PERSONAL VIEW

Functional gastrointestinal disorders – 50 years' experience in comparison with the Rome criteria

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***Abstract**. In 1964 statistics including 11,765 in- and out-patients with digestive ailments showed that 36 % suffered from non-organic disorders. A classification was proposed which is essentially similar to the Rome criteria established by international consensus in 1991 and 1999. Fifty years' experience with non-organic digestive disorders is summarized in this article with critical remarks on the Rome criteria. In contrast to the Rome criteria where functional diturbances are listed according to organs without respect to their character we distinguish between neuropathic disorders which are only seemingly related to digestive organs and deserve essentially psychological or psychiaric therapy and digestive disorders which represent true gastroenterological diseases ("organ neuroses"). As to the definition of functional gastric disorders (dyspepsia) it is appropriate to distinguish between pain and indigestion. Indigestion in contrast to pain rather than by location of complaints is characterized by sensations accompanying ingestion of food. This is important for diagnosis – pain (possibly with indigestion) is typical for organic disease and for the irritable stomach (ulcer-like dyspepsia) whereas indigestion without pain occurs in flabby stomach (hypomotility-like dyspepsia). Functional intestinal disorders can be aptly characterized by sensations accompanying defecation. Manning and Thompson criteria for irritable bowel syndrome are not reliable since they assess the symptoms as such without respect to the time and circumstances of their appearing and disappearing. However, this very criterion makes it possible to identify the functional character of the disorder and to avoid unnecessary aggressive examinations. In the Rome criteria some frequent and typical syndromes are not mentioned namely fermentative enteropathy, solar syndrome and neurodigestive asthenia.*

***Key words**: functional gastrointestinal disorders, Rome criteria, functional dyspepsia, irritable bowel syndrome, coeliac (solar) plexus syndrome*

Mařatka Z. Funkční gastrointestinální poruchy – padesátileté vlastní zkušenosti v porovnání s Římskými kritérii. Folia Gastroenterol Hepatol 2005; 3 (1): 10 – 16.

***Souhrn**. Ze statistiky v roce 1964 vyplynulo, že mezi 11 765 ambulantními a hospitalizovanými nemocnými s trávicími chorobami šlo u 36 % o neorganické obtíže. Byla navržena klasifikace, která je v základě shodná s Římskými kritérii stanovenými mezinárodním konsenzem roku 1991 a 1999. Po padesát let byly poznatky o funkčních poruchách shromažďovány a v tomto článku je shrnujeme spolu s kritickými poznámkami k Římským kritériím. Na rozdíl od Římských kritérií, kde jsou funkční poruchy sestaveny podle orgánů bez ohledu na jejich původ, rozeznáváme poruchy neuropatické, jejichž vztah k trávicím orgánům je jen zdánlivý a které vyžadují psychologickou resp. psychiatrickou léčbu, a poruchy trávicí, jež jsou skutečnými trávicími chorobami ("orgánovými neurózami"). V definici funkčních žaludečních obtíží (dyspepsie) je vhodné rozlišovat bolest a indigesci. Indigesce na rozdíl od bolesti není charakterizována lokalizací obtíží, nýbrž pocity provázejícími příjem potravy. Toto rozlišení je významné*

pro diagnózu – bolest (event s indigescí) je charakteristická pro poruchy organické a pro dráždivý žaludek (ulcer-like dyspepsia), kdežto indigesce bez bolesti pro chabý žaludek (hypomotility-like dyspepsia). Také funkční střevní poruchy lze vhodně charakterizovat podle pocitů provázejících defekaci. Manningova nebo Thompsonova kritéria syndromu dráždivého střeva nejsou spolehlivá, protože hodnotí příznaky jako takové bez ohledu na čas a okolnosti, za nichž se objevují a mizejí. Právě toto hledisko však poskytuje možnost identifikovat funkční povahu obtíží a vyhnout se vyšetření agresivními metodami. V Římských kritériích není zmíněno několik častých a typických chorobných stavů, jako je kvasná enteropatie, solární syndrom a neurodigestivní astenie.

