

A Comparative Study of Laryngopharyngeal Reflux Disease and Migraine: Insights From a Hospital-Based Analysis

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ABSTRACT

Objective: There has been ongoing discussion regarding the diagnosis of headaches stemming from multiple causes. Migraine and laryngopharyngeal reflux disease (LPRD) are frequently overlooked contributors to headaches, necessitating increased attention. Patients exhibiting diverse headache manifestations require tailored treatment options as part of their regular care. This study aims to determine whether LPRD and migraines occur concurrently or have distinct origins for headaches, as well as whether variations in lifestyle have an impact on health and well-being.

Materials and Methods: Four hundred fifty patients were assessed through clinical diagnosis, and conservative treatment was recommended, with a strong emphasis on adopting favorable lifestyle practices.

Results: The treatment outcomes were monitored during followup appointments, and data were tabulated to identify any correlation between LPRD and migraines.

Conclusion: This study suggests that LPRD and migraines coexist as contributing factors to headaches rather than representing entirely separate entities.

Keywords: Coexist, intermingle, LPRD, lifestyle measures, migraine

INTRODUCTION

Headache represents a prevalent symptomatology encountered by ENT practitioners globally. Regardless of gender and age, most adults experience headaches at some point, ranging from mild to severe, as documented in literature. Headaches may stem from hyperactivity in pain-sensitive regions, classified as primary type such as migraines or secondary due to conditions like laryngopharyngeal reflux disease (LPRD) that trigger these pain-sensitive areas. Amidst our hectic lifestyles and pursuit of luxury, we often overlook minor headache triggers and focus on less common sources of headaches. By redirecting attention toward adopting pertinent lifestyle adjustments, a lasting solution to the underlying cause of most headaches can be attained (1, 2).

Objective

- To investigate potential synergy between LPRD and migraine

- To examine whether LPRD and migraine mutually influence each other
- To raise awareness about the role of lifestyle modifications in enhancing overall health

MATERIALS and METHODS

A prospective followup study involving 450 patients was conducted at a Tertiary Care Hospital in Karnataka from September 2020 to October 2023. These patients had been experiencing headaches for more than 3 months. A comprehensive assessment of all participants was carried out to determine the underlying cause of their headaches, following the acquisition of informed consent. Subsequently, a treatment plan was devised after undergoing institutional ethical review, with registration number ECR/1358/Inst/KA/2020.

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Inclusion criteria

- Only two causes for headaches, namely migraine and LPRD, were considered for inclusion in the study.
- No gender bias was applied.
- Only adults aged between 18 and 60 years were included.

Exclusion criteria

- Any other potential causes of headaches were excluded from consideration in the study.
- Individuals younger than 18 or older than 60 years of age were not included.

RESULTS

Among the patients categorized by headache type, 278 individuals exhibited a combination of primary and secondary (PriSec) headaches. The remaining 67 patients experienced migraine as the primary type of headache, while 105 patients presented with LPRD as the secondary type of headache.

DISCUSSION

There have been frequent and significant changes occurring daily, complicating simple survival. In the whirlwind of life, we often disregard or prioritize our health to chase our dreams. The challenge lies in achieving the impossible and reaching greater heights rapidly, often at the expense of our well-being in this laidback lifestyle (3, 4). Stress accumulates within us unnoticed, erupting suddenly as headaches. The saying "Health is Wealth" has reversed in today's reality (5-7).

In the monotonous routine, headaches have become a prevalent symptom in these stress-filled times. Studies indicate that nearly everyone experiences at least one headache episode in their lifetime, necessitating prompt treatment after identifying the underlying cause (8, 9). LPRD and migraines are now recognized as common causes of headaches, previously overlooked (10, 11).

Healthcare providers, primarily focused on managing primary headache causes like migraines, often overlook secondary causes such as LPRD. Headaches can originate from overactivity in pain-sensitive areas such as nerves, blood vessels, and muscles in the head and neck, or from chemical activity changes in the brain (12, 13).

Over 30% of the population silently suffers from LPRD due to their habits. Gastric contents regurgitate after food intake, leading to irritation of the esophagus, which can progressively damage its mucosal lining over time. Sedentary lifestyles and stress contribute to approximately 20% of adults experiencing heartburn at least once a week and 10% experiencing it daily (14, 15).

Migraine, a debilitating neurological condition, affects 2% of the general population. Those with chronic migraine endure

headaches on 15 or more days per month, often accompanied by additional symptoms. They experience frequent headache attacks with aura and a gradual increase in headache frequency over months to years (16, 17).

