

뇌신경재활

게시일시 및 장소 : 10 월 18 일(금) 13:15-18:00 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 15:45-16:30 Room G(3F)

## **P 2-120**

### **Incidence of aspiration pneumonia after subglottic aspiration during VFSS : Preliminary Study**

Min Woo Oh<sup>1\*</sup>, Kyoung Moo Lee<sup>1†</sup>

Chungbuk National University Hospital, Department of Rehabilitation Medicine<sup>1</sup>

#### **Objective**

The videofluoroscopic swallowing study(VFSS) is known to be one of the most commonly used test for evaluating dysphagia. However, when performing a VFSS, there is a good chance that the material, inevitably during the examination, can cause iatrogenic aspiration, and possibly cause aspiration pneumonia. There were studies on the incidence of aspiration pneumonia after VFSS, but there have been no studies investigating the incidence of aspiration pneumonia and its contributing factors after subglottic aspiration during VFSS as far as we could search for. In this study, we will follow up patients with subglottic aspirations in VFSS and find out the actual incidence of pneumonia and its possible related factors.

#### **Method**

This study was done prospectively from May 2019. Among in-hospital patients who underwent VFSS, we followed the patients with subglottic aspiration confirmed during the VFSS. Subglottic aspiration indicates that swallowed food material enters the airway below the vocal folds. The patients were followed for a week after the examination to determine how many of these patients would develop aspiration pneumonia. The elevation of fever with inflammation markers or new infiltration on x-ray within 3 days after VFSS was defined to be aspiration pneumonia in this study. We underwent the statistical analysis on these patients on the incidence of pneumonia, penetration-aspiration scale(PAS), functional dysphagia scale(FDS), the use of antibiotics, previous history of pneumonia as well as patients' age, sex and present diseases. After that, we compared the patients who developed pneumonia after the VFSS with patients who did not.

#### **Results**

By June 2019, 64 patients underwent the VFSS due to difficulty in swallowing or suspected to have aspiration during meals. A total of 21 patients out of 64 showed subglottic aspiration during VFSS. Of these, two patients progressed to aspiration pneumonia after VFSS and received additional treatment. (Figure 1.) Both of the patients who developed pneumonia after VFSS had previous history of pneumonia and one showed tracheal barium coating after the test. Their PAS was 7 both and FDS were 40 and 20. In patients who had

no complications after VFSS, the incidence of previous history of pneumonia was 47%, the incidence of tracheal barium coating was 5%, the mean FDS was  $38.1 \pm 11.0$  and the median of PAS was 7. (Table 1, 2) Unfortunately, because of the small number of patients who developed aspiration pneumonia after VFSS, no statistically significant factor could be found in these two patients.

### Conclusion

As a preliminary study, the probability of progressing to aspiration pneumonia was about 9.5% when subglottic aspiration occurred in VFSS in this study. Previous history of pneumonia and tracheal coating after the test, could be possible factors contributing to develop pneumonia after VFSS.

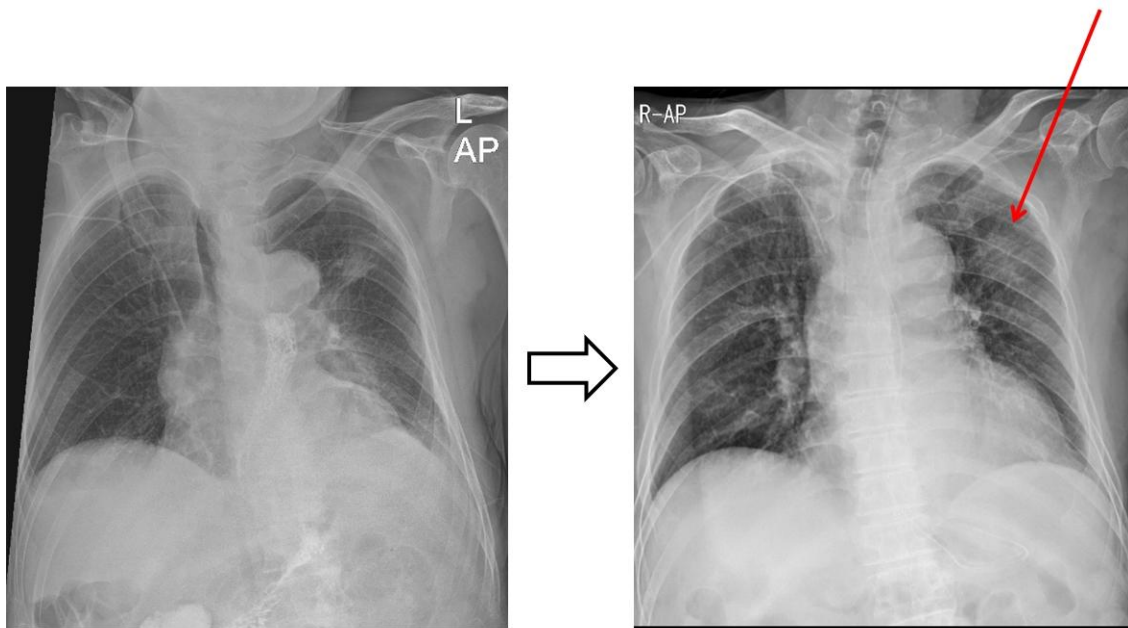


Figure 1. Aspiration pneumonia after subglottic aspiration during VFSS

Table 1. Demographic characteristics, underlying disease, pre-VFSS diet, recommended diet after VFSS, and VFSS findings of 21 subjects.

	Aspiration pneumonia (n = 2)	Non-pneumonia (n=19)
<b>Age(mean ± SD)</b>	69 ± 4.2	72.6 ± 17.6
<b>Sex</b>		
Males	1 (50%)	12 (63%)
Females	1 (50%)	7 (37%)
<b>Underlying disease</b>		
Stroke	2 (100%)	8 (42%)
Others	0 (0%)	11 (58%)
<b>Antibiotics Before VFSS</b>	1 (50%)	11 (57%)
<b>Pneumonia before VFSS</b>	2 (100%)	9 (47%)
<b>Feeding Before VFSS</b>		
Oral feeding	0 (0%)	7 (37%)
Non-oral feeding	2 (100%)	12 (62%)
<b>Penetration-Aspiration Scale (median)</b>	7	7
<b>Functional dysphagia scale (mean ± SD)</b>	30.0 ± 14.1	38.1 ± 11.0
<b>Recommended diet after VFSS</b>		
Oral feeding	0 (0%)	7 (37%)
Non-oral feeding	2 (100%)	12 (63%)
<b>Tracheal barium coating after VFSS</b>		
Yes	1 (50%)	1 (5%)
No	1 (50%)	18 (95%)

Table 2. VFSS and related clinical findings in aspiration pneumonia group

Subject no.	Sex	Age	Underlying disease	Antibiotics Before VFSS	Pneumonia before VFSS	Feeding Before VFSS	PAS	FDS	Recommended diet after VFSS	Tracheal barium coating after VFSS
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1	Male	72	Stroke	yes	yes	Non-oral feeding (total parenteral nutrition)	7	20	nasogastric tube	no
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2	Female	66	Stroke	yes	yes	Non-oral feeding (nasogastric tube)	7	40	nasogastric tube	yes
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Subject no.	Initial symptom of pneumonia	Symptom onset from VFSS	C-reactive protein change (mg/dl)	Leukocyte change (x1000/ml)
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1	desaturation, fever	1day	▲5.84 -> ▲12.52	▲10.27 -> ▲22.10
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2	fever	1day	▲0.71 -> ▲5.60	▲10.23 -> ▲15.22
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