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Comorbid relationship between migraine and gastrointestinal disorders: how nutrition can contribute to its management - a case report

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Introduction
Migraine affects approximately 12% of the global population, predominantly affecting women in young adulthood. Gastrointestinal comorbidities occur in 25–50% of patients with primary headache disorders, suggesting a common pathophysiological axis. Although recognized, subclinical exocrine pancreatic insufficiency and post-cholecystectomy biliary dysfunction remain underdiagnosed in neurological protocols. This case report demonstrates the clinical relevance of integrated identification of gastrointestinal dysfunction in migraine-prone individuals.

Case presentation
Female, 23 years old, 67 kg, 1.73 m, BMI 22.4 kg/m². History of chronic migraine since menarche, with significant worsening following COVID-19. Currently using the following medications for approximately one year: topiramate 100 mg/day, amitriptyline 50 mg/day, metoprolol 50 mg/day, through which she achieved reduction in migraine frequency from daily to once weekly. Gastrointestinal symptoms: alternating constipation and diarrhea, abdominal distension, flatulence, and heartburn. History of cholecystectomy at age 17. Complementary examinations: functional stool analysis revealed undigested muscle fiber, undigested starch, undigested cellulose, and yeast; fecal pancreatic elastase-1 350 mcg/g (lower limit of normal); vitamin D 18.9 ng/mL; vitamin C 5 mg/L.

Discussion
Following 3 months of integrated nutritional intervention (behavioral reeducation, elimination of hidden dairy, vitamin and mineral supplementation, digestive enzymes to compensate for subclinical exocrine pancreatic insufficiency, and nutrients supporting gastrointestinal mucosal integrity), the patient demonstrated: reduction in migraine frequency (0 episodes in 3 months versus 1 episode/week prior to intervention); normalization of bowel pattern (Bristol 4, once daily versus Bristol 1–2 every 2–3 days); resolution of abdominal discomfort, distension, and flatulence; maintenance of optimal body composition; and absence of fungal growth on follow-up culture. Clinical improvement occurred without medication adjustment, suggesting that gastrointestinal dysfunction was a perpetuating factor in migraine episodes.

Conclusion
Multifactorial post-cholecystectomy gastrointestinal dysfunction, characterized by impaired bile acid reabsorption, subclinical exocrine pancreatic insufficiency, and dysbiosis, perpetuates migraine through the gut-brain axis. Integrated nutritional intervention targeting behavioral modification, elimination of hidden antigens, enzymatic support, and restoration of mucosal integrity resulted in significant clinical improvement. This case underscores the necessity for structured gastrointestinal evaluation in migraine patients with abdominal complaints and suggests nutritional modulation as a complementary therapeutic strategy.

Keywords:
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