***Klíčová slova**: funkční gastrointestinální poruchy, Římská kritéria, funkční dyspepsie, dráždivý tračník, solární syndrom*

Functional gastrointestinal disorders have had a long tradition in Czech medicine. As early as 1885, Josef Thomayer declared that the term *chronic gastritis* should be replaced by the term *dyspepsia* (24) and Emerich Maixner, in a text-book on internal medicine in 1891, devoted 30 pages to dyspepsia and gastric neurosis (7). In a text-book of gastroenterology published in 1964 (14) I published a treatise of functional gastrointestinal disorders based on the experience with in- and out-patients at the department of Medicine in the Bulovka Hospital in Prague. An analysis of 11,765 in- and out-patients with gastroenterological problems was performed and the relative frequency of the diseases with respect to their organic or functional nature was established (Table 1).

It appears that from the whole series of 11,765 patients, 36 % suffered from non-organic digestive disorders. Their symptomatology was mostly intestinal (48 %), gastroduodenal (16 %) and abdominal without clear location (21 %). On the basis of prevailing symptomatology, a classification of functional gastric and intestinal disorders was proposed and a more

Table 1
Digestive diseases in in- and out-patients of the Bulovka Hospital 1957 – 1968

Diseases	No. of cases	Functional	% of all functional
Oesophagus	487	94 (19 %)	2 %
Stomach and duodenum	3,096	640 (21 %)	16 %
Small and large intestine	3,465	2,099 (61 %)	48 %
Rectum and anus	842	58 (7 %)	1 %
Liver	512	125 (24 %)	9 %
Biliary system and pancreas	2,429	350 (14 %)	3 %
Abdominal neurosis	934	934 (100 %)	21 %
Total	**11,765**	**4,300 (36 %)**	**100 %**

Table 2
Classification of functional gastric and intestinal disorders

Mařatka 1964 / 1968 (ref. 14)	**Rome II 1999** (ref. 4)
Functional gastropathies	**Functional dyspepsia**
Irritable stomach	Ulcer-like dyspepsia
Flabby stomach	Dysmotility-like dyspepsia
Incomplete types	Non-specific dyspepsia
	Aerophagia
	Functional vomiting
Functional entero-colopathies	**Functional bowel disorders**
Irritable colon	Irritable bowel syndrome
Functional constipation	Functional constipation
Functional diarrhoea	Functional diarrhoea
Incomplete types	Functional abdominal bloating
	Unspecified functional disorder

detailed system was elaborated. It is worth noting that this classification including the subgroups of dyspepsia was surprisingly similar to that published three decades later (3,5,23) and established by international consensus as Rome criteria (4) (Table 2).

In the following years, the patients with non-organic digestive disorders continued to be monitored, additional evidence and experience was added and a final comprehensive classification was published in 1999 (12). This classification reflects some modifications and differences from the Rome system and these will be now discussed.

Meaning of the term "functional"

The term functional disorders was coined in the 19th century when dyspepsia was ascribed to the disturbance of gastric secretion. Since then much evidence has been assembled against this statement, yet antisecretory drugs have continued to be widely used in treating such conditions although their effect, if any, is mainly that of a placebo. Later on, more emphasis was put on motility, however, motor dysfunction explains only some specific conditions such as oesophageal spasm or functional pseudoileus. Today, no known digestive function – such as secretion, motility, absorption – can offer a comprehensive concept for "functional disorders", hence the term non-organic disorders would be more correct. A characteristic trait of such patients is the fact that in contrast to healthy subjects who are aware of their digestive organs only in the form of physiological sensations – hunger, satiety, call for defecation – they perceive the activity of their viscera as distress.

