

P272 How to measure velopharyngeal function after treatment of head and neck cancer?



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Background

Velopharyngeal function can be impaired due to Surgery or Chemoradiotherapy for head and neck cancer (HNC).

High-Resolution Manometry (HRM) is known to provide the most accurate measurement of pharyngeal pressure. However, HRM is not widely used in Japan because of its high cost.

In 2010, we proposed Blowing Time Ratio (BTR) for simple quantitative examination of velopharyngeal function.

The aim of this study is to investigate whether BTR could partially replace the role of HRM in measuring velopharyngeal function after treatment of HNC.

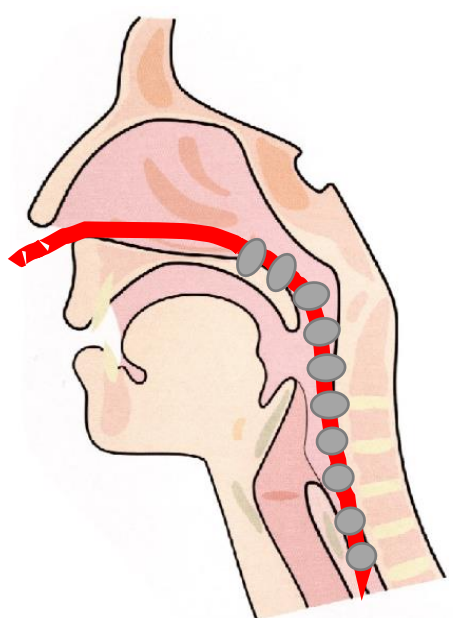
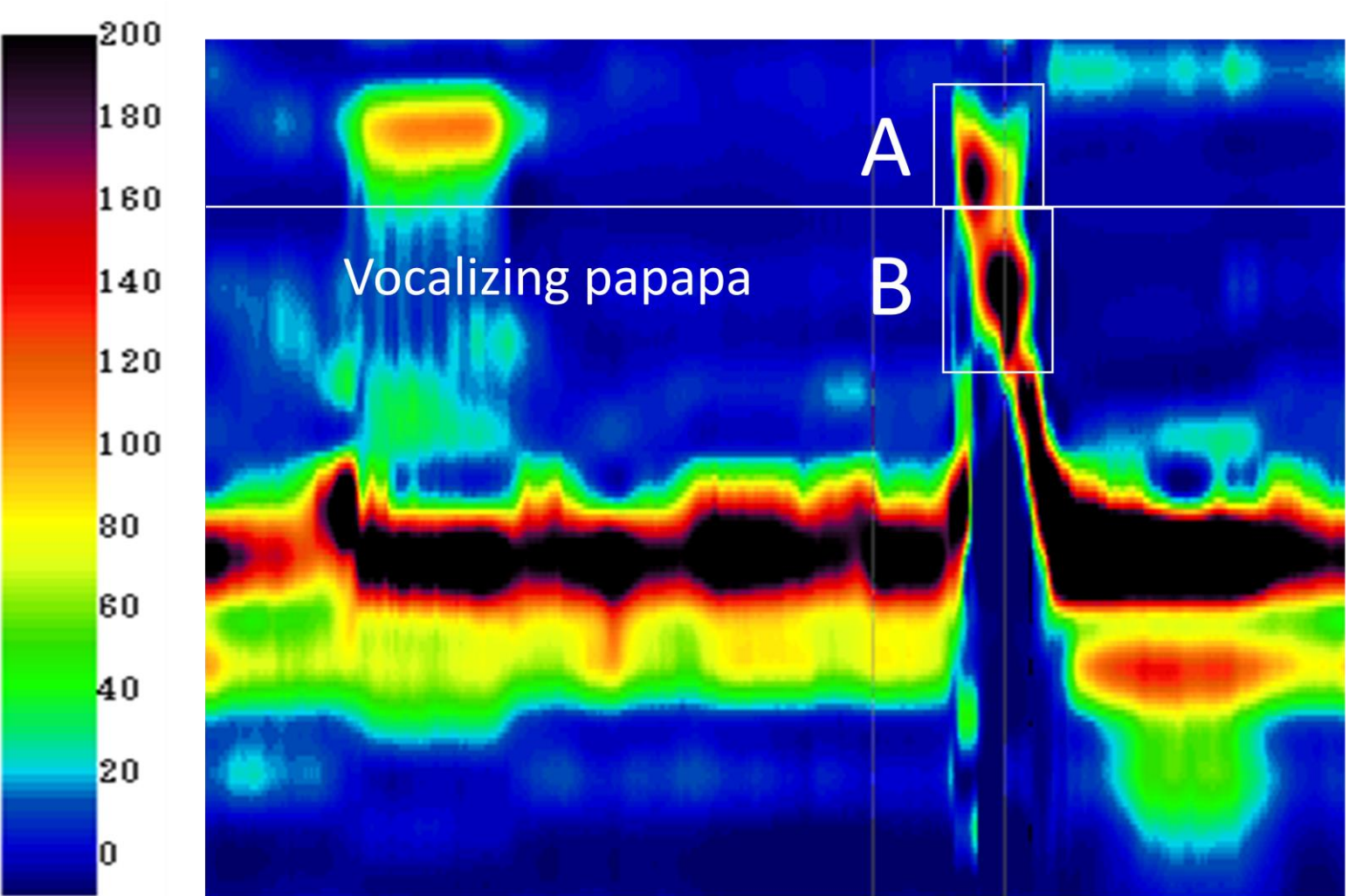
Katoh C, et al. Head and Neck 2010

