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Fecal Incontinence: anamnestic data

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Anal incontinence is a debilitating condition consisting in the uncontrolled passage of gas and/or stools through the anus. To be considered as a disease it must last over at least 1 month duration in a person 4 years older who had previously normal continence status.¹ The entity of the disease may vary from a minimal leakage to a complete defecation and it is mandatory to clearly distinguish the real anal incontinence from anal leakage of mucus, pus or blood which are usually related to different proctologic diseases.

Anal incontinence is not a sign of severity of diarrhoea but it is a disease due to a specific or multifactorial disorders involving one or more mechanisms maintaining the continence. In fact, in 80% of patients affected by fecal incontinence there are more than one pathologic alterations² that are disrupted to a level that the others cannot compensate anymore.

A crucial moment in the outpatient setting is the anamnestic data collection with a thorough disease history analysis, defining the aetiology and the specific risk factors, characterizing the symptomatology and evaluating associated secondary problems too.¹ At the end of the visit is it already possible to classify the type of incontinence.

Types of anal incontinence

There are two main types of anal incontinence: passive, urgency and a patients can present one or both. In case of both types the physician needs to understand which one is predominant.

Passive incontinence

Passive incontinence is characterized by the loss of gas and/or stools without awareness. It is usually related to a compromising of anal closure at rest with low resting pressure. The principal causes are sphincter injuries, especially involving the internal sphincter (IAS) due to childