

Painful constipation: a neglected entity?

G. Bassotti, E. Carlani, M. Baldoni, N. Gullà¹, B. Morozzi¹ and V. Villanacci²

Gastroenterology and Hepatology Section, Department of Clinical and Experimental Medicine; ¹Surgical Oncology Section, Department of Surgical Sciences, University of Perugia; ²2nd Pathology Section, Spedali Civili, Brescia, Italy

ABSTRACT

Functional chronic constipation is a common symptom in daily clinical practice. Although the definition of constipation may be variable, there is usually agreement that (at least for research purposes) the definition given by the Rome Committee are useful. However, some blind spots or hidden angles remain, even in the more thorough classifications; among these, there is painful constipation, a poorly defined yet clinically encountered entity. The present article reviews the current knowledge about painful constipation, trying to put together the scarce data available, and to frame it in the more general context of chronic constipation.

Key words: abdominal pain. Constipation. Irritable bowel syndrome.

INTRODUCTION

Functional chronic constipation may be considered as a longstanding symptom of altered evacuation, defined by a reduced number of bowel movements and/or an abnormal defecation act (1). This symptom affects a significant percentage of the adult population in Western countries (2), and it has been shown to impair the quality of life of patients in multinational surveys (3).

Presently, the main diagnostic criteria for functional constipation are those following the Rome Working Group classification (now in the third version) (4), based on a combination of two or more of the following: straining at stool, presence of lumpy/hard stools, sensation of incomplete evacuation, and two or less defecations per week. Moreover, the Rome criteria include, among func-

tional gastrointestinal disorders, two other entities mainly characterized by constipation, i.e. constipation-predominant irritable bowel syndrome (C-IBS) (4) and functional defecation disorders (5).

Other definitions for constipation, such as that of the American Gastroenterological Association (6), that of the American College of Gastroenterology (7), and that of the Latin American Consensus (8) are consistent with the Rome III criteria but are thought to be less quantitative and more subjective (9).

However, things may be somewhat different in daily clinical practice, and patients with functional constipation may also complain of other symptoms such as abdominal distension, flatulence, and headache, in addition to abdominal pain (10,11). Curiously, abdominal pain is never mentioned in association to functional constipation in any of the above classifications, whereas it appears to be the prominent symptom in C-IBS (4).

Thus it appears that, presently, the presence of painful constipation (PC), although an important and frequent entity in clinical practice, in the mind of researchers is suspended in a sort of limbo, in that it does not appear in the criteria of functional constipation, nor in those of IBS (4,5).

Purpose of the present review is to try to establish that PC, although poorly investigated, is to be considered as an independent entity.

METHODS

We made a comprehensive online search of Medline and the Science Citation Index using the keywords “con-

Received: 03-05-10.
Accepted: 07-07-10.

Correspondence: Professor Gabrio Bassotti. Clinica di Gastroenterologia ed Epatologia. Ospedale Santa Maria della Misericordia. Piazzale Menghini, 1. 06156 San Sisto (Perugia), Italy. e-mail: gabassot@tin.it

G. Bassotti, E. Carlani, M. Baldoni, N. Gullà, B. Morozzi, V. Villanacci. Painful constipation: a neglected entity?. *Rev Esp Enferm Dig* 2011; 103: 25-28.

stipation”, “functional constipation”, and “abdominal pain” in various combinations with the Boolean operators and, or, and not. We included only articles that related to human studies, and we performed manual cross referencing. We selected articles published in English between January 1965 and March 2010, but a search in non English languages and among journals older than 1965 was also performed in our library. We excluded letters, and we reviewed abstracts only when the full papers were unavailable.

What is known about painful constipation

Apart from cases of PC due to obvious, treatable or secondary causes (such as that secondary to cancer, drugs, anal fissures, etc (12,13)), most literature data on the association abdominal pain-constipation turn around IBS (14). Surprisingly, apart from C-IBS, scarce importance has been given to the study of PC, and literature data are subsequently scarce, with only a handful of studies specifically assessing this topic.

A first multicenter study on constipated patients reported that 76% of them complained of abdominal pain, independently from the gender and the transit time (10). In this study, 11% reported severe pain associated to constipation; the pain was usually localized in the mesogastric area in patients with delayed rectal transit, whereas most patients with slow colonic transit had epigastric and left side pain (10). A major drawback of this study is that it has been conducted many years before the Rome criteria were implemented; thus, the recruitment is likely to have included very heterogeneous patients (possibly also IBS ones).