Materials and Method

- A retrospective chart review
- 10 patients who underwent BTR and HRM after treatment of HNC in our hospital are included.
- We investigate the correlation between BTR and HRM results.

High-Resolution Manometry

HRM data was measured for 5 wet swallows by starlet® (star medical, 20ch). We analyzed the average Maximum pressure and DCI at velopharynx and oropharynx.



A : velopharynx area
B : oropharynx area

Blowing Time Ratio

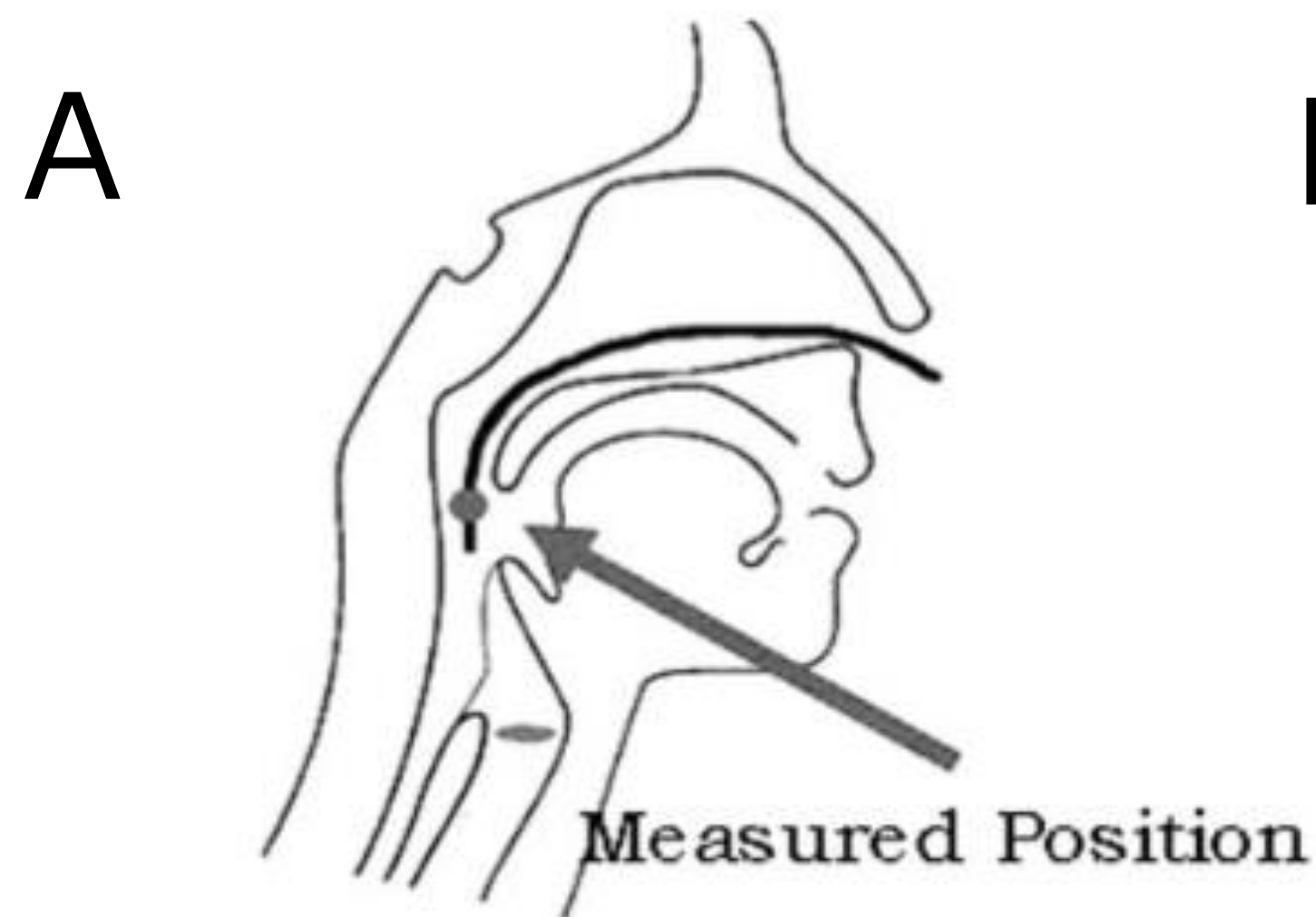
Patients softly blow air into the drinking straw placed in a bottle of water as long as they can, first under normal condition, and then with their nose pinched.

$$\text{Blowing Time Ratio} = \frac{\text{Blowing time with open-nose}}{\text{Blowing time with closed-nose}}$$



Discussion

In our previous study, we confirmed the correlation of BTR and conventional manometry. HRM has higher accuracy than a conventional manometry.