After evaluating all patients, the study made the following observations regarding the conditions: 278 patients exhibited a PriSec type of headache in the ENT OPD. The remaining 67 patients presented with primary headaches, while 105 patients showed secondary headaches. These finding aligns with the study's objectives. Additionally, 26 patients (6%) with headaches from other causes were excluded from the study.

Among the patients, 56% (252 patients) were diagnosed with both LPRD and migraine. The remaining 23% (105 patients) were diagnosed with LPRD, and 15% (67 patients) were diagnosed with migraines as the cause of their headaches. This suggests a strong connection between LPRD and migraine, with LPRD often overlapping with migraine, as depicted in Figure 1.

All patients in the study were recommended oral medications and lifestyle modifications. Oral medications, particularly proton-pump inhibitors (such as pantoprazole) combined with peripheral selective dopamine D2 receptor antagonists (like domperidone), demonstrated effectiveness in the study. Lifestyle alterations proved to be a pivotal factor, yielding favorable outcomes.

For LPRD, the suggested regimen includes:

1. Proton-pump inhibitor (pantoprazole) + peripheral selective dopamine D2 receptor antagonist (domperidone) (Tablet: Pan-D/Panmask-DSR)
2. Local anesthetic solution (aluminum hydroxide, magnesium hydroxide, and oxetacaine) (Syrup: Mucaine gel/Tricaine MPS)
3. Vitamin supplements (Capsule: Becadexamin)

For the treatment of migraine, the following medications were recommended:

1. Calcium antagonist (flunarizine) (Tablet: Sibelium 10 mg HS)
2. Tablet Pan-D (as previously mentioned)
3. Tablet Dolo 650 mg (paracetamol)

Lifestyle modifications adopted by the patients in the study are outlined as follows (18-20):

1. Avoidance of specific food products known to trigger gastric reflux, such as avocado, artificial sweeteners, alcohol, chocolates, corn, caffeine, citrus fruits, dairy items, egg whites, frozen foods, nicotine, onions, seafood, soda, sugar-containing foods, and smoking.
2. Consumption of fresh fruits and vegetables and preference for less spicy, oily, bitter, and sweet foods.

