Bamboo Nodes on a Series of 15 Patients: Vocal Fold Lesion as a Sign of Autoimmune Disease and Microphonotrauma

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Q2

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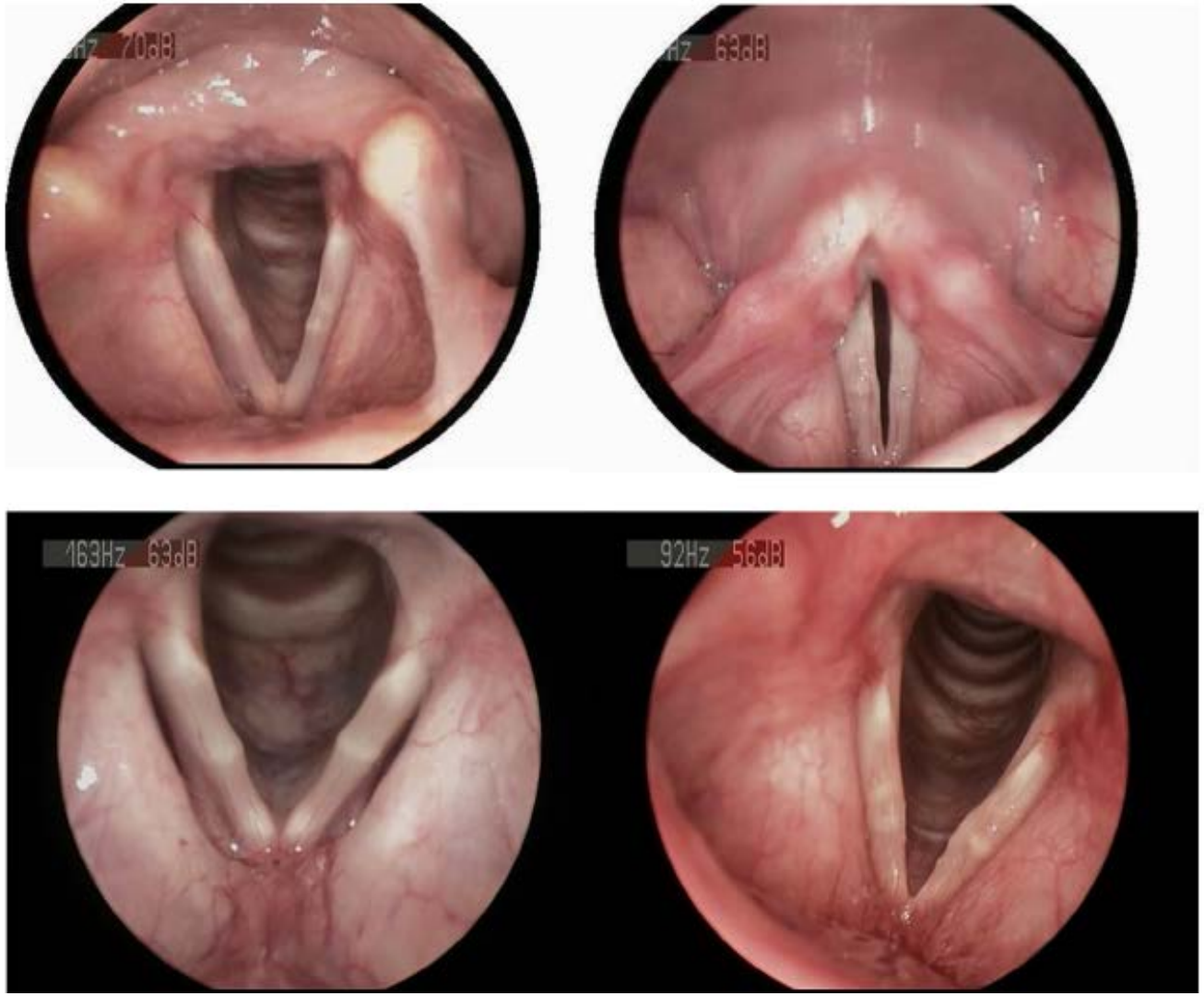
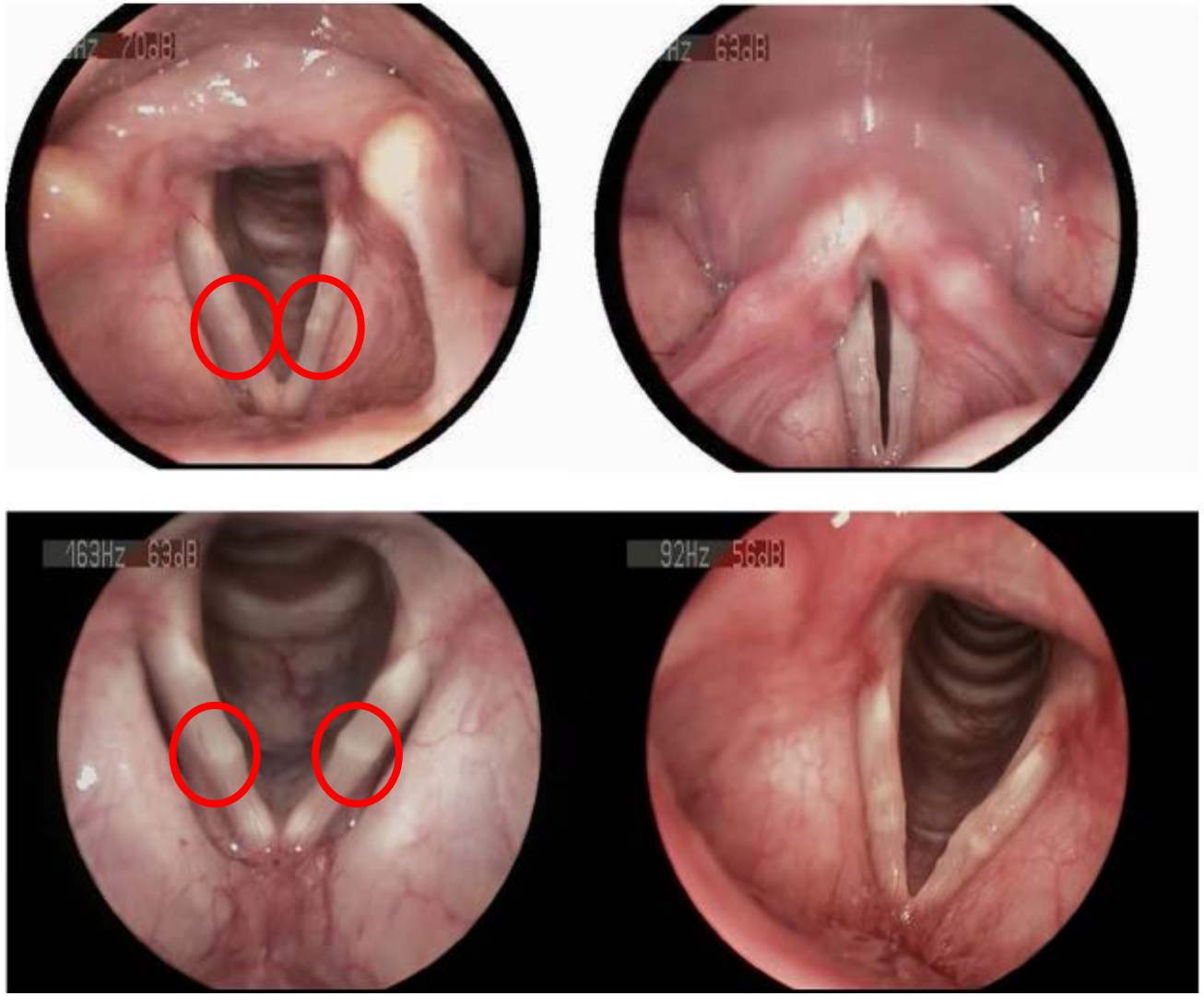
Bamboo nodule