B



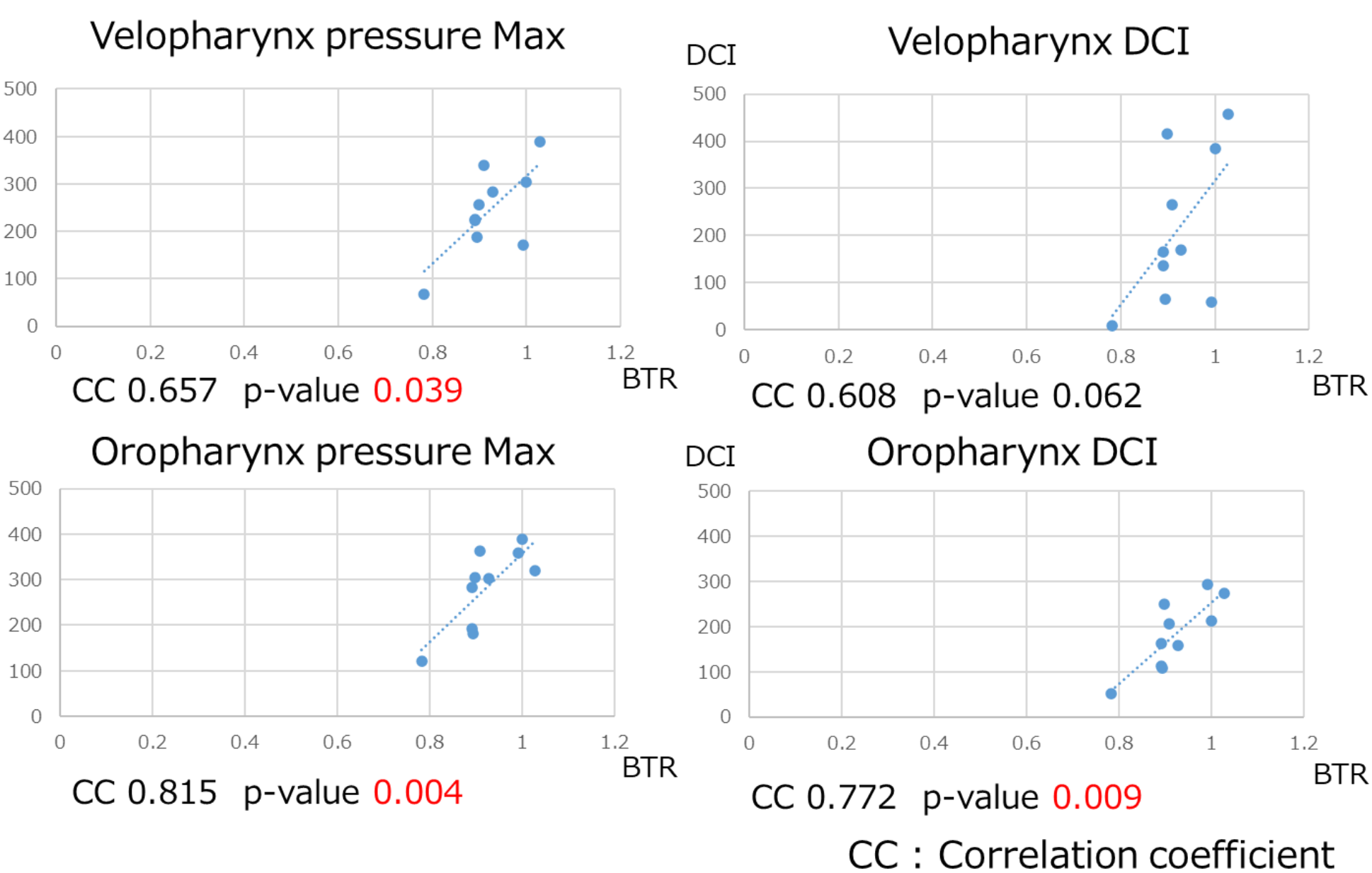
BTR and HRM results had significant correlation; BTR was reconfirmed as a simple and accurate quantitative test.

Results

Age	Sex	Primary Site	Treat ment	BTR	Velopharynx HRM		Oropharynx HRM	
					Pressure Max (mmHg)	DCI (mmHg/s/cm)	Pressure Max (mmHg)	DCI (mmHg/s/cm)
69	M	Oral	Op	102	389	456	318	273
78	M	Oral	Op	89	256	416	304	250
76	M	Oral	Op	92	283	169	301	158
62	M	Tongue	Op	78	66	9	121	50
77	M	Oral	Op	89	187	64	181	109
35	F	Tongue	Op	99	171	59	358	292
55	M	Oropharynx	CRT	89	225	136	283	162
52	M	Oropharynx	CRT	100	304	384	388	212
55	M	Oropharynx	CRT	89	222	164	191	111
67	M	Oropharynx	CRT	90	339	266	362	206

Correlation of BTR and HRM

Spearman's rank correlation coefficient



Conclusion

1. Blowing Time Ratio and High-Resolution Manometry results correlated well.
2. The effectiveness of BTR was reconfirmed by HRM, with higher accuracy than a conventional manometer.
3. Blowing Time Ratio is simple and low cost, so it can be an alternative examination in situations where HRM is not available.