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Case Report

A Rare Presentation of Adductor Spasmodic Dysphonia: A Case Report

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ABSTRACT

Adductor Spasmodic Dysphonia (AdSD) is a focal laryngeal dystonia characterized by involuntary contractions of the vocal fold adductor muscles, particularly the thyroarytenoid muscle, resulting in strained, effortful, and interrupted speech. It is the most common subtype of spasmodic dysphonia and is considered a neurological disorder involving dysfunction of central motor control pathways. We report a case of a 57-year-old female who presented with progressive dysphonia, throat discomfort, and vocal strain. Clinical evaluation and videolaryngostroboscopy revealed abnormal vocal cord movement consistent with AdSD. The patient was managed with botulinum toxin injection into the thyroarytenoid muscles along with supportive pharmacotherapy and surgical intervention (thyroplasty). The case highlights the importance of early diagnosis and evidence-based management of AdSD to improve voice quality and patient quality of life.

Keywords: Adductor Spasmodic Dysphonia, Dystonia, Videolaryngostroboscopy.

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INTRODUCTION

Adductor Spasmodic Dysphonia (AdSD) is a task-specific focal dystonia affecting the laryngeal muscles responsible for voice production. It is characterized by involuntary, intermittent spasms of the vocal fold adductor muscles, particularly the thyroarytenoid muscle, leading to a strained, strangled, and effortful voice (Boutsen *et al*., 2002). AdSD accounts for approximately 85-90% of all cases of spasmodic dysphonia and is more commonly seen in middle-aged females (Hyodo *et al*., 2021).

The disorder is neurological in origin and is associated with dysfunction of central motor pathways, particularly involving the basal ganglia and sensorimotor cortex. These abnormalities lead to impaired coordination of laryngeal muscle activity during speech. Patients typically present with a gradual onset of voice disturbances, including dysphonia, vocal strain, voice breaks, and reduced phonatory control, which can significantly affect communication and quality of life.

Diagnosis of AdSD is primarily clinical and is supported by laryngoscopic or videostroboscopic findings demonstrating abnormal vocal fold movement during phonation. Botulinum toxin injection into the thyroarytenoid muscle remains the gold standard treatment, providing symptomatic relief by reducing involuntary muscle contractions. In selected cases, surgical interventions such as thyroplasty may be considered (Guardino, n.d.).

This case report aims to present the clinical features, diagnostic approach, and management of AdSD, emphasizing the importance of early recognition and appropriate therapeutic intervention.

METHODOLOGY

A comprehensive literature search was conducted to identify relevant studies on adductor spasmodic dysphonia. Electronic databases including PubMed, Google Scholar, and Scopus were searched for articles published up to 2025. The search terms used were "adductor spasmodic dysphonia," "laryngeal dystonia," "botulinum toxin," "voice disorders," and "videolaryngostroboscopy."

Inclusion criteria comprised original research articles, review articles, and case reports published in English that discussed the epidemiology, pathophysiology, diagnosis, and management of adductor spasmodic dysphonia. Articles with incomplete data, non-English publications, and studies not directly related to the topic were excluded.

Relevant articles were screened and selected based on their scientific quality and relevance to the present case report.

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CASE REPORT

A 57-year-old female patient presented to the ENT department with complaints of dysphonia for 5 months, associated with throat pain and strain in voice for the past 3 months. There was no significant past medical, surgical, family, or medication history. Personal history, including appetite, bowel, bladder, and sleep, was normal.

On clinical examination, vital signs were stable with no significant abnormalities. Laboratory investigations revealed decreased Mean Corpuscular Hemoglobin Concentration (MCHC) and elevated Erythrocyte Sedimentation Rate (ESR), Total White Blood Cell (WBC) count, Red Cell Distribution Width (RDW), and Hemoglobin A1c (HbA_{1C}) levels.

Videolaryngostroboscopy (VLS) examination showed restricted mobility of the left vocal cord, while the right vocal cord movements were normal. Based on subjective complaints and objective findings, the patient was diagnosed with Adductor Spasmodic Dysphonia, a focal laryngeal dystonia characterized by involuntary spasms of the vocal cord adductor muscles.

The patient was treated with botulinum toxin (Botox) injection (0.2 mL) administered into both thyroarytenoid muscles as first-line therapy. The patient also underwent thyroplasty as a surgical intervention. Supportive pharmacotherapy included antibiotics (Amoxicillin-Clavulanic acid), proton pump inhibitor (Pantoprazole), NSAID (Aceclofenac + Paracetamol), antihistamine (Bilastine), and inhaled corticosteroid (Budesonide) (Table 1).

At discharge, the patient was advised to continue medications for one to two weeks and follow voice rest, speech therapy, and lifestyle modifications. Regular follow-up with ENT and speech therapy was recommended for better functional recovery.

No clinical images were available for inclusion in this case report.

DISCUSSION

Adductor Spasmodic Dysphonia (AdSD) is a focal laryngeal dystonia characterized by involuntary contractions of the vocal fold adductor muscles, particularly the thyroarytenoid muscle, resulting in strained, effortful, and interrupted speech. It is the most common subtype of spasmodic dysphonia, accounting for approximately 85-90% of cases, as consistently reported in the literature (Sanuki, 2023). The disorder is neurological in origin and is associated with dysfunction of central motor control pathways, particularly involving the basal ganglia and related neural circuits (Hintze *et al.*, 2017). These pathophysiological mechanisms explain the impaired coordination of laryngeal muscle activity observed in affected individuals.