Twofold character of non-organic disorders

Rome classification lists the functional disorders

Table 3
Twofold character of non-organic disorders

Non-organic disorders	Neuropathic	Digestive
Mouth	stomatodynia glossodynia	functional xerostomia paroxysmal salivation (waterbrash)
Oesophagus/cardia	globus hystericus	hypertensive oesophageal sphincter superior or inferior oesophageal spasm
Stomach/duodenum	aerophagia psychogenic vomiting	no corresponding symptom functional gastropathy a) irritable stomach b) pseudo-ulcerous syndrome c) flabby stomach
Small/large intestine	emotional diarrhoea artificial diarrhoea fictitious constipation fictitious bloating non-gaseous bloating pseudo-appendicitis	functional entero/colopathy a) fermentative enteropathy b) irritable colon c) spastic constipation d) functional diarrhoea e) paroxysmal flatulence
Rectum/anus	emotional defecation urge proctalgia fugax	simple constipation (dyschezia) irritable rectum
Biliary tract	no corresponding symptom	postcholecystectomy disorders posthepatitis disorders (both with organic component)
Systemic disorders	solar syndrome neurotic visceralgia hypochondria simulation, aggravation obsession, false prejudice mental anorexia/bulimia	no corresponding symptom neurodigestive asthenia

systematically according to the organs. We prefer to distinguish between sensations and manifestations which are essentially *neurotic* and those which are frankly *digestive* (Table 3).

The character and therapeutical approach in both groups is different. E. g. *globus* is sensation of pressure in the jugulum due to anxiety neurosis which has nothing to do with swallowing and oesophagus whereas oesophageal spasm is a motility disorder of this organ objectively documented. *Aerophagia* is a neurotic tic enabling aspiration and expulsion of air whereas *functional gastric disorders* are true organ neuroses. *"Functional abdominal pain"* is a neurogenic visceralgia the origin of which is in the brain whereas *pain due to irritable colon or spastic constipation* is due to colonic dysmotility.

Distinguishing the two groups is practically important since the management of neuropathic disturbances deserves essentially methods of psychology or psychiatry whereas the therapy of digestive disorders those of gastroenterology.

Definitions

According to the present commonly used definition, *dyspepsia* is defined as *pain or discomfort in the epigastrium*. Our experience, however, has shown that there are reasons to distinguish between pain and dyspepsia/dyscomfort (11-14). *Pain* is an unpleasant feeling more or less localized, i. e. the patient is able to point with the hand to the painful region. However, functional digestive disorders include unpleasant feelings, which do not have the features of pain and are poorly or not localized. They are referred to as abdominal fullness, pressure, bloating, slow or spoiled digestion, aversion to food, premature satiety, nausea and malaise. In order to distinguish them from pain we have used the term *indigestion* for them. We rather avoid the term *dyspepsia* because of the reasons mentioned above. The differences between pain and indigestion are listed in Table 4.

Abdominal pain is described as a sensation of gnawing, burning, stabbing, cramps more or less localizable whereas indigestion means fullness, pressure, uneasiness and alike all of them poorly localized. Pain, unless excessive, does not interfere with hunger and appetite, hunger may even be increased in case of "painful hunger". Conversely, anorexia, aversion for food and nausea are features of indigestion. Food when experiencing pain is usually well tolerated whilst the contrary is true in the case of indigestion. Patients with indigestion complain of coated tongue and bad taste, which is not the case in pain.

Distinguishing pain and indigestion has some diagnostic value since pain prevails in organic conditions, indigestion in functional conditions. The most frequent type of functional dyspepsia (*ulcer-like dyspepsia* according to the Rome criteria) manifests itself both by indigestion and pain. However, the term *ulcer-like* is misleading because most cases do not show a typical ulcer-like symptomatology. The term

Table 4
Differences between epigastric pain and indigestion

	Pain	**Indigestion**
Location	Topical or regional	Vague, indefinite
Type of sensation	Gnawing, burning, stabbing, cramp-like	Fullness, pressure, uneasiness
Nausea	No	Yes
Appetite	Normal or increased ("painful hunger")	Anorexia, aversion
Tolerant of fasting	No	Yes
Tolerant of food	Yes	No
Tongue	Clean	Coated
Mouth	-	Bad taste
Breath	Fresh	Bad

irritable stomach, also used in German literature, seems to be more appropriate. An ulcer-like symptomatology is seen only in a minority subgroup for which we have used the term *pseudoulcerous syndrome*. In our series it accounted for 50 out of 640 cases of functional gastropathies (8 %) (20).

The less frequent type of *functional dyspepsia* referred to as *flabby stomach* (*dysmotility type* in Rome terminology) manifests itself by indigestion without pain. Those are cases previously called *gastroptosis, hypotonic elongation of the stomach, dolichogastria*, seen mainly in asthenic adolescents.

Recently distinguishing pain and discomfort was discussed by one of the authors of the Rome criteria (22).

Definition based on subjective sensations

The definition of dyspepsia and other digestive symptoms on the basis of the character and location has some drawbacks. Another approach to the definition was found in subjective sensations accompanying individual phases of digestion (Table 5).

Indigestion is defined as unpleasant sensations accompanying ingestion of food. In contrast to a healthy individual who before eating has hunger and appetite, enjoys eating, right after the meal has the feeling of pleasant satiety and later on is not aware of his digestive tract, patients suffering from indigestion have little or no desire to eat, have little pleasure while eating, feel premature satiety or aversion for food or nausea, right after the meal they suffer from pressure and fullness and in the interdigestive phase along with a feeling of "slow digestion" and other unpleasant sensations.

Definition of non-organic intestinal disorders based on sensations

A similar approach was used in classifying functional intestinal according to the sensations accompanying defecation (15,17). Three phases of defecation were distinguished: a/ Announcing, b/ Emptying, c/ Subsequent (see Table 6).

Normal condition. The call to defecate is adequate – moderately urgent without pain. Emptying is accomplished through coordinated activity of visceral and abdominal muscles, straining is adequate. After defecation a pleasant feeling of well-being follows.

Simple constipation (dyschezia). The phase of announcing is lacking. There is no desire to defecate even if the rectum is full of scybala. Emptying is accomplished through excessive straining, coordinated contraction of the bowel is diminished. After strainful defecation the patient is relieved but sometimes has the feeling of incomplete evacuation and fullness.

Spastic constipation ("constipation type of irritable

Table 5
Sensations (symptoms) accompanying ingestion of food

Phase	Normal sensations	Indigestion
Precibal	Hunger, appetite	Anorexia, parorexia
Cibal	Pleasure in eating	Premature satiety, aversion, nausea
Postcibal	Pleasant satiety, eructation with relief	Fullness, pressure, bloating, eructation without relief
Interdigestive	No sensation	"Slow digestion", bloating, bad taste, bad breath

Table 6
Sensations accompanying defecation

	Defecation call	Emptying	After defecation
Normal condition	Adequate	Coordinated	Well-being
Simple constipation	Lacking	Rare, difficult	Relief
Spastic constipation	Painful	Rare, spastic	No relief
Diarrhoea	Urgent	Hasty	Persisting call
Irritable colon	Urgent	Frequent, successive	No relief
Tenesms	Urgent	Inadequate	Persisting call

bowel syndrome"). The desire to defecate is painful, often colicky-like. The defecation is unpleasant or painful, the stool scybalous or ribbon-like. After defecation the patient is unrelieved with painful abdomen which he usually calls "gas".

Diarrhoea. The call to defecate is augmented and urgent, premature defecation must be retained with the help of anal sphincter. The expulsion of faeces occurs through spastic intestinal contraction with little or no participation of straining. Defecation is hasty, after it the urge to defecate persists.

Iritable colon. The call to defecate is urgent, often painful, limited to some specific circumstances, e. g. early morning, postprandial or intermittently at irregular intervals. Defecation occurs usually more than once a day with intestinal contents successively more soft. In typical cases the stool has a "cork-like" character, i. e. soft or liquid stool skirts out after a hard scybalon. After defecation the patient feels unrelieved.

Tenesm. This symptom suggestive of organic disease of the recto-sigmoid differs from urgent call to defecate in diarrhoea and irritable colon in that it is not followed by adequate defecation of stool but by little amount of material with blood and/or pus.

