Why is it so difficult to define constipation?

GIUSEPPE DODI,[1] ERICA STOCCO,[1] PETER PETROS[2]

[1] *Department of Surgery, University of Padova, Italy*
[2] *University of NSW School of Medicine, Dept of Surgery, St Vincent's Hospital Clinical School, Sydney, Australia*

Abstract: There are major problems in defining constipation. The variety of definitions amongst studies, is a large issue. The literature shows that physicians and patients define constipation differently. "Unsatisfactory defecation with stool retention" is a definition that appears to be well understood by patients and meets the opinion of the physicians. In discussing defecation with patients, "satisfaction" is a single subjective item that includes the patient's perception both in slow transit and outlet obstruction. It recalls the quality of life and it seems preferable to any choice of items that can be found in the various scoring systems. The quantification of the symptoms by scoring all the items is essential for defining the severity of the condition. The Integral Theory System gives further light to the pathophysiology of defecation.

Key words: Constipation; Defecation; Communication; Integral Theory.

INTRODUCTION

In the "land" of the pelvic floor where three main specialists, the urologist, gynaecologist and coloproctologist in most cases still work separately, but often share patients' complaints, a common language is quite important to better understanding what patients and colleagues mean when they say something. Defining constipation, and faecal incontinence as well, is a difficult task as patients and physicians have quite different feelings and opinions on the matter. This is not only a communication or semantic problem, but it carries important implications in therapeutic decisions and in running clinical trials.

The spectrum of symptoms in constipated patients is quite broad, and each of them may be attributed to many etiologies. Which one of those needs to be corrected in a more or less invasive way is just the final part of the problem. The classification of low transit constipation or pelvic outlet obstruction is quite schematic, as many other reasons may intervene in the genesis of the trouble: mechanical/anatomical, metabolic, dietary, pharmacologic, endocrine, psychological, neurogenic, etc. Patients basically consider themselves constipated only in case of infrequent evacuations or hard stools. Physicians use the term constipation to define also incomplete, difficult, prolonged defecation, with the need of assistance. Since the beginning of their communication, patients and doctors often disagree on what they are talking about. Even the collection of a stool diary might be difficult, as the patient may not find his own experience within the questions he is asked to answer. Problems difficult to categorize, such as constipation or faecal incontinence, must therefore be described using a long list of symptoms with various scoring systems.

The Cleveland Clinic Score (CCS)[1] has been the first attempt to classify constipation severity. It includes the following items scored 0.30: evacuation frequency, incomplete defecation, difficult defecation, years of constipation, time needed to evacuate, unsuccessful defecation, assistance (laxatives, enemas, digitations), abdominal pain. The Rome III criteria[2] are preferred by gastroenterologists. A diagnosis of constipation must include fewer than three defecations per week, and in at least 25% of defecations two or more of the following: straining and hard stools, sensation of incomplete evacuation, sensation of anorectal obstruction, digital evacuation or support of the pelvic floor, and these criteria must be fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis. Stool form has been demonstrated to be significantly correlated to the transit time (Bristol Stool Form Scale).[3]

A distinction between slow transit constipation and obstructed defecation is difficult as symptoms may overlap and several anatomical findings may co-exist such as pelvic floor dyssynergia or anismus, rectocele, intussusception, rectal inertia, perineal descent, etc., also in association with psychological disturbances. Altomare[4] has proposed a validated score system for obstructed defecation (from 0 to 4) with a specific selection of the items. We routinely add to the CCS an additional score that summarizes the number of items with the highest score (3 and 4) and the number of doctors consulted for the constipation[5], the former to verify when patients defecate every day by using laxatives and have a minimal score,[6, 7] the latter being considered an important index of psychologic distress.[8-10]

