



CASE REPORT

Successful Treatment of Dysphagia in a Case of Lateral Medullary Syndrome

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ABSTRACT

Background: Lateral medullary syndrome is a known cause for apraxia, dysarthria, and dysphagia. It is caused by lesion in the posterolateral area of the medulla oblongata. Dysphagia, being a life-threatening condition, deserves immediate attention of the medical team and is of prime concern to Speech Language Pathologists (SLPs).

Aim: The aim of the study was to document a successful case of dysphagia management in lateral medullary syndrome (LMS).

Case report: This study documents a successful management of dysphagia in an individual with LMS. Assessment (perceptual and instrumental) showed reduction of peripheral capillary oxygen saturation (SpO₂) during feeding, slow laryngeal elevation with pooling of food and saliva in bilateral pyriform fossa, along with a high risk of penetration followed by aspiration. Weak tongue movement and improper lip closure were observed. Combinations of manual therapy and compensatory techniques were used for treating dysphagia. Oromotor exercises and respiratory exercises were used along with supraglottic maneuver, Masako maneuver, chin-tuck with effortful swallow, and Shaker's exercise. Within 2 weeks of initiation of swallow therapy, the subject could start safe oral intake with pureed food and maintain normal SpO₂ level during feeding.

Conclusion: This case report demonstrates that dysphagia in LMS can be successfully treated with appropriate selection of combination of techniques in swallow therapy. Supraglottic swallow, Masako maneuver, chin-tuck, and Shaker's exercise were found effective in this case study. We further conclude that early initiation of therapy is the key to faster recovery.

Clinical significance: It is often seen in many of the patients with LMS that they end up with either Rhyle's tube or percutaneous endoscopic gastrostomy (PEG) tube feeding until complete recovery. This case report highlights the importance of early initiation of therapy and combination of swallowing therapy techniques in order to avoid prolonged artificial tube feeding in these patients.

Keywords: Chin-tuck, Flexible endoscopic evaluation for swallowing, Lateral medullary syndrome, Masako maneuver, Shaker's exercise, Supraglottic maneuver.

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BACKGROUND

Lateral medullary syndrome is characterized by apraxia, numbness of body, vertigo, visual problem, Horner's syndrome, hypalgesia, nystagmus and facial weakness, and dysphagia¹ due to involvement of postero-lateral area of the medulla oblongata. Dysphagia is present in 61% of cases Kim et al in a severe form² due to impaired pharyngeal phase of swallowing.³ Dysphagia in LMS, a form of Bulbar palsy, is a distressing symptom often accompanied by choking and coughing spasms during deglutition and aspiration pneumonia, which increases death rate in this population Mills.⁴ Successful treatment of dysphagia is difficult in LMS and various intervention procedures have been tried in the past with variable results. They include transcranial magnetic stimulation,⁵ head rotation and postural modification⁶ Logemann and electrotherapy Gupta and Banerjee⁷ We report a case where conventional therapy has shown significant and immediate improvement.

CASE REPORT

The aim was to document a single case of successful dysphagia management by manual therapy used in combination with compensatory techniques in a case of LMS.

A 66-year-old male, known hypertensive, presented with sudden onset of difficulty in swallowing along with right hemiparesis and decrease in sensation in the right side of his face and slurring of speech. The magnetic resonance imaging showed brainstem infarct, and a diagnosis of LMS was established.

Perceptual assessment of dysphagia showed occasional wet voice and pooling of saliva, reduction in peripheral capillary oxygen saturation (SpO₂) level,

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and increased oral transition time. This was followed by barium swallow and fiberoptic endoscopic evaluation of swallowing (FEES) examination, which found prominently slow laryngeal elevation during swallowing, pooling of secretion found in vallecula and pyriform fossa, regurgitation of own saliva, weak tongue musculature and weak tongue movement, weak tongue base movement, poor velar elevation, inconsistent coordination in velar repetitive movements, poor breath support, inadequate blowing, taking sip is effortful, nonspeech coordination is slow in repetitive and altered movements, and inadequate lip symmetry at rest.

The subject was diagnosed with laryngopharyngeal dysphagia and was advised dysphagia therapy.

The swallowing therapy included oromotor exercises of tongue, lips, velum, cheeks, larynx and respiratory exercises with muscle strengthening maneuvers, supra-glottic swallow maneuver during feed with Masako maneuver, Shaker's exercise, chin tuck, and effortful swallow. The therapy was provided once a day for 45 minutes for 2 weeks, and the therapy was advised to be carried forward at home.

