

신경근육재활 및 전기진단

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)

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Laryngeal Electromyographic Findings in Patients with Dysphonia

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Objectives

The evaluation of dysphonia could include laryngostroboscopy and laryngeal electromyography (LEMG). The LEMG becomes the ideal technique to complement the laryngologic investigation. However, the electrodiagnostic technique in LEMG is not easy to learn and not generally practiced. We would like to review a case series and analyze the problem.

Subjects and methods

Sixteen patients with dysphonia were examined by LEMG, and the findings of a case series were analyzed.

Results

Six of sixteen complained dysphagia in addition to the voice problem. 11/16(68.8%) showed abnormal findings in LEMG, while 14/16(93.6%) showed vocal cord palsy in laryngostroboscopy. Five cases showed normal findings in LEMG with vocal cord palsy. One case with good mobile vocal cord showed both superior laryngeal neuropathy in LEMG. 8/16(50%) was diagnosed as recurrent laryngeal neuropathy (3 thyroidectomy, 1 cervical disc operation, 1 esophageal rupture operation, 1 huge aortic aneurysm, 2 unknown). 2/16 showed incomplete total laryngeal neuropathy (1 varicella zoster, 1 idiopathic). Abnormal spontaneous activity was detected in only three of eleven abnormal LEMG patients. Reduced recruitment was found in only five of eleven. No motor unit volition without spontaneous activity was shown in six of eleven (Table 1). It could be interpreted as nearly complete axonotmesis, however there was some possibility of technical error in that the needle was not inserted on the small laryngeal muscles. The atrophy of the laryngeal muscle in the laryngeal neuropathy could add difficulties (Mengsteab 2015).
Klinge (2019) suggested ultrasonography-guided LEMG, however in 30% the signal of laryngeal muscles was not stably visualized still.

Conclusions

The adequate insertion of the needle into the laryngeal muscle is not easy. The other helping method such as ultrasound guide should be added in the LEMG and learning workshop needs to be held.

Table 1. Clinical characteristics of the patients and results of laryngostroboscopy and the LEMG

| No. | Age | Sex | Chief complaints | Causes | Laryngeostroboscopy | LEMG findings/conclusion |
|-----|-----|-----|----------------------|-----------------------------|---------------------|---|
| 1 | 28 | F | dysphonia | ? | Lt VCP | Lt TA: reduced recruitment/ Lt recurrent laryngeal neuropathy, incomplete |
| 2 | 57 | M | dysphonia, dysphagia | ? | Lt VCP, suspicious | normal |
| 3 | 48 | M | dysphonia, dysphagia | ruptured esophagus operatic | Rt VCP | Rt TA: no MUAP/ Rt recurrent laryngeal neuropathy, nearly complete |
| 4 | 37 | M | dysphonia | r/o arytenoid dislocation | Lt VCP | normal |
| 5 | 63 | M | dysphonia, dysphagia | VZV infection | Lt VCP | Lt CT, TA: ASA +, single interference/ Lt laryngeal neuropathy, incomplete |
| 6 | 59 | F | dysphonia, dysphagia | infection? | Lt VCP | Rt CT, TA: ASA +, reduced recruitment/ Rt laryngeal neuropathy, incomplete |
| 7 | 46 | M | dysphonia | huge arotic aneurysm | Lt VCP | Lt TA: ASA+, reduced recruitment/ Lt recurrent laryngeal neuropathy, incomplete |
| 8 | 66 | F | dysphonia | ? | Lt VCP | normal |
| 9 | 57 | M | dysphonia, dysphagia | cerival spine operation | Rt VCP | Rt TA: no MUAP/ Rt recurrent laryngeal neuropathy, nearly complete |
| 10 | 48 | F | dysphonia | trauma | Both VCP | normal |
| 11 | 63 | F | dysphonia | ? | Lt VCP | Lt TA: no MUAP/ Lt recurrent laryngeal neuropathy, nearly complete |
| 12 | 45 | F | dysphonia, dysphagia | thymectomy and thyroideco | Lt VCP | Lt TA: no MUAP/ Lt recurrent laryngeal neuropathy, nearly complete |
| 13 | 35 | F | dysphonia | ? | Both VCP | normal |
| 14 | 55 | M | dysphonia, dysphagia | cervical spine operation | good mobility | Both CT: no MUAP/ Both superior laryngeal neuropathy, suspicious |
| 15 | 47 | F | dysphonia | thyroidectomy | Rt VCP, suspicious | Rt TA: single interference/ Rt recurrent laryngeal neuropathy, incomplete |
| 16 | 55 | M | dysphonia | thyroidectomy | Lt VCP | Lt TA: no MUAP/ Lt recurrent laryngeal neuropathy, nearly complete |

VCP: vocal cord paresis, CT: cricothyroid muscle, TA: thyroarytenoid muscle, ASA: abnormal spontaneous activite, MUAP: motor unit action potential