DEFINITION OF CONSTIPATION

Constipation is an *anal dysfunction* defined as "*inability to evacuate*"[11], but one defecation per week or quite hard stools might be normal for somebody, and an unacceptable inconvenient for many others. Once an organic disease such a cancer has been ruled out with the proper tests, the individual self-evaluation is necessarily the key to decide whether a patient actually needs a treatment. When evaluating the posterior compartment in a patient with any pelvic floor complaint, a pivotal question is whether he is "happy" with his defecations. In case the answer is *no* we must investigate whether there is a propensity or not to stool retention. Doing so we have met the main aspect of constipation, that is an *unsatisfactory defecation*. This highly subjective feeling may strongly influence the quality of life without any abnormality in the functional or imaging investigations that are at present available. This first statement is extremely important, as the quality of life may be very low if a patient is very unhappy about his/her defecation, and puts a strong light on the problem. The other numerous aspects of *stool retention* will then be inquired about. The *definition* of constipation does not have to coincide with the *severity* of a score, but rather with the sense of the complaint. Shafik[12] defining constipation as "rare defecation, difficult defecation, or both" refers to the two main mechanisms related to this complex functional disorders, that is the low transit constipation and the obstructed defecation. It is hard however to clearly separate and distinguish in the same patient and in a particular moment of his life the two conditions that often seem to overlap or alternate. To further underline this difficulty in communication, we remember how many times patients complain about an unsatisfactory defecation with some sort of stool retention at home, while recovering on holiday, or vice versa they feel normal at home and constipated when inhibited by a new non familiar toilet. And how often patients with a rectal intus-

susception or a large low rectocele felt with the anal digital examination, or a posterior colpocele with or without enterocele, have absolutely satisfactory bowel habits? We also see patients with prolonged transit time after sexual abuse, eventually regaining a normal colonic transit after a proper psychological therapy. In these conditions invasive treatments are obviously contraindicated. Surgery for prolapses are certainly indicated when the prolapse is external. Operations for occult rectal prolapses (mucosal prolapse and rectal intussusception) are questionable. The placebo effect of surgery in very psychologically fragile patients has to be considered when evaluating the results of procedures that are also at risk for severe complications. A defect of communication and of understanding of what really means "constipation" or "obstructive defecation" becomes the base of legal conflicts when the postoperative results are bad. Information in the media may push the surgical option too strongly for the patient's interest. Imaging with defecography or magnetic resonance may further help this trend, rectoceles and internal prolapses appearing more severe than seen with a correct clinical assessment.

The aim of making a patient just satisfied with his/her defecation coincides with a holistic integrated view of the problem and of the patient, where function and mind might be more important than the anatomy.

The *Musculoelastic Theory of anorectal function and dysfunction*[11,13,14] offers an interesting example of this view on pelvic floor dysfunction, and also the defecation is explained in an innovative way. In the Integral Theory constipation is synonymous with 'obstructed defecation'. Defecation is driven by a neurological reflex which coordinates all the elements required to produce efficient evacuation. Because the main anorectal closure muscles, puboccoccygeus muscle, levator plate and longitudinal anal muscle effectively contract around the pubourethral and uterosacral suspensory ligaments, any laxity in these ligaments may invalidate the muscle forces, causing difficulties in both closure (incontinence) or opening (constipation). During defecation, the levator plate stretches the rectovaginal fascia against the perineal body and the fascia is then pulled downwards by the longitudinal muscle against the uterosacral suspensory ligaments to open out the anorectal junction. Connective tissue laxity in these ligaments, in the fascia or perineal body may weaken the opening forces causing 'straining at the stool' and 'constipation'. The perineal body is an insertion point for the external anal sphincter, which is the major insertion point for the longitudinal muscle of the anus, the most important muscle for the external anorectal opening mechanism. Inability of the perineal body complex to splint the anterior wall of the anus explains difficulty in rectal evacuation ('constipation') in some patients, and why digital pressure on the perineum by the patient is often required to aid defecation: a lax perineal body may reduce the downward angulation of levator plate seen during straining to a mere flicker, while the levator plate contracts exaggeratedly upwards and backwards, so digital pressure anchors the perineal body reducing the latter movement, and restoring the downward angulation of the anterior portion of levator plate.[15] Connective tissue weakens and loses elasticity with age, thus preventing the rectum being stretched to the semirigid tube required for evacuation.[16] This may explain the increasing incidence of 'constipation' with age. Using pre and post-operative defecating proctograms to monitor changes in anterior rectal wall intussusception in patients presenting with rectocele and symptoms of obstructed defaecation it was demonstrated how almost all patients were cured of both anterior rectal wall intussusception and defecation symptoms through a posterior sling that repairs the uterosacral ligaments simultaneously to the rectovaginal fascia and perineal body[17].

As regards complex definitions and complex scoring systems, they are a perfect example of what Karl Popper, the great scientific philosopher of the 20th century meant by "an artificial model language".[18]

According to Popper, contradictions arise when an artificial model is created. Popper states "thus the method of constructing artificial model languages is incapable of tackling the problems of the growth of our knowledge; and it is even less able to do so than the method of analysing ordinary languages, simply because these model languages are poorer than ordinary languages. It is a result of their poverty that they yield only the most crude and the most misleading model of the growth of knowledge – the model of an accumulating heap of observation statements".