Bamboo nodule



Pathophysiology & Diagnosis

- Appearance: Yellow, transverse nodules on vocal folds.
- Hypotheses:
  1. Autoimmune complex deposition
  2. Mechanical trauma from voice use
- Strong female predominance
- High prevalence in patients with autoimmune disorders

Autoimmune survey

- DD:systemic lupus erythematosus, rheumatoid arthritis, Sjögren disease, autoimmune hepatitis, Hashimoto thyroiditis, and progressive systemic sclerosis
- Lab:

antinuclear factor, anti-DNA antibodies, complement C3, C4, CH50, anticytoplastic antibodies of polynuclear cells, rheumatoid factor, electrophoresis of plasma proteins, immunoelectrophoresis of plasma proteins, anti-cyclic citrullinated peptide antibody, 24-hour proteinuria, angiotensin-converting enzyme, and phosphocalcic exploration.

Study Objective

To examine the clinical profile and treatment outcomes of patients with bamboo nodes.

To explore the relationship between bamboo nodes and autoimmune disorders.

Method

- 2010-2016, tertiary referral center, dysphonia related to bamboo nodule, total 15 pt, mean age: 38 y/o, all female
- Mean follow-up period: 28 months
- Follow-up < 6 months were excluded
- Assessment:
  - Rigid indirect laryngoscopy
  - Videostroboscopy
  - GRBAS
  - VHI
  - Maximum time of phonation

GRBAS

Component		Description
G	Grade	Degree of hoarseness of the voice
R	Roughness	Impression of irregularity of the vibration of the vocal folds
B	Breathiness	Degree to which air escaping from between the vocal folds can be heard by the examiner
A	Asthenia	Degree of weakness heard in the voice
S	Strain	Extent to which strain or hyperfunctional use of phonation is heard
I	Instability	Changes in voice quality over time

Rating scale: 0, normal; 1, slight; 2, moderate; 3, severe.

Source: Yamauchi, E.J., Imaizumi, S., Maruyama, H. & Haji, T. (2010). Perceptual evaluation of pathological voice quality: A comparative analysis between the RASATI and GRBASI scales. *Logopedics Phoniatrics Vocology*, *35*, 121–128.

VHI

	VHI-10 statement	Score				
1.	My voice makes it difficult for people to hear me.	0	1	2	3	4
2.	I run out of air when I talk.	0	1	2	3	4
3.	People have difficulty understanding me in a noisy room.	0	1	2	3	4
4.	The sound of my voice varies throughout the day.	0	1	2	3	4
5.	My family has difficulty hearing me when I call them throughout the house.	0	1	2	3	4
6.	I use the phone less often than I would like to.	0	1	2	3	4
7.	I'm tense when talking to others because of my voice.	0	1	2	3	4
8.	I tend to avoid groups of people because of my voice.	0	1	2	3	4
9.	People seem irritated with my voice.	0	1	2	3	4
10.	People ask, "What's wrong with your voice?" 0 1	0	1	2	3	4

VHI : Voice Handicap Index
0 = never, 1 = almost never (occasionally), 2 = sometimes, 3 = almost always, 4 = always

maximum time of phonation

- usually using the /i/ sound
- For adults: 15–20 seconds is considered normal, though this can vary based on age, health, and vocal training.
- For children: It may be shorter, typically around 10–15 seconds.

Patient Demographics

Characteristic	Value
Total patients	15 (All female)
Mean age	38 years
High vocal demand	100%
Voice professionals	40%
Known autoimmune disease	60%
Newly diagnosed autoimmune	13.3%
Total with autoimmune disease	73.3%

6/15

9/15

1 SLE+ Sjogren syndrome
1 RA

Types of Autoimmune Diseases

Systemic Lupus Erythematosus (SLE)	33.3%(5/15)
Rheumatoid Arthritis (RA)	26.6%(4/15)
Sjögren’ s Syndrome	26.6%(4/15)
Ankylosing Spondylitis	6.6%(1/15)
Primary Sclerosing Cholangitis + Crohn's	6.6%(1/15)

Treatments Used

Treatment Approach	% of Patients	Notes
Speech therapy only	40%(6/15)	1 bad interaction 1 not enough follow-up period
Speech therapy + Immunosuppressive treatment modification	33%(5/15)	E.g., methotrexate, Plaquenil
Voice rest (lifestyle change)	20%(3/15)	Retirement, job change, singing
Surgery or injection	7 %(1/15)	1 steroid injection due to persist hoarseness

Vocal profile at the last appointment

TABLE 1.
Vocal Profile of the Series including GIRBAS, VHI, MTP, Jitter, and Mean Fundamental in Reading, Projected, and Calling Voice at the Last Summoned Appointment

	Average	Mean Intensity (dB)	Normal Value
GIRBAS (Hirano scale): G or global grade (0–3)	1.15/3		0
Total Voice Handicap Index (VHI)	35.3/120		20 ±15
Maximum time of phonation (MTP), s	13.6		>20
Jitter, %	1.4		<0.5
Mean fundamental: voice in lecture	199 Hz	for 68.2 dB	
Mean fundamental: projected voice	245 Hz	for 78 dB	
Mean fundamental: calling voice	356 Hz	for 91.7 dB	

improvement

Clinical Implications

- Middle-aged women with dysphonia should be evaluated for bamboo nodes.
- For each patient with a diagnosis of bamboo nodes, the patient should be referred to an internist for a systematic autoimmune check-up to detect a possible biological asymptomatic autoimmune disease
- Emphasizes importance of conservative treatment before surgery.

