Editorial

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Chronic abdominal pain in children and adolescents: from apley to the Rome V Criteria – the long and winding road of coexistence

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Editorial

Pain is a complex experience influenced by biological, cognitive, emotional, and social factors. Acute pain is considered the fifth vital sign, along with blood pressure, pulse, respiratory rate, and temperature. For acute abdominal pain, a thorough clinical history and age-appropriate physical examination are crucial, as they may reveal various underlying conditions regardless of the initial diagnosis. The patient's age is important for refining the differential diagnosis. Ongoing re-evaluation by the same physician is necessary until a definitive diagnosis is made, as insufficient follow-up can adversely affect the child's or adolescent's health.

Chronic Abdominal Pain (CAP), as defined here, includes both chronic and recurrent abdominal pain and requires a systematic diagnostic approach, starting with clinical data collection and laboratory evaluation, and progressing to specialized investigations as needed. Distinguishing between organic and functional causes of CAP remains challenging for both general pediatricians and pediatric gastroenterologists. Di Lorenzo et al.,[1] identified several "red flags" for organic etiology: well-localized pain away from the umbilicus, pain disrupting sleep, pain radiation, growth deceleration, weight loss, palpable abdominal mass, hepatomegaly, splenomegaly, perianal abnormalities, gastrointestinal bleeding, significant (bilious) vomiting, severe chronic diarrhea, unexplained fever, persistent right-sided abdominal pain, and a family history of ulcers or gastritis. Initial investigations should be followed by a prompt follow-up appointment within 2 to 4 weeks. Syndromic classification is based on predominant symptoms: Dyspepsia; CAP with altered bowel habits (constipation, diarrhea, or alternating patterns); Cyclic Pain; and CAP not fitting these subtypes. This approach helps prevent both oversimplification and unnecessary diagnostic testing, which can strain healthcare resources. Over time, various diagnostic models have been proposed, from the Apley criteria (1958) to the recent Rome V criteria. This editorial, informed by extensive clinical experience with the Rome criteria, reviews key developments in understanding and managing Chronic Abdominal Pain in Children and Adolescents, as part of the Disorders of Brain-Gut Interaction.

Apley's criteria in children and adolescents with chronic and recurrent abdominal pain

In 1958, Apley and Naish[2,3] introduced criteria defining it as at least three episodes of abdominal pain over a minimum of three months, with pain severe enough to disrupt the child's normal activities. These criteria are valuable for identifying children with a clinically significant pattern of abdominal pain that defines a syndrome encompassing a heterogeneous group of conditions. However, they do not differentiate between pain not explained by structural or biochemical abnormalities and pain due to organic diseases. Therefore, children meeting Apley's criteria should undergo further clinical evaluation to determine specific etiologies.

In modern pediatric gastroenterology, Apley's criteria, developed before the current understanding of gut–brain interaction, have several limitations. They lack diagnostic specificity, do not establish underlying etiology, and include both functional gastrointestinal disorders (FGIDs) and organic diseases. Additionally, they provide limited symptom characterization, such as pain location, relation to meals or defecation, stool characteristics, and associated symptoms, which are necessary for diagnosing specific gastrointestinal disorders. Therefore, Apley's criteria should be used to identify children with clinically significant CAP, not to diagnose a specific disorder. In research studies, it is a " respectable " inclusion criterion.

Levine and rappaport model for chronic abdominal pain

In 1984, twenty-six years after the introduction of Apley's criteria, the Levine and Rappaport model[4] underscored the importance of considering multiple contributing factors to symptoms. This model highlights the interplay of predisposing, physiological, psychological, social, familial, and environmental factors, rather than attributing CAP to organic disease or psychological causes. Levine and Rappaport[4] emphasize the multifactorial nature of symptom development and align with modern biopsychosocial models of Pediatric Functional Abdominal Pain Disorders (FAPDs) and Disorders of Gut–Brain Interaction (DGBI). Indeed, Pediatric gastroenterology recognizes that abdominal pain may arise from disruptions in the interaction between biological and psychosocial processes.