The Cleveland, Rome, Bristol, Altomare scores, though constructed with the very best of intentions, are meaningless to an interested GP or Gynecologist, and especially, in this electronic age, a patient. Then there is the problem of individual perception mentioned earlier. Not all patients reside in the middle of a bell curve. One symptom may be overwhelmingly disturbing for one patient than another. Yet the weighting in a scoring system is the same. It is easier and better to simply describe the symptom(s) precisely for each patient, and to search for the anatomical, dietary, psychological, or other dysfunctions.

CONCLUSION

A simple and clear definition of constipation is useful to start a fruitful communication between patients and doctors and among different specialists involved in the treatment of pelvic floor diseases sharing an interdisciplinary holistic approach.

REFERENCES

1. Agachan F, Chen T, Pfeifer J, Reissman P, Wexner SD. A constipation scoring system to simplify evaluation and management of constipated patients. Dis Colon Rectum, 1996; 39(6): 681-5.
2. Rome III Diagnostic Criteria for Functional Gastrointestinal Disorders. Rome Foundation, 2006.
3. Lewis SJ, Heaton KW. Stool form scale as a useful guide to intestinal transit time. Scand J Gastroenterol. 1997; 32 (9): 920-4.
4. Altomare DF, Spazzafumo L, Rinaldi M, Dodi G, Ghiselli R, Piloni V. Set-up and statistical validation of a new scoring system for obstructed defaecation syndrome. Colorectal Disease 2007; 10: 84-88.
5. Dodi G, Farnsworth B. Short-IPGH system for assessment of pelvic floor diseases. Pelviperineology 2007; 26 (2); 73-77.
6. Gattuso JM, Kamm MA. Adverse effects of drugs used in the management of constipation and diarrhoea. Drug Saf, 1994; 10 (1): 47-65.
7. Müller-Lissner SA, Kamm MA, Scarpignato C, Wald A. Myths and misconceptions about chronic constipation. Am J Gastroenterol. 2005; 100 (1): 232-42.
8. Sandler RS, Drossman DA, Nathan HP, Mckee DC. Symptom complaints and health care seeking behavior in subjects with bowel dysfunction. Gastroenterology 1984; 87: 314-318.
9. Smith RC, Greenbaum, DS Vancouver IB, Henry RC, Reinhart MA, Greenbaum RB, Dean HA, Mayle IE, Psychosocial factors are associated with health care seeking rather than diagnosis in irritable bowel syndrome. Gastroenterology 1990; 98: 293-301.
10. Whitehead WE, Bosmajian L, Zonderman AB, Costa PT, Schuster MM. Symptoms of psychologic distress associated with irritable bowel syndrome. Gastroenterology 1988; 95: 709-714.

11. Petros PE, Swash M. The Musculoelastic Theory of anorectal function and dysfunction. Pelviperineology 2008; 27: 89-93.
12. Shafik A, El-Sibai O, Shafik AA. Rectal pacing in patients with constipation due to rectal inertia: technique and results. Int J Colorectal Dis. 2000; 15 (2): 100-104.
13. Petros PE, Swash M. Directional muscle forces activate anorectal continence and defecation in the female. Pelviperineology 2008; 27; 94-97.
14. Petros PE, Swash M. A direct test for the role of the pubourethral ligament in anorectal closure, Pelviperineology 2008; 27: 98.
15. Petros P E, The anatomy of the perineal membrane: its relationship to injury in childbirth and episiotomy, *A. NZ. J. O. & G*. 2002; 42 (5): 577-8.
16. Petros P. Internal resistance may be more important for continence than anal wall tension. *Dis Colon Rectum* (2008); 51: 981-982.
17. Abendstein B, Brugger B A, Furtschegger A, Rieger M, Petros P. Role of the uterosacral ligaments in the causation of rectal intussusception, abnormal bowel emptying, and fecal incontinence-a prospective study. Pelviperineology, 2008; 27: 118-121.
18. Popper KR (1980) A survey of some fundamental problems. On the problem of a theory of scientific method. Theories. Falsifiability. The problem of the empirical basis. Degrees of testibility. Simplicity. The Logic of Scientific Discovery. Unwin and Hyman, London. 27-146

Correspondence to:
GIUSEPPE DODI
Department of Surgery, University of Padova,
Via Giustiniani 2 - 35121 Padova (Italy)
giuseppe.dodi@unipd.it