Conclusion

- Bamboo nodes are rare but significant vocal lesions.
  73% has autoimmune disease
- Linked to autoimmune disease and vocal overuse.
- Conservative management (speech therapy, immunotherapy) is highly effective.
- Early recognition by phoniatricians is crucial.

Experience in FEMH

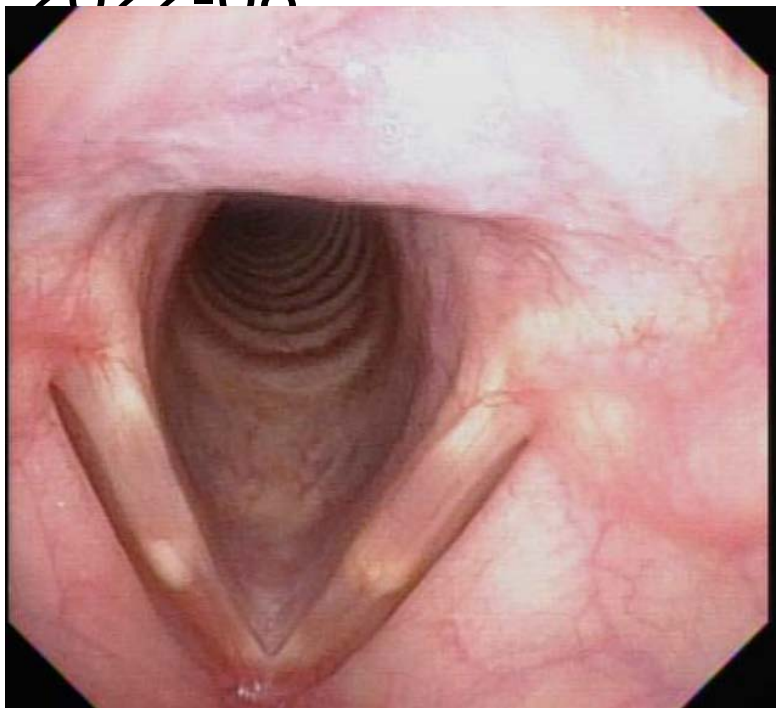
from 2013-12 ~ 2025-02

hoarseness with bamboo nodule(16)

- 7 no final diagnosis (loss follow-up)
- 4 SLE
- 4 sjogren syndrome
- 1 ITP(Idiopathic thrombocytopenic purpura)

Case 1 :
37 女 蘇X潔　1365677　　（Sjogren`s syndrome ）

2022-08



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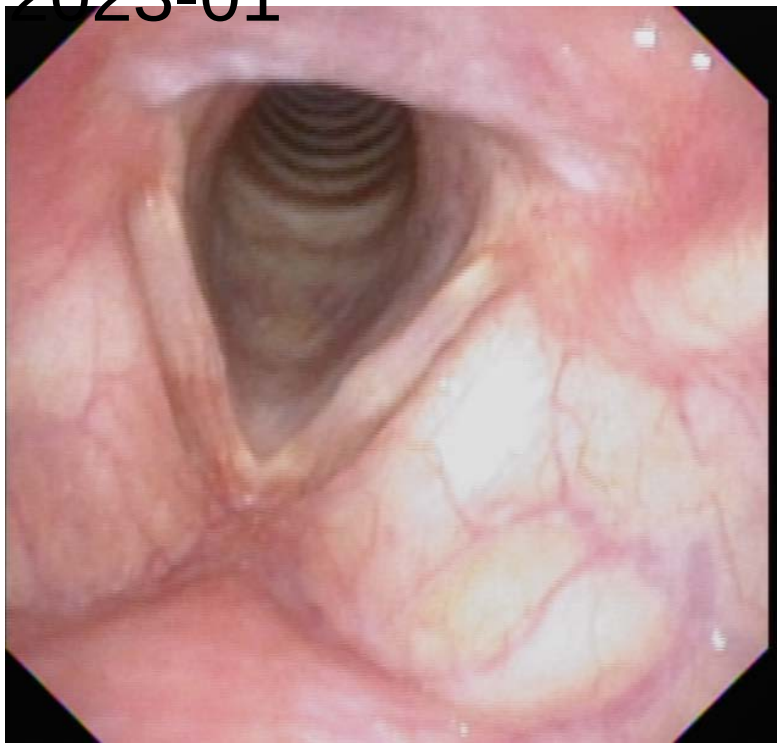
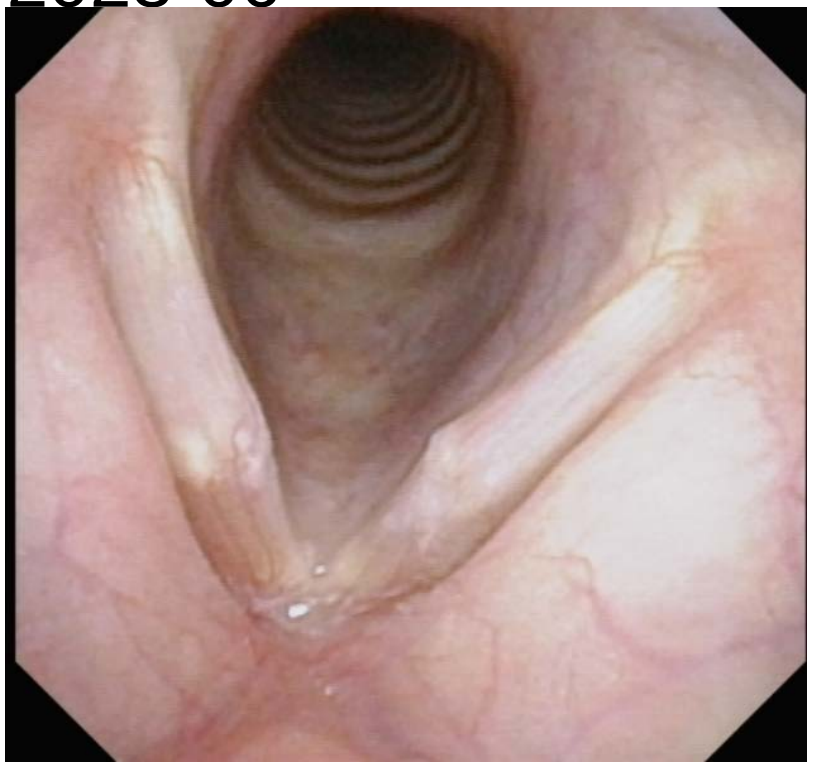


Case 1 :
37 女 蘇X潔　1365677　　（Sjogren`s syndrome ）

2023-06



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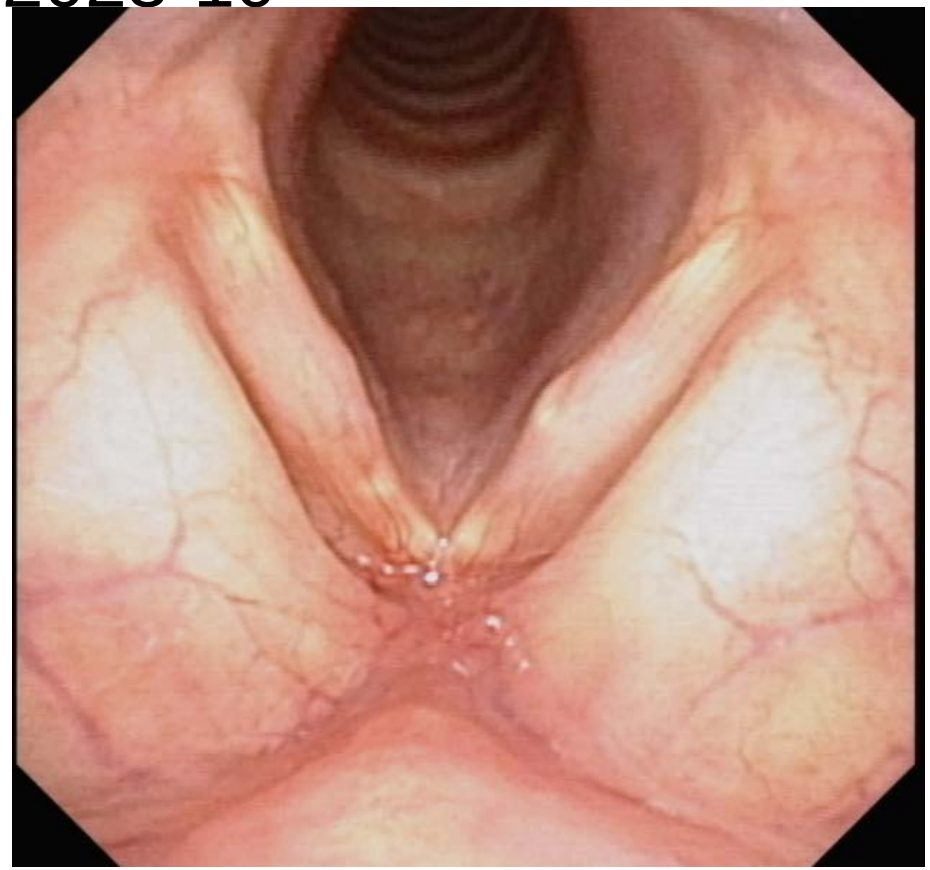
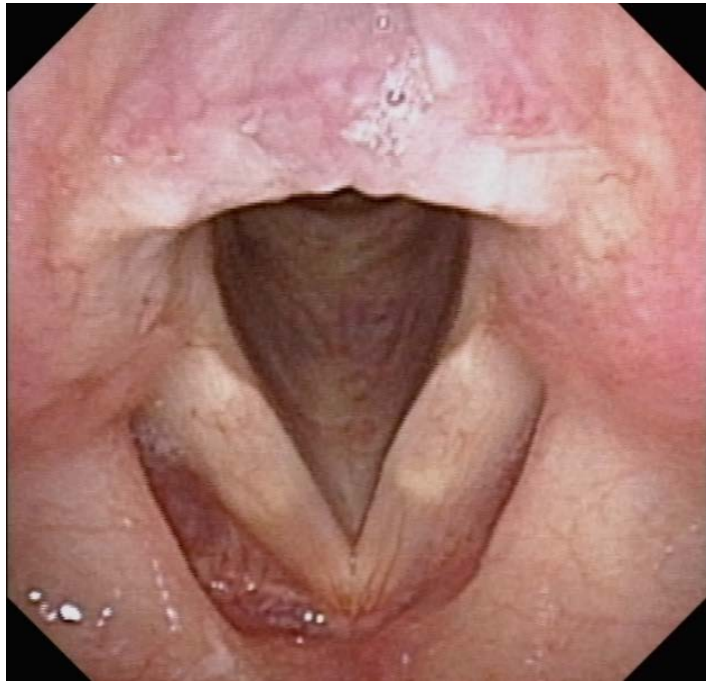


Case 2 :
49 女 吳X軒　H18093（Immune Thrombocytopenia Purpura, ITP）

2024-10



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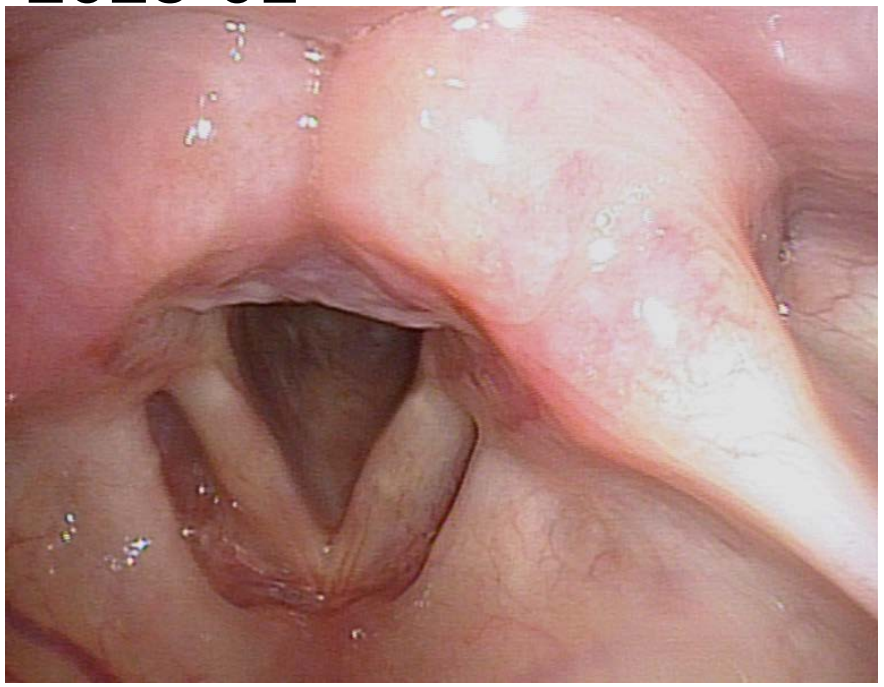
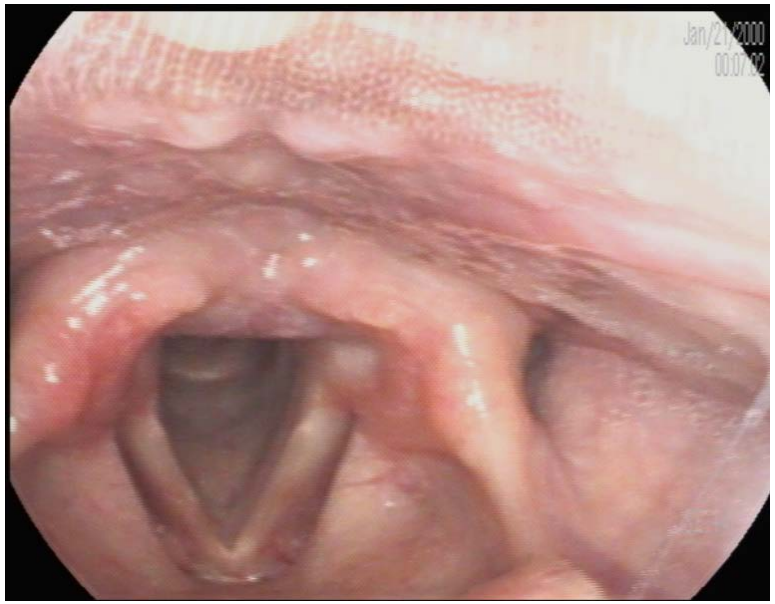
2025-01



Case 3 :
34 女 張X玟　1208238 (Sicca Syndrome)

2023-05



2023-05-15

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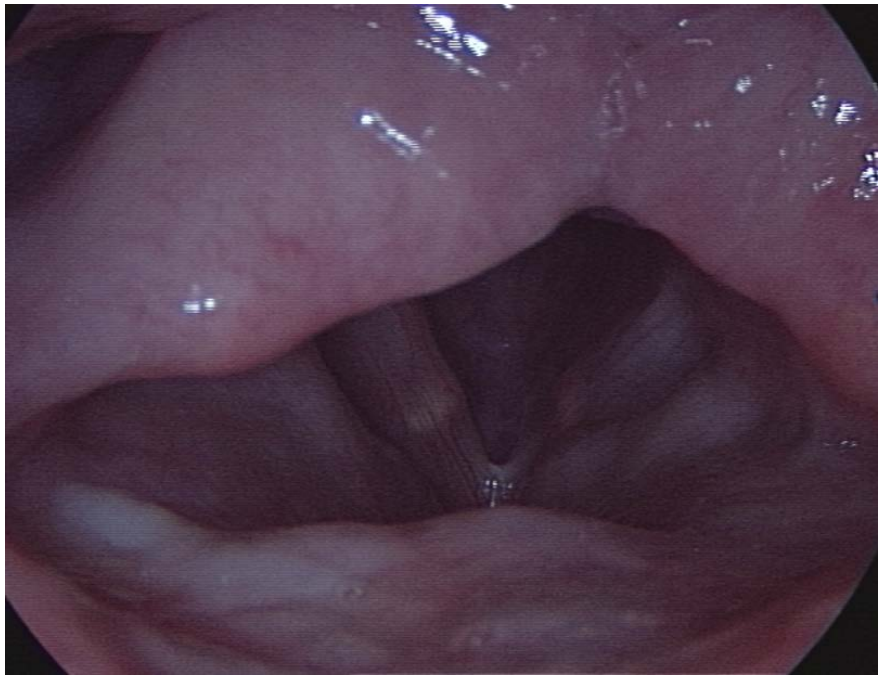
2023-06

Case 4 :
25 女 卓X蔚　1072000 (SLE)

2020-01



2020-02-20
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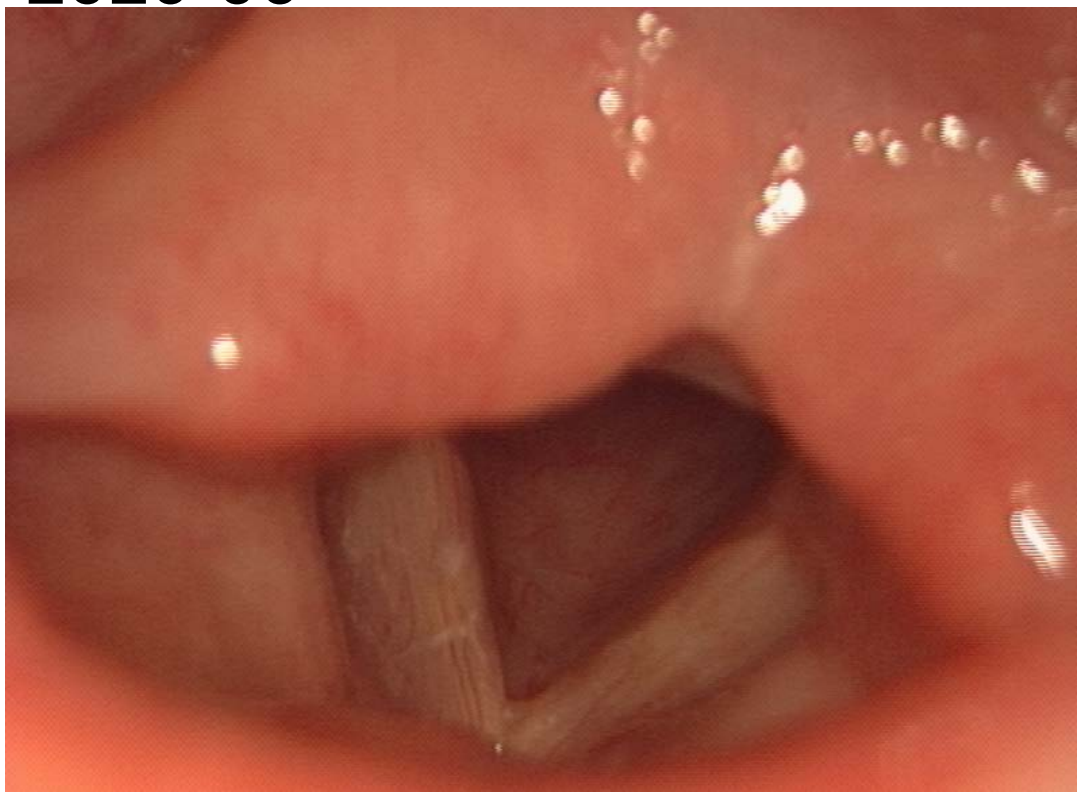
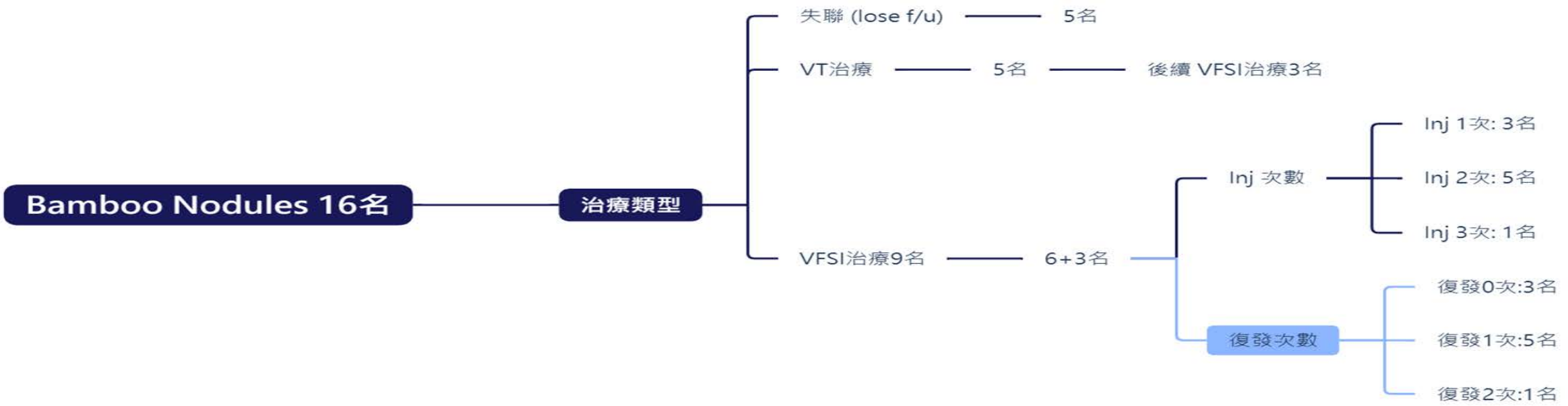


Experience in FEMH



Thank you