Another study (also conducted before the Rome criteria) addressed physiological differences between patients with PC and painless constipation (15). Compared to those with painless constipation, PC patients displayed higher values of anal maximum resting pressure and rectoanal inhibitory reflex amplitude, and lower values of sensation threshold, need to evacuate, and maximum rectal tolerable volume. PC was associated with normal colonic transit time, with most patients complaining of abdominal distension and feeling of incomplete evacuation (even though dyschezia was complained only from one of these patients), whereas constipation in the painless group was consistently associated with a delayed transit time (15). Again, this study has discrete limitations, mainly due to the small number of subjects recruited (overall, 25 patients) and the fact that the PC group may have included patients with IBS.

More recently, the specific problem of PC has been addressed with more rigorous criteria. In a questionnaire study on about 3000 women, carried out in accordance with Rome II criteria and trying to differentiate IBS from PC, the latter was complained of by 1% of women in the community compared to 7% of constipated women with-

out pain (16). Compared to subjects with painless constipation, PC patients more closely resembled those with IBS, and were significantly younger, reported worse general health, complained of more somatic symptoms and urinary urgency, and had higher prevalence of hysterectomy, although the latter was inferior to that reported for IBS patients (17). However, this study also had some limitations. In fact, more than 90% participants were white women, hardly representative of the normal population of that country (North America), with a low (about 50%) response rate to the questionnaire, and a high response rate from nursing-home residents (suggesting a possible assistance from third parties in compiling the questionnaire). Moreover the study, being based on a questionnaire, did not include any physiologic measurement of these patients.

A more recent retrospective study aimed at comparing PC patients with those with IBS by means of basal and follow-up (6, 9, 12 and 15 months after the baseline period) questionnaires, using the newly implemented Rome III criteria (18). The authors showed that PC patients, compared to C-IBS ones, display higher pain scores, lower education status, greater healthcare utilization, and higher number of surgical procedures. During 1-yr of follow-up, PC patients maintained on average high pain scores, with those with high scores switching to lower scores in the time course, whereas those with low pain scores maintained the same profile. Moreover, stool frequency in this group was intermediate between that of patients with constipation-predominant IBS and alternating bowel habits IBS. Study limitation are due to the fact that a painless constipation group was not included, to the inclusion of patients with only moderate/severe symptoms (hardly representative of the universe of PC/IBS patients), and the lack of physiologic measurements in these subjects.

Another study on about 300 constipated patients investigated whether bowel symptoms correlated with colon transit time, faecal loading (coprosthesis), and colon length (19). This study showed that abdominal pain was complained of about 85% patients, that it was significantly correlated with distal faecal load and with a radiologically demonstrated redundant colon. Unfortunately, although this study included physiological variables measurement, it was not carried out with standard inclusion criteria; thus the patients' cohort under investigation was likely quite heterogeneous.

DISCUSSION

There are few doubts that, notwithstanding the efforts to speak a common language and the attempts toward the best possible classifications, there is still a growing need (especially for research purposes) to have available better identification of homogeneous subgroups of patients with functional bowel disorders (20).

Although clinically a true entity, PC is an orphan one, since it still does not fit in any classification scheme, at least from a formal point of view. Unfortunately, specific studies on this condition are very few, and mostly based on clinical questionnaires without objective data to support any etiological grounds; even studies assessing the relationship between symptoms and pathophysiology in constipated patients did not discriminate between painful and painless patients (21,22). Which pathophysiological mechanisms may be inferred from the scarce data available?

For instance, it could hypothesize that an abnormal colorectal motility might play some role in the genesis of symptoms of these subjects. The fact that PC patients seem to have abnormal anorectal variables and increased faecal loading in the distal colon is consistent with the old concept of a "colonic brake" in the left segments of the viscus of some subset of constipated subjects, i.e. of the "spastic colon" (23,24). This concept has been confirmed by electromyographic and balloon distension studies in constipated patients (25,26) and by manometric studies in C-IBS patients, in whom a definite correlation between pain and motor/sensory abnormalities was documented (27,28). However, such studies are lacking in PC patients. The recent introduction of new analysis systems (29) and of high-resolution manometric catheters for colonic motility (30) could, perhaps, reveal new insights on these aspects in the near future.

Interestingly, PC was significantly correlated with the presence of a (radiologically demonstrated) redundant colon and coprosthesis (19). Although in older studies a redundant colon was associated with marked constipation, pain and gas (31), it is presently thought that colonic length does not represent a significant factor in constipation (32). Further studies are needed to explore this association. Concerning coprosthesis, the use of scintigraphic techniques (33) might help in delucidating this issue.

CONCLUSION

At present, it appears that PC may be still considered a poorly known entity, similar but not identical to C-IBS, that should however be recognized to avoid confusion with the former (especially for clinical trials) and to plan more targeted therapeutic interventions. In fact, since PC patients seem to have high pain scores, this (similar to what happens in other functional bowel disorders) may result in poorer health status, more severe psychological disturbances, and greater healthcare utilization (34). Moreover, since PC patients take more medications than those with IBS (18), it is possible that narcotics are prescribed for the pain, and these may worsen both the constipation and the pain itself (35), perpetuating a vicious cycle.