Clinically, patients with AdSD typically present with a gradual onset of dysphonia, vocal strain, and intermittent voice breaks, which may worsen with prolonged speaking or emotional stress. A characteristic feature described in the literature is the relative preservation of non-speech vocalizations such as laughing and whispering (Izdebski, 1992). The clinical presentation in the present case is consistent with these established findings, supporting the diagnosis of AdSD.

Diagnosis of AdSD remains primarily clinical and requires a comprehensive evaluation, including detailed history, perceptual voice assessment, and visualization of vocal fold movement. Video laryngostroboscopy plays a crucial role in identifying abnormal vocal fold dynamics. In this case, video laryngostroboscopy revealed restricted mobility of the left vocal cord with normal movement of the right vocal cord, which aligns with previously reported findings of asymmetrical or hyperadductive vocal fold movements (Mehta *et al.*, 2001). Similar observations have been highlighted in studies emphasizing the importance of differentiating AdSD from other voice disorders such as muscle tension dysphonia (Roy *et al.*, 2007).

Botulinum toxin injection into the thyroarytenoid muscle is widely regarded as the gold standard treatment for AdSD. It acts by inhibiting acetylcholine release at the neuromuscular junction, thereby reducing involuntary muscle contractions and

Table 1: Medication chart.

Sl. No.	Brand Name (generic Name)	Dose	ROA	Freq	Indication
1.	TAB. MOXICLAV [Amoxicillin/Clavulanic acid]	625 mg	PO	BD	To treat post-surgical infection.
2.	CAP. PAN-D [Pantoprazole + Domperidone]	1 cap [40+30 mg]	PO	OD	As prophylactic.
3.	TAB. HIFENAC-P [Aceclofenac + Paracetamol]	1 tab [100+325 mg]	PO	BD	For inflammation.
4.	TAB. BILASURE [Bilastine]	20 mg	PO	OD	For allergy symptoms.

improving voice quality. Numerous studies have demonstrated its effectiveness in improving vocal symptoms and overall quality of life (Boutsen *et al.*, 2002; Faham *et al.*, 2021). However, the therapeutic effects are temporary, necessitating repeat injections at regular intervals, typically every 3-4 month.

In cases where patients exhibit suboptimal response to botulinum toxin therapy or require long-term symptom control, surgical interventions such as thyroplasty may be considered. Although surgical outcomes can vary, literature suggests that these procedures may provide sustained benefits in selected patients (Schuering *et al.*, 2020). In the present case, the use of thyroplasty as part of the management strategy is consistent with these recommendations.

Supportive pharmacotherapy, including antibiotics, proton pump inhibitors, analgesics, antihistamines, and corticosteroids, was administered to manage associated symptoms and prevent complications. However, as emphasized in the literature, these medications do not directly address the underlying dystonia and serve only as adjunctive therapy within a comprehensive treatment plan.

Overall, the clinical presentation, diagnostic findings, and management approach in this case are consistent with existing literature on adductor spasmodic dysphonia. Early recognition and timely intervention, particularly with botulinum toxin therapy, are essential for improving voice quality and enhancing patient quality of life (Silverman *et al.*, 2012). Despite advances in treatment, the absence of a definitive cure highlights the need for continued research into more effective and long-lasting therapeutic options.

FUTURE DIRECTIONS / RESEARCH GAPS

Despite advances in the management of adductor spasmodic dysphonia, there is currently no definitive cure. Future research should focus on developing long-lasting therapeutic options such as advanced neuromodulation techniques and targeted gene-based therapies. Further large-scale studies are required to improve diagnostic accuracy and optimize individualized treatment strategies.

CONCLUSION

This case highlights a typical presentation of adductor spasmodic dysphonia, successfully diagnosed using laryngostroboscopy and managed with botulinum toxin injection and thyroplasty. The management aligns with current evidence-based practices, in which Botox remains the gold-standard therapy. Early recognition and appropriate intervention can significantly improve patient outcomes and voice quality.

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ABBREVIATIONS

AdSD: Adductor spasmodic dysphonia; **VLS:** Video laryngostroboscopy; **ENT:** Ear, Nose, and Throat; **MCHC:** Mean corpuscular hemoglobin concentration; **ESR:** Erythrocyte sedimentation rate; **WBC:** White blood cell; **RDW:** Red cell distribution width; **HbA_{1C}:** Hemoglobin A_{1C}; **NSAID:** Non-steroidal anti-inflammatory drug; **ROA:** Route of administration; **FREQ:** Frequency; **PO:** Per oral (by mouth); **TAB:** Tablet; **CAP:** Capsule; **BD:** Twice in a day; **OD:** Once in a day.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

Ganjala Hemalatha, Shaik Muskan, Gunde Pragna, Pasam Madhu Mitha, Uzma Aafreen Shaik, Siva Bhanu Jonnadula, Kollipara Mohana, Galani Arundathi Kavya, and Gajula Ram Nageswara Rao contributed equally to the conceptualization, data collection, literature review, manuscript preparation, and final approval of the manuscript.

SUMMARY

Adductor spasmodic dysphonia is a focal laryngeal dystonia causing strained speech due to involuntary vocal cord spasms. This case highlights successful diagnosis using video laryngostroboscopy and management with botulinum toxin and thyroplasty. Early intervention significantly improves voice quality and patient outcomes.

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