For supraglottic swallow⁸ (Logemann⁶), the subject was asked to take a sip of liquid into the mouth and hold it on his tongue, then with his mouth closed, he was asked to take a short breath-in through his nose and bear down with all his strength, while holding his breath, he was asked to swallow all at once and then cough to let go of the residual liquid.

The Masako maneuver (Fujiu and Logemann⁹) helps to propel the food downward and is a successful tool in improving strength of movement of muscles of base of tongue. This exercise was performed by protruding his tongue between his front teeth, holding it in place by gently biting down on the anterior portion of his tongue, and maintaining this posture while swallowing.

For chin-tuck and effortful swallow, the subject is asked to put his chin down to move bolus anteriorly to prevent premature spillage and widen the valleculae. So spillage hesitates there giving more time for vocal folds to close, thereby reducing the risk of aspiration. Effort increases posterior tongue movement, thus improving bolus clearance from the valleculae. He was asked to swallow as hard as he can and to push as hard as he can with the tongue against the roof of his mouth while swallowing.

The Shaker's technique is indicated for patients who exhibit reduced superior and anterior movement of the hyolaryngeal complex. The hyoid and larynx are not lifting and moving forward to the extent needed in order to open the upper esophageal sphincter. The subject was asked to lie flat and, keeping the shoulders on the bed/mat, he was asked to raise his head to look at his toes.

He has to maintain this position (the goal is 60 seconds) and then repeat this two more times.

A stethoscope, FEES software SCOPYDOC, flexible fiberoptic laryngoscope, and X-ray/videofluoroscopy instrument were used in this study.

The subject showed improved oral intake within 2 weeks. The type of diet for safe swallowing was slowly changed from liquid diet to puree to soft food consistency. Improved dry swallowing, with stable heart rate, reduced delay in oral transition time, and well-maintained SpO₂ level (99–100%) was obtained. Reduced vallecular pooling with adequate and timely laryngeal elevation during swallowing was visible in FEES. Oral intake was independently successful in meeting the nutritional needs of his body.

DISCUSSION

Although there is a very limited research in the field of dysphagia management in LMS, many authors have described the occurrence and severity of dysphagia in this population to be very significant. Aydogdu et al³ describe dysphagia in LMS to be a more severe and long-standing problem than unilateral hemispheric stroke and peripheral cranial nerve lesions, and is more difficult to overcome. Combination of therapy techniques in order to improve rate of recovery is being considered from a long time. Khedr⁵ suggested that transcranial magnetic stimulation could be used along with conventional therapy to overcome dysphagia in LMS patients for better outcomes. Gupta and Bannerjee, in 2014, documented a case of LMS, where conventional therapy and vitalstim were started after 16 months of onset of dysphagia and it took 4 months to recover and they have considered it to be a very successful treatment. However, it has been found in our present study that oral feed could be started as early as 2 weeks after onset of dysphagia when some conventional therapy and compensatory maneuvers could be combined as per pathophysiology after a detailed assessment.

CONCLUSION

Of all stroke cases, 15% are brainstem strokes,¹⁰ where dysphagia management is difficult and often unsuccessful. When lesion is in the medulla, prominent bulbar symptoms often continue for prolonged duration. The early initiation of therapy is the key to faster recovery. The combinations of therapy techniques are carefully selected, keeping in mind the impairments leading to dysphagia is the proud skill of a deglutologist and only this could help achieve best outcome of dysphagia therapy. The effectiveness of supraglottal swallow, Masako maneuver,

chin-tuck, and Shaker's exercise was found effective in this case study according to the pathophysiology. The importance of tools like FEES was found to be significant in the assessment and management of dysphagia. This case report demonstrates that dysphagia in LMS can be successfully treated with appropriate selection of combination of techniques in swallow therapy.

CLINICAL SIGNIFICANCE

It is often seen in many of the LMS cases that they end up with either Rhyle's tube or PEG tube feeding until complete recovery. A combination of swallow therapy techniques each aiming at treating specific impairments should lead to faster recovery. The article also reminds us that the initiation of therapy should be as early as possible to achieve best results. Dysphagia in other cortical, subcortical, or brainstem infarcts should be analyzed to detect specific domains of impairment and further specific combinations of therapy techniques should be selected for obtaining maximal efficacy of swallow therapy.

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