How can we define, at this point, PC? Perhaps, the better way, waiting for more in-depth studies on the pathophysiological and clinical aspects of this entity, could be that of identifying these patients as those fulfilling the criteria for functional constipation associated to frequent (at least once per week) abdominal pain.

Thus, the above observations confirm once again that the Rome criteria are not perfect (36-38), but that the underlying classification process is the right one, possibly leading to further studies that will, hopefully, shed more light on those entities (such as chronic intestinal pseudo-obstruction (39)) still unknown or obscured by more pharmacologically appealing ones.

REFERENCES

1. Corazziari E. Definition and epidemiology of functional gastrointestinal disorders. *Best Pract Res Clin Gastroenterol* 2004, 18: 613-31.
2. Higgins P, Johanson J. Epidemiology of constipation in North America: a systematic review. *Am J Gastroenterol* 2004, 99: 750-9.
3. Wald A, Scarpinato C, Kamm MA, Mueller-Lissner S, Helfrich I, Schuijt C, Bubeck J, Limoni C, Petrini O. The burden of constipation on quality of life: results of a multinational survey. *Alim Pharmacol Ther* 2007, 26: 227-36.
4. Longstreth GF, Grant Thompson W, Chey WD, Houghton LA, Mearin F, Spiller RC. Functional bowel disorders. *Gastroenterology* 2006, 130: 1480-91.
5. Bharucha AE, Wald A, Enck P, Rao S. Functional anorectal disorders. *Gastroenterology* 2006, 130: 1510-8.
6. Locke G III, Pemberton J, Phillips S. American Gastroenterological Association Medical Position Statement: guidelines on constipation. *Gastroenterology* 2000, 119: 1761-6.
7. American College of Gastroenterology Chronic Constipation Task Force. An evidence-based approach to the management of chronic constipation in North America. *Am J Gastroenterol* 2005, 100: S1-S4.
8. Schmulson Wasserman M, Francisconi C, Olden K, Aguilar Paíz L, Bustos-Fernández L, Cohen H, Passos MC, González-Martínez MA, Iade B, Iantorno G, Ledesma Ginatta C, López-Colombo A, Pérez CL, Madrid-Silva AM, Quilici F, Quintero Samudio I, Rodríguez Varón A, Suazo J, Valenzuela J, Zolezzi A. The Latin-American Consensus on chronic constipation. *Gastroenterol Hepatol* 2008, 31: 59-74.
9. Tack J, Muller-Lissner S. Treatment of chronic constipation: current pharmacologic approaches and future directions. *Gastroenterology* 2009, 7: 502-8.
10. Corazziari E, Bausano G, Torsoli A, Fanucci A, Fraracci L, Capurso L, Montesi A, Pinzello G, Novara V. Italian cooperative study on chronic constipation. In Wienbeck M, ed. *Motility of the digestive tract*, Raven Press, New York, 1982: 523-5.
11. Lembo A, Camilleri M. Chronic constipation. *N Engl J Med* 2003, 349: 1360-8.
12. Chong PS, Bartolo DC. Hemorrhoids and fissure in ano. *Gastroenterol Clin North Am* 2008, 37: 627-44.
13. Holzer P, Ahmedzai SH, Niederle N, Leyendecker P, Hopp M, Bosse B, Spohr I, Reimer K. Opioid-induced bowel dysfunction in cancer-related pain: causes, consequences, and a novel approach for its management. *J Opioid Manag*, 2009, 5: 145-51.
14. Goff SL, Feld A, Andrade SE, Mahoney L, Beaton SJ, Boudreau DM, Davis RL, Goodman M, Hartsfield CL, Platt R, Roblin D, Smith D, Yood MU, Dodd K, Gurwitz JH. Administrative data used to identify patients with irritable bowel syndrome. *J Clin Epidemiol* 2008, 61: 617-21.
15. Lanfranchi GA, Bazzocchi G, Brignola C, Campieri M, Labò G. Different patterns of intestinal transit time and anorectal motility in painful and painless chronic constipation. *Gut* 1984, 25: 1352-7.
16. Bharucha AE, Locke RG, Zinsmeister AR, Seide BM, McKeon K, Schleck CD, Melton LJ. Differences between painless and painful constipation among community women. *Am J Gastroenterol* 2006, 101: 604-12.