Sensations accompanying defecation proved to be a valuable criterion defining functional intestinal disorders and avoiding the drawbacks of definitions based on objective criteria such as number or consistency of the stool.

Diagnosis

The number of patients with non-organic digestive disorders is so great that it is impossible to subject all of them to exhaustive examinations and tests. Therefore, a search was undertaken to find a system for the selection of those who could be treated without unnecessary expenditure of work and money. This was especially true in case of *irritable bowel syndrome* the most frequent form of functional disturbance. Several criteria have been proposed to select those patients which rely on the presence of symptoms supposed to be characteristic of functional disorders – abnormal stool frequency and form, onset associated with a change of frequency and form of stool, relief after defecation (8,21,25). However, such criteria do not differ significantly from the symptoms of organic intestinal diseases, indeed, their reliability as to the identification of the functional nature of the condition has not been confirmed.

The value of digestive symptoms in the differential diagnosis has been questioned because "there are few or no differences in the symptoms in functional or organic diseases" (6). Indeed, digestive symptoms as such are similar irrespective of their origin. What does distinguish functional from organic are not the symptoms themselves but the circumstances under which they appear and disappear (12). The distinction of functional disorders and organic diseases is logical and practical (10). As for irritable bowel syndrome, four syndromes can be distinguished, which can provide suspicion of functional intestinal disorder with reasonable certainty:

1) Early morning fractional defecations. This type of irritable colon is so typical that the diagnosis can be safely made on the basis of history. The patient wakes up early in the morning with an urge to defecate, which repeats itself at short intervals while the stool becomes progressively more soft and liquid. Urgent defecations occur also on the way to work and the patient has to interrupt their journey in order to look for a toilet. Once in their office, the calls to defecate cease and the patient feels comfortable for the rest of the day and night until next morning.

2) Postprandial urgencies. Urgent calls to defecate appear about 1/2 to 2 hours after meals being due to augmented gastro-colic reflex.

3) Intermittent intestinal colics (debacles). They are bouts of diarrhoea occurring at intervals of several days or weeks. The paroxysm begins with a colic which leads to a series of defecations with progressively softer stools and culminating in empting yellow liquid with mucus or pure mucus. The eliciting factor may be food, overeating, alcohol, stress, a night out or unusual fasting – often no sure factor is evident.

4) *Fermentative enteropathy*. This condition appeared in former textbooks under the name carbohydrate dyspepsia (1,2) but it is not mentioned at present, probably being hidden within irritable bowel syndrome. This is unfortunate since it is a very characteristic condition requiring a special therapeutic approach. The essential feature is excessive fermentation taking place both in the small and large intestine leading to diarrhoea and significant flatulence.

Neurodigestive asthenia is a term, which was given to a non-organic digestive disorder of systemic character with simultaneous or alternating disturbances of various digestive organs (16). It has a constitutional

character and requires a whole-life program for the patient's lifestyle.

Abdominal neuroses

There are two nervous disturbances interpreted as abdominal ailment by the patients: one central, the other peripheral. Neurotic visceralgia (not identified abdominal pain) can be explained as being due to projection of painful feelings form the brain to the periphery – similarly as in the case of phantom-pain after amputation of a limb (12). Solar syndrome (coeliac plexus syndrome) is a painful condition of the largest nervous plexus in the abdomen. Its diagnosis is easy and reliable my means of palpation which identifies a remarkable tenderness around the abdominal aorta between xiphoid and umbilicus (9,18). In addition to this objective finding it manifests itself by pain or discomfort in the epigastrium independent of digestion. It is usually ascribed to the stomach, duodenum or pancreas. It is probable that many cases of epi- and mesogastric pain due to the solar syndrome are wrongly ascribed to disorders of the stomach, gall bladder, pancreas etc.

