it atypical iSGS.

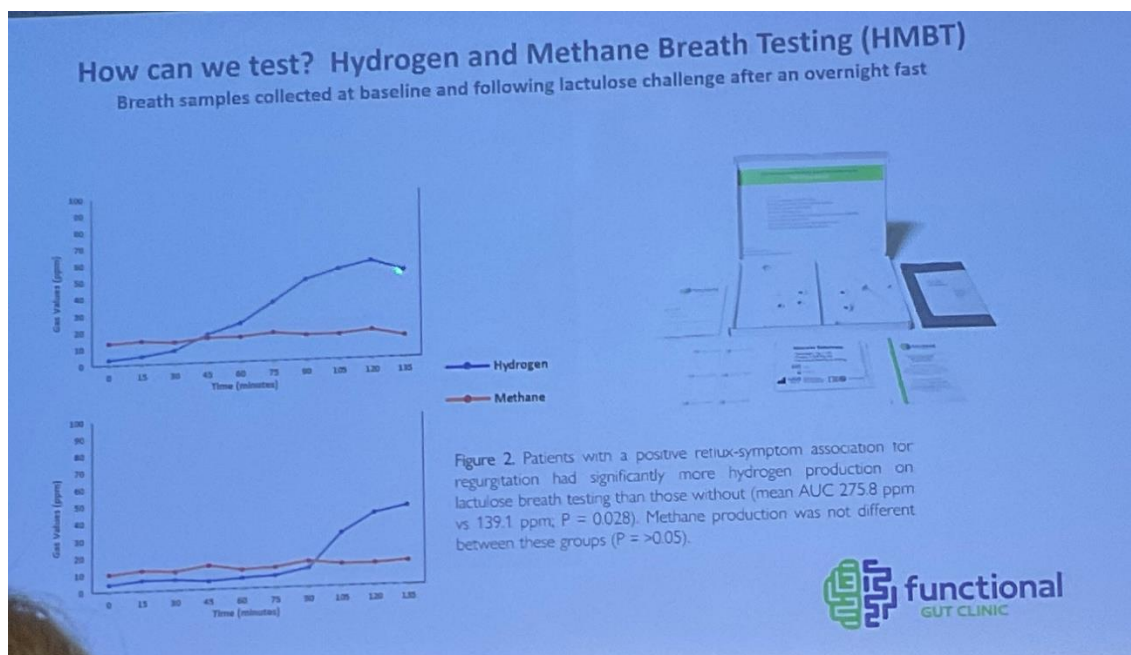


- GPA and iSGS are different entities – GPA is clearly immune, but iSGS seems to be epithelium

Non-specific throat symptoms, is it the oesophagus?

Dr Anthony Hobson (UK)

A person might not have acid reflux or heartburn symptoms, but they may be belching in their sleep, which brings up acid in the air bubble and causes irritation of the throat.



A hydrogen and methane breath test is conducted on patients with suspected issues.

If the breath test results in high levels of hydrogen, it means that sugar wasn't well digested in the intestines. Glucose is the preferred sugar to test for small intestinal bacterial overgrowth (SIBO). That's because glucose is usually very quickly absorbed in your small intestine.

Treatments follow the brain-throat-gut axis:

- Brain – behavioural therapy (some people belch out of habit), neuromodulators, vagal nerve stimulation
- Throat – various options if realise are not swallowing properly, neuromodulators
- Upper gut – PPIs but only where patients have typical reflux symptoms or objective evidence from endoscopy or Zph test
- Upper and Mid Gut – low fermentable diet, especially for evening meal, take an intestinal adsorbent (enterosgel) one hour before bed, and a night-time alginate



(Gaviscon Plus in the UK, Aus, NZ and Canada, Reflux Gourmet or ship in Gaviscon from Canada into the US)

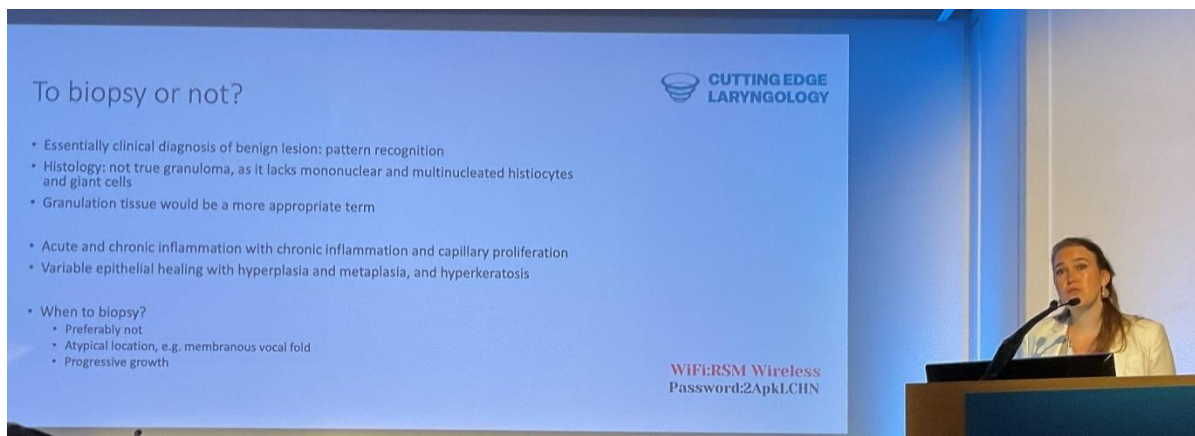
Aetiology of vocal cord granuloma

Dr Emilie Dronkers (Netherlands)

A granuloma is a tiny cluster of white blood cells and other tissue. When it occurs on your vocal cords, it is usually caused by an initial injury, followed by repetitive trauma, which then causes ulceration, the body tries to heal it, but then the process repeats, and the granuloma increases in size.

There are a wide range of causes, but iatrogenic is most common (eg caused by an operation or intubation of the airway). When they are spotted by inexperienced surgeon, they can assume it is a tumour, as this is how it looks.

From the patient point of view, symptoms include throat pain, the feeling of a lump in the throat, trouble breathing and speaking. Biopsies are not necessary.



The more appropriate term for these lesions is 'granulation tissue', rather than 'granuloma'.

3 etiological subtypes

- **Iatrogenic**
 - Mechanical cause (intubation or surgery)
 - Typical pedunculated/ polypoid reddish mass
- **Idiopathic**
 - Repetitive phonotrauma, behavioral
 - 'Contact ulcer'
- **Inflammatory**
 - GERD, allergy, postnasal drip, smoking, infectious (TB)
 - Like idiopathic, but more diffuse edema / erythema



87% are inflammatory or idiopathic, and one might be related to the other.

70% occur in women.

When this granulation tissue occurs from intubation, it can spontaneously go into remission without treatment.

The idiopathic contact granuloma occurs in males only 87.5% of the time, and often due to coughing and repetitive trauma to the vocal cords.

Treatment is usually with steroids:

- Inhaled (Fluticasone is thought to have the biggest particles, therefore more steroid will reach the target area)
- Injected
- Oral

Positive response rate between 60-80% - but to date there has been no comparison between modalities nor effectiveness. Is there a placebo effect?

Patients are often given PPIs...see next session.

The best treatment is often patience – most of these resolve in 6 months without treatment (once the cause – eg repetitive coughing) has stopped.



Is it reflux?

Dr Taran Tatla (UK)

Diagnosing Reflux (Subjective & Objective)



- More Subjective (unless exhaustive, systematic & standardised for consistency)
 - Clinical History including validated PROMs (include diet, lifestyle, allergies, eating & sleeping patterns, anxiety/stress)
 - Flexible nasendoscopy (Reflux finding score, RFS)
 - OGD/TNO
 - Ba swallow / Video fluoroscopy swallow
- More Objective (needs be clear, done on or off medical treatment)
 - Sputum pepsin assay (ELISA immunoassay) (Peptest)
 - Bravo capsule – 48-96 hour (measurement of oesophageal acidic events)
 - pH Impedance manometry (measurement of acid/alkali events, dysmotility, UES & LES opening & closing patterns) – gold-standard for GORD diagnosis
 - Others: Restech pharyngeal pH probe & salivary bile salt measurement (research) – presently no reliable diagnostic tool for LPR diagnosis

Can therapy fix vocal cord granulation?

Dr Abi Simpson/Dr Jason Roe (UK)

This session looked at the role of the speech and language therapist (SLT) in helping to fix vocal cord granulation tissue. A major literature review identified that SLT are proven to have an impact on recurring granuloma – meaning voice therapy and helping the patient to change ingrained habits (such as cough or throat clearing) is important.

They found that personality has a part to play in recovery – for example type A (Little Miss Noisy) and Type C (Mr Worry):

Personality	
TYPE A 	TYPE C 
<ul style="list-style-type: none"> • A hyperactive sympathetic nervous system leading to chronic stress, • Hypervigilance • high reactivity • higher risk of cardiovascular problems. • They exhibit more fight-or-flight responses, aggressive behaviour, • Difficulty relaxing. 	<ul style="list-style-type: none"> • A more dampened or passive nervous system response • A tendency to suppress emotions, especially under stress. • Chronic internalised stress • higher cortisol over time • Greater susceptibility to immune-related illnesses and cancer, • Without the high arousal typical of Type A.
<ul style="list-style-type: none"> • Increased laryngeal tension • Over-compression in speech • Glottal attacks • Shallow rapid thoracic breathing • Breath holding • High subglottic air pressure 	<ul style="list-style-type: none"> • Laryngeal inhibition/suppression • Hypofunctional voice use-breathy, weak, underpowered • Tension-fatigue • Psychosomatic symptoms –globus • Slow and shallow breathing, constricted breath flow • Reduced mouth position

Research with patients found that when they are shown a video of their own airway and explained the mechanics of what they are doing, patients better understand and take in the issues, and are much more likely to make changes for the better.



And that is a wrap! Phew!