17. Longstreth GF, Yao JF. Irritable bowel syndrome and surgery: a multivariable analysis. *Gastroenterology* 2004, 126: 1665-73.
18. Drossman DA, Morris C, Hu Y, Leserman J, Dalton C, Toner B, Diamante N, Bangdiwala S. Further characterization of painful constipation (PC). Clinical features over one year and comparison with IBS. *J Clin Gastroenterol* 2008, 42: 1080-8.
19. Raahave D, Christensen E, Loud FB, Knudsen LL. Correlation of bowel symptoms with colonic transit, length, and faecal load in functional faecal retention. *Dan Med Bull* 2009, 56: 83-8.
20. Drossman DA, Corazziari E, Delvaux M, Spiller RC, Talley NJ, Thompson WG, Whitehead WE, eds. Rome III: The functional gastrointestinal disorders, Third Edition. McLean, VA: Degnon Associates, Inc. 2006.
21. Mertz H, Naliboff B, Mayer EA. Symptoms and physiology in severe chronic constipation. *Am J Gastroenterol* 1999, 94: 131-8.
22. Mertz H, Naliboff B, Mayer E. Physiology of refractory chronic constipation. *Am J Gastroenterol* 1999, 94: 609-15.
23. Connell AM. Motility of the pelvic colon. Part II: paradoxical motility in diarrhoea and constipation. *Gut* 1962, 3: 342-8.
24. Frexinos J, Delvaux M. Colonic motility. In Kumar D, Wingate DL, eds. *An illustrated guide to gastrointestinal motility*, 2nd edition. Churchill Livingstone, Edinburgh, 1993: 427-48.
25. Bueno L, Fioramonti J, Frexinos J, Ruckebusch Y. Colonic myoelectrical activity in diarrhea and constipation. *Hepato-Gastroenterol* 1980, 27: 381-9.
26. Chevalier T, Arhan P, Bouchoucha M, Faverdin C, Devroede G, Mignon M, Bonfils S, Pellerin D. Sigmoid motility stimulated by luminal distention. Changes in the motility response in constipation by the slowing down of left colonic transit. *Gastroenterol Clin Biol* 1989, 13: 245-9.
27. Bassotti G, Sietchiping-Nzepa F, De Roberto G, Chistolini F, Morelli A. Colonic regular contractile frequency patterns in irritable bowel syndrome: the 'spastic colon' revisited. *Eur J Gastroenterol Hepatol* 2004, 16: 613-7.
28. Kanazawa M, Palsson OS, Thiwan SI, Turner MJ, van Tilburg MA, Gangarosa LM, Chitkara DK, Fukudo S, Drossman DA, Whitehead WE. Contributions of pain sensitivity and colonic motility to IBS symptom severity and predominant bowel habits. *Am J Gastroenterol* 2008, 103: 2550-61.
29. Dinning PG, Szczesniak MM, Cook IJ. Spatio-temporal analysis reveals aberrant linkage among sequential propagating pressure wave sequences in patients with symptomatically defined obstructed defecation. *Neurogastroenterol Motil* 2009, 21: 945-e75.
30. Arkwright JW, Underhill ID, Maunder SA, Blenman N, Szczesniak MM, Wiklendt L, Cook IJ, Lubowski DZ, Dinning PG. Design of a high-sensor count fibre optic manometry catheter for in-vivo colonic diagnostics. *Opt Express* 2009, 17: 22423-31.
31. Brumer P, Seppala P, Wegelius U. Redundant colon as a cause of constipation. *Gut* 1962, 3: 140-1.
32. Müller-Lissner SA, Kamm MA, Scarpignato C, Wald A. Myths and misconceptions about chronic constipation. *Am J Gastroenterol* 2005, 100: 232-42.
33. Southwell BR, Clarke MC, Sutcliffe J, Hutson JM. Colonic transit studies: normal values for adults and children with comparison of radiological and scintigraphic methods. *Pediatr Surg Int* 2009, 25: 559-72.
34. Drossman DA, Whitehead WE, Toner BB, Diamant N, Hu YJ, Bangdiwala SI, Jia H. What determines severity among patients with painful functional bowel disorders? *Am J Gastroenterol* 2000, 95: 974-80.
35. Grunkemeier DM, Cassara JE, Dalton CB, Drossman DA. The narcotic bowel syndrome: clinical features, pathophysiology, and management. *Clin Gastroenterol Hepatol* 2007, 5: 1126-39.
36. Drossman DA. The functional gastrointestinal disorders and the Rome III process. *Gastroenterology* 2006, 130: 1377-90.
37. Thompson WG. The road to Rome. *Gastroenterology* 2006, 130: 1552-6.
38. Quigley EM. The 'con' case. The Rome process and functional gastrointestinal disorders: the barbarians are at the gate! *Neurogastroenterol Motil* 2007, 19: 793-7.
39. Muñoz-Yagüe MT, Solís-Muñoz P, Salces I, Ballestín C, Colina F, Ibarrola C, López-Alonso G, Carreira P, Cruz Vigo F, Solís Herruzo JA. Chronic intestinal pseudo-obstruction: a diagnosis to be considered. *Rev Esp Enferm Dig* 2009, 101: 336-42.