The Levine and Rappaport model is not a standardized clinical assessment instrument but is valuable for structuring patient evaluation and interpreting interacting factors. It considers pain characteristics, gastrointestinal symptoms, anxiety, depression, emotional distress, family responses, school attendance, peer relationships, bullying, sleep disturbances, dietary restriction, and physical activity. Importantly, the model emphasizes that identifying an organic condition does not exclude psychosocial and cognitive factors from influencing

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pain development and presentation. This context aligns with current understanding of the Gut–Brain Axis.

Rome Criteria: historical classification of pediatric functional abdominal pain

The Rome criteria have been revised multiple times to reflect advances in understanding pediatric gastrointestinal symptoms and Gut–Brain Interaction. The Rome Criteria are described below in a sequential, summarized manner.

Rome II Criteria (1999) established an initial standardized classification of pediatric functional gastrointestinal disorders

Rome II Criteria, introduced in 1999, forty-one years after Apley's criteria, was the first symptom-based classification of FGIDs. It improved diagnostic consistency, supported clinical research, and provided a background for identifying pediatric FGIDs. By focusing on symptom characteristics, frequency, duration, associated features, and the absence of an identifiable explanatory disease, the criteria shifted from nonspecific symptoms to more specific clinical phenotypes, including Functional Dyspepsia, Irritable Bowel Syndrome, Functional Abdominal Pain, Functional Abdominal Pain Syndrome, and Abdominal Migraine.[5]

In development, using the Rome II Criteria, Walker et al.,[6] identified different clinical subtypes and reinforced the value of symptom-based diagnostic classification. In 2005, almost concomitantly, Caplan, Walker, and Rasquin[7] used the Questionnaire on Pediatric Gastrointestinal Symptoms to support Rome II diagnostic categories, particularly Functional Dyspepsia and Irritable Bowel Syndrome (IBS). However, parent–child agreement on diagnoses was generally low. Later revisions aimed to improve diagnostic accuracy, though the criteria were mainly based on expert consensus and had limited validity at the time of publication.[8] Despite this, Rome II remains an important historical and methodological reference.

Rome III Criteria (2006) establishes refined diagnostic categories and symptom-duration requirements

In 2006, seven years after Rome II, the Rome III criteria were published. They improved diagnostic consistency and revised symptom-duration requirements, specifying that symptoms must occur at least once per week for at least two months. Rome III provided a more structured diagnostic approach with standardized clinical phenotypes, including Functional Dyspepsia, Irritable Bowel Syndrome, Abdominal Migraine, Functional Abdominal Pain, and Functional Abdominal Pain Syndrome.[9]

However, the Rome III criteria had frequent limitations. They were primarily based on expert consensus, and symptoms could meet criteria for multiple disorders. Distinguishing between functional abdominal pain and functional abdominal pain syndrome was often difficult. The requirement for symptoms to occur at least once weekly for two months could exclude some clinically significant cases. Excluding organic disease may lead to excessive diagnostic testing, and symptoms alone did not always reliably differentiate among FGIDs.[10–12]

Rome IV Criteria (2016) introduced a more contemporary understanding of Gut–Brain Interactions and emphasized positive symptom-based diagnosis

In 2016, after ten years with Rome III, the Rome IV criteria were published. Rome IV promoted a positive diagnosis rather than relying solely on excluding organic disease and adjusted symptom frequency and duration. The revised classification identified four subtypes: Functional Dyspepsia, Irritable Bowel Syndrome, Abdominal Migraine, and Functional Abdominal Pain–not otherwise specified. Notably, FGIDs may coexist with organic diseases, and an organic diagnosis does not preclude FGIDs.[13]

Rome V Criteria (2026), sixty-eight years after Apley's Criteria and twenty-seven years after Rome II Criteria, presents the new version

The Rome V criteria, published in 2026, mark a significant advancement in classifying Pediatric Disorders of Gut–Brain Interaction (DGBIs). This edition introduces an anatomically and symptom-oriented classification, replacing the traditional FGIDs terminology with DGBIs. It delineates five abdominal pain-related disorders: Irritable Bowel Syndrome, Abdominal Pain Syndrome–Not Otherwise Specified, Biliary Pain Syndrome, Abdominal Migraine, and Centrally Mediated Abdominal Pain Syndrome. Functional Dyspepsia is labeled as an upper gastrointestinal disorder, and further divided into Postprandial Distress Syndrome (PDS) and Epigastric Pain Syndrome (EPS).[14,15]

Compared to Rome IV, Rome V recognizes additional clinical phenotypes and explicitly acknowledges the potential coexistence of DGBIs and organic gastrointestinal conditions. Table 1 summarizes the main changes introduced by Rome V. The Rome V criteria present some considerations for the near future: they require prospective validation, consistent parental reporting, and awareness that cultural, dietary, socioeconomic, and regional differences may affect symptom reporting and diagnostic applicability. The new diagnostic basis may also require additional training and adaptation in clinical research. Rajindrajith et al.,[16] note that "Rome V offers a more precise diagnostic framework, but further epidemiological, physiological, microbiome, and psychosocial studies are needed to strengthen the supporting evidence."

Table 1 Main changes introduced by Rome V in comparison to Rome IV Criteria

1.	**Terminological change:** replacement of the term FGIDs with Disorders of Gut–Brain Interaction (DGBIs) with an Anatomical and symptom-based classification.
2.	**New organizational structure:** greater emphasis on anatomical regions and symptom clusters rather than the previous age-based subdivisions.
3.	**Introduction of new diagnostic entities,** including Biliary Pain Syndrome and Centrally Mediated Abdominal Pain.
4.	**Greater diagnostic precision:** revised symptom definitions and increased consideration of physiological and clinical findings.
5.	**Recognition of overlapping conditions:** DGBIs may coexist with organic gastrointestinal diseases.
6.	Improved characterization of IBS. Intermittent pain at least 4 days/month; pain must be predominant.
7.	**Abdominal Migraine**. Refined episodic and associated symptom criteria.
8.	**Functional Dyspepsia**: PDS**=Postprandial Distress Syndrome, and EPS=Epigastric Pain Syndrome** with revised symptom-frequency definitions.

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Pediatric definitions of abdominal pain disorders according to Rome V Criteria[14]

Criteria must be fulfilled, in the majority of subtypes, for at least 2 months before diagnosis, and must include all of the following:

Irritable bowel syndrome (IBS)

Intermittent abdominal pain, as the predominant symptom occurring at least 4 days/ month, associated with one or more of the following:

a) Related to defecation (worsening or improvement).

b) A change in stool frequency.

c) A change in stool form or appearance.

The symptoms are not explained by another medical condition.

Abdominal pain syndrome – Not otherwise specified (NOS)

This category identifies children with clinically significant intermittent abdominal pain who do not fulfill the diagnostic criteria for another specific abdominal pain disorder. The child/adolescent presents one or more of the following.

a) Intermittent abdominal pain occurring, on average, at least 4 days per month.

b) Pain does not occur exclusively during meals, defecation, or menstruation.

c) Insufficient criteria for IBS, Functional Dyspepsia, Abdominal Migraine, or Biliary Pain Syndrome.

The abdominal pain is not explained by another medical condition.

Biliary pain syndrome

a) Presence or absence of Epigastric Pain located in the right upper quadrant, with or without epigastric pain, occurring at least 4 days per month on average.

b) Acute onset, lasting at least 30 minutes and up to several hours.

c) Episodic symptoms with variable intervals between attacks.

d) Pain sufficiently severe to lead to acute medical evaluation.

e) Symptoms do not fulfill the criteria for IBS, functional Dyspepsia, or Abdominal Migraine.

f) Absence of gallstones or other structural gallbladder or biliary tract pathology.

No alternative medical condition adequately explains the symptoms after appropriate evaluation.

Additional clinical features may include: nausea, vomiting, postprandial pain, radiation to the back or right shoulder. Liver and pancreatic enzymes were normal.

Abdominal migraine

a) Intense, periumbilical, midline, or diffuse acute abdominal pain, with paroxysmal episodes lasting at least 1 hour.

b) Episodes separated by at least 1 week.

c) Pain is characteristically incapacitating and interferes with normal activities.

d) A stereotypical pattern of symptoms in the individual patient.

e) Pain associated with two or more of the following: Anorexia, Nausea, Vomiting, Headache, Photophobia, and Pallor.

Centrally mediated abdominal pain syndrome (CAPS)

a) Continuous abdominal pain.

b) Pain limits some aspects of daily functioning.

c) After appropriate evaluation, symptoms cannot be fully explained by another medical condition.

Psychosocial comorbidities are frequently associated with CAPS, but none is required for diagnosis. Limitations involve school attendance, sports, social and leisure activities, and family life.

Upper gastrointestinal disorder. Functional Dyspepsia with two clinical subtypes[15]

Postprandial distress syndrome (PDS)

Must include one or more of the following bothersome symptoms at least 3 days per week:

a) Postprandial fullness occurring after completion of a developmentally and culturally appropriate meal.

b) Early satiation preventing completion of a developmentally and culturally appropriate meal.

Supportive symptoms include upper abdominal bloating, postprandial nausea, discomfort, and excessive belching. Postprandial symptoms are those triggered within 2 hours after food intake.

Epigastric pain syndrome (EPS)

The criteria must be fulfilled for at least 2 months and must include one or more of the following bothersome symptoms at least 1 day per week:

a) Pain or burning localized to the epigastrium.

b) Pain not present in other abdominal or chest regions.

c) Symptoms may be induced or worsened after meals or occur independently of meals.

After appropriate evaluation, symptoms cannot be fully explained by another medical condition, including functional abdominal pain or IBS.

Chronic Abdominal Pain, following the Rome V criteria and the next stage of this "long and winding road" — 2026, 2027, 2028

A motivational approach engages patients and their parents or caregivers in discussions about change, emphasizing compassion, respect, empathy, and a nonjudgmental attitude. Core principles include empathy through reflective listening, avoiding arguments and confrontation, adapting to patient resistance rather than opposing it, and supporting self-efficacy and optimism. For patients with Functional Gastrointestinal Disorders and their families, the twelve steps to enhance the therapeutic relationship are outlined below.[17] Table 2 summarizes these guidelines, which will be valuable as we apply the Rome V Criteria in daily practice.

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Table 2 The twelve steps to enhance the therapeutic relationship are briefly described below[17]

1. Improve Patient satisfaction (perception of the doctor's humaneness, technical competence, interest in psychosocial factors, and provision of relevant medical information; too much focus on biomedical issues can have a negative effect. Nonverbal communication: good eye contact, affirmative nods, a gentle tone of voice, close interpersonal distance, and a partner-like interaction.
2. Obtain the history through a nondirective, nonjudgmental, patient-centered interview (active listening and using questions based on the patient's thoughts, feelings, and experiences).
3. Determine the immediate reason for the patient's visit and evaluate the patient's verbal and nonverbal communication.
4. Conduct a careful physical examination and cost-efficient investigation.
5. Determine what the patient understands about the illness and his or her concerns.
6. Elicit the patient's understanding of the symptoms and provide a thorough explanation of the disorder that takes into consideration the patient's beliefs.
7. Identify and respond realistically to the patient's expectations for improvement.
8. When possible, provide a link between stressors and symptoms that are consistent with the patient's beliefs.
9. Set consistent limits.
10. Involve the patient in the treatment.
11. Make recommendations consistent with patient interests.
12. Help establish an ongoing relationship with you or in association with a primary care provider.

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Conflicts of interest

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