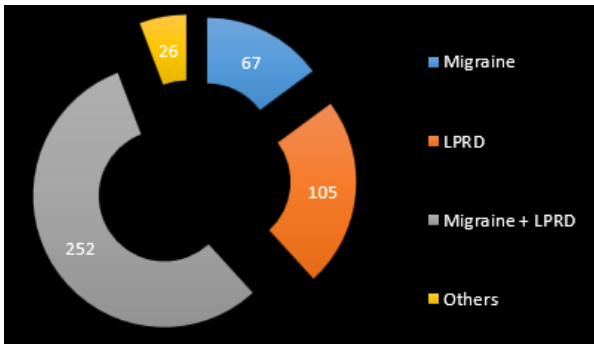


Figure 1: Headache causes illustrated in donut chart

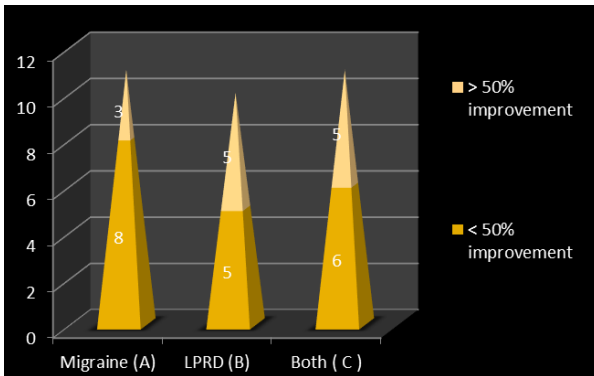


Figure 2: Treatment response after 15 days of followup

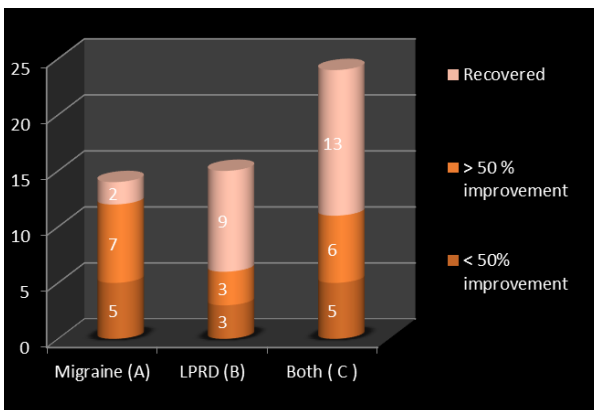


Figure 3: Treatment response after 30 days of followup

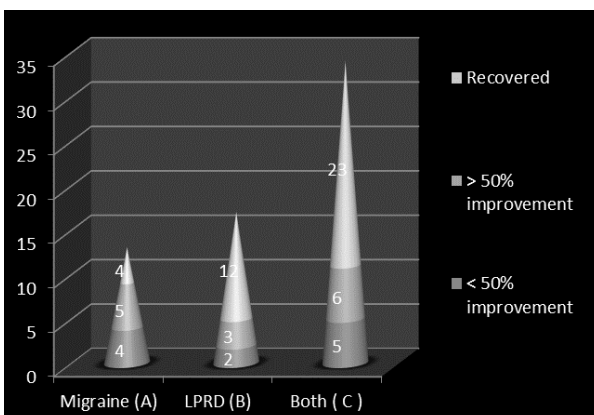


Figure 4: Treatment response since 45 days of followup

3. Inclusion of foods rich in dietary fiber and natural sugars for weight management.
4. Avoidance of skipping meals, fasting, or crash diets.
5. Consumption of meals at frequent intervals with no more than a 3-hour gap.
6. Consumption of small amounts of food at frequent intervals.
7. Adjustment to weather changes by wearing layered clothing to adapt to varying temperatures.
8. Wearing comfortable and loose-fitting clothing, avoiding tight attire.
9. Engagement in stress-relieving activities such as meditation, yoga, and regular exercise for 30 minutes, three times per week.
10. Avoidance of sunglasses for photophobia and usage of headphones/earplugs for phonophobia.
11. Use of antiglare screens for desktops/laptops.
12. Use of appropriate light bulbs at home.
13. Avoidance of 3D glasses if feeling dizzy while watching movies.
14. Choosing to sit in the front seat of the car to avoid motion sickness.
15. Avoidance of reading while in a moving vehicle.
16. Engagement in rejuvenating activities, indoor or outdoor.
17. Avoidance of unnecessary medications.
18. Ensuring 7–8 hours of sleep per night and avoidance of immediate post-lunch and dinner naps. Elevating the head end side by 15–30 degrees while sleeping on the back. Maintaining proper posture by sitting straight and avoiding hunching the back.
19. Chewing mints/gums to prevent bruxism and clenching teeth. Using a proper mouth guard to reduce stress on the jaw.

As illustrates in Figure 2, all patients who underwent treatment were monitored for their response every 2 weeks. Due to the chronic nature of their conditions, a fortnight (15 days) was deemed insufficient to determine recovery rates conclusively. While the treatment duration leaned toward prophylaxis in the long term, patient A showed no significant response. However, patients B and C exhibited comparable response rates. Thus, during followup, more than 50% improvement was observed in 41% (15 out of 32). With extended follow-up duration, both the number of patients and their response to treatment increased. Patients B and C demonstrated increased response rates, with patient C showing the highest response rate among all three groups at 1 month. During follow-up, 45% (24 out of 53

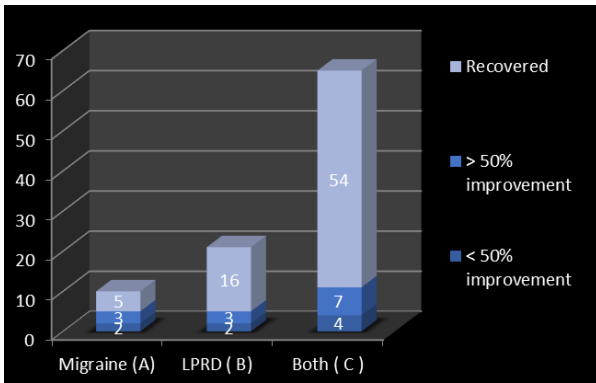


Figure 5: Treatment response after 60 days of followup

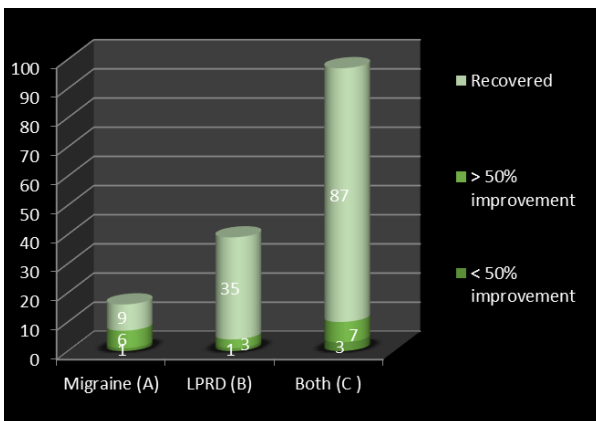


Figure 6: Treatment response after more than 90 days of followup

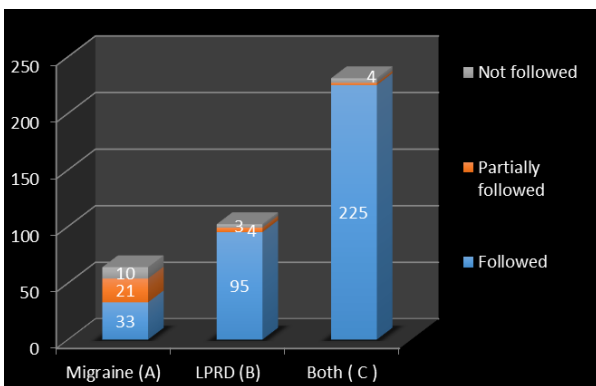


Figure 7: Implementation of lifestyle modifications

patients) achieved complete recovery by implementing simple lifestyle changes. Consequently, the study's expectations were supported by the data.

As depicted in Figure 4, a significant increase in treatment response was observed among patients during follow-up after 1.5 months (45 days). Moreover, 61% (39 out of 64 patients) exhibited good recovery, indicating a favorable response to treatment. Patients B and C showed recovery rates exceeding 65%. Patient feedback indicated satisfaction with the daily modifications aimed at improving health, aligning with the study's principles.

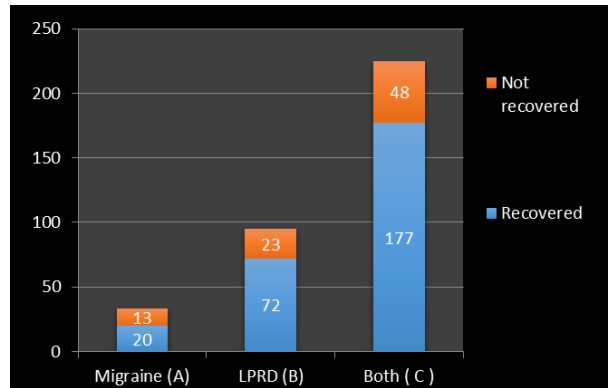


Figure 8: Recovery rates after lifestyle modification followup

Furthermore, 78% (75 out of 96 patients) showed a positive response to conservative treatment during a 2-month follow-up (60 days), with notable improvement in patients B and C as depicted in Figure 5. This indicates that patients accepted the measures provided after understanding the condition's pros and cons, affirming the study's assumptions. This observation underscores both treatment response and patient follow-up.

Out of 152 patients, 131 (86%) exhibited significant recovery after more than 3 months (90 days) of followup. As illustrated in Figure 6, aligning with the initial study assumptions, 87 out of 97 patients in group C and 35 out of 38 patients in group B also responded positively to treatment.

This data is consistent with the study's objectives, as depicted in Figure 7, where 353 out of 397 patients (89%) diligently followed lifestyle changes that had a significant impact on their daily routines. Moreover, 7% (27 patients) attempted to incorporate simple measures but were unable to sustain them for unknown reasons, while 4% (17 patients) acknowledged not adopting any measures during treatment.

In Figure 8, the tabulated data supports the study's aim, wherein the evaluation of 353 patients was based on the implementation of lifestyle interventions and their recovery response. Further, 76% (269 patients) exhibited favorable recovery rates, indicating that promoting practical lifestyle changes has yielded positive outcomes. However, 24% (84 patients) did not recover despite lifestyle modifications, requiring additional oral medications to achieve recovery.

CONCLUSION

PriSec headaches are the most prevalent among the 450 patients with headaches, while secondary headaches rank second. It is now evident that secondary causes of headaches, either alone or as part of PriSec, surpass primary causes. This finding indicates a significant synergy and connection between LPRD and migraine, with LPRD often overlapping with migraine. Twenty-six patients with other headache causes were excluded from the study. All patients were monitored for 90 days to assess their response to treatment when a combination of oral medications and lifestyle changes was introduced to improve their health. Moreover, 27 out of 424 patients were no longer

part of the study, with 14 being unresponsive to treatment and 13 lost to followup. At the end of 3 months, the study revealed a robust interrelation between LPRD and migraine, confirming the coexistence of LPRD and migraine. The implementation of lifestyle modifications, in addition to oral medications, was directly correlated with patient response and recovery, yielding results close to or exceeding 75% in the study. These adaptations not only resolved the patients' conditions but also provided a new perspective on addressing such conditions in the future.

Ethics Committee Approval: This study was approved by the Subbaiah Institute of Medical Sciences (ECR/1358/Inst/KA/2020).

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer Review: Externally peer-reviewed.

Conflict of Interest: The author have no conflict of interest to declare.

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