REFERENCES

1. Berk JE: Intestinal carbohydrate dyspepsia (p 248 – 257). In: HL Bockus. Gastro-Enterology I. Philadelphia: Saunders, 1946.
2. Bernier JJ: Colites de fermentations (p 1102 – 1108). In: JJ Bernier. Gastroenterologie. Tome II. Paris: Flammarion, 1984.
3. Colin-Jones DG. Management of dyspepsia. Lancet 1988; 1: 576 – 579.
4. Drossman DA, Corraziari E, Talley NJ, Thompson WG, Whitehead WE and the Rome II Multinational Working Teams. The Functional Gastrointestinal Disorders. 2nd Ed. McLean: Degnon Associates, 2000.
5. Drossman DA, Thompson WG, Talley NJ et al. Identification of subgroups of functional gastrointestinal disorders. Gastroenterol Internat 1990; 3: 159 – 172.
6. León-Barúa R. The classification of digestive problems into "organic" and "functional" should be abandoned. J Clin Gastroenterol 1991; 13: 8 – 10.
7. Maixner E. Příruční kniha specielní pathologie a therapie vnitřních nemocí. Část třetí: Nemoci dutiny nosní, nemoci ústrojí zažívacích (Textbook of Medicine, in Czech). Praha: Bursík & Kohout, 1891.
8. Manning AP, Thompson WG, Heaton KW, Morris AF. Towards positive diagnosis of the irritable bowel. Brit Med J 1978; 2: 653 – 654.
9. Mařatka Z. Celiac (solar) plexus syndrome. A frequently overlooked source of abdominal pain. J Clin Gastroenterol 1993; 16: 95 – 97.
10. Mařatka Z. Digestive diseases are functional and organic. J Clin Gastroent 1991; 13: 585 – 586.
11. Mařatka Z. Dyspepsie. Funktionelle Störungen des oberen Verdauungstraktes. Bad Homburg: Normed Verlag, 1992.
12. Mařatka Z. Functional digestive disorders (p 407 – 434, in Czech). In: Z Mařatka et al. Gastroenterologie. Praha: Karolinum, 1999.
13. Mařatka Z. Functional gastrointestinal disorders. Gastroenterol Internat 1991; 4: 88 – 89.
14. Mařatka Z. Gastroenterologie (in Czech). 1st Ed (p 391 – 408). Praha: SZN, 1964. 2nd Ed (p 454 – 472). Praha: Avicenum, 1968.
15. Mařatka Z. Les aspects psychosomatiques de la defecation. Ann Gastroent Hepatol 1977; 13: 935 – 956.
16. Mařatka Z. Neurodigestive asthenia. Gastroenterologia (Basel) 1949/1950; 75: 228 – 237.
17. Mařatka Z. Psychosomatic aspects of defecation and its disturbances. Digestion 1975, 12: 39 – 42.
18. Mařatka Z. Solar syndrome (in Czech). Čas Lék čes 1954; 93: 650 – 657.
19. Mařatka Z. The coeliac plexus – a forgotten source of abdominal pain. Proc Roy Coll Phys (Edinburgh) 1994; 24: 336 – 345.
20. Nedbal J, Mařatka Z. Pseudo-ulcerous syndrome (in Czech). Prakt Lék 1966; 46: 167 – 170.
21. Ringel Y, Drossman DA. Irritable bowel syndrome: classification and conceptualisation. J Clin Gastroent 2002; 35, Suppl: S7 – S10.
22. Stanghellini V. Pain versus discomfort – is differentiation clinically useful? Aliment Pharmacol Ther 2001; 15: 145 – 149.
23. Talley NJ, Zinsmeister AR, Schleck CD, Melton LJ. Dyspepsia and dyspepsia subgroups. Gastroenterology 1992; 102: 1259 – 1268.
24. Thomayer J. Poznámky o počasném katarrhu žaludečním, část 2 (dokončení). Čas Lék čes 1885; 24: 165 – 168.
25. Thompson WG, Dotewall G, Drossman DA et al. Irritable bowel syndrome: guidelines for the diagnosis. Gastroenterol Internat 1989; 2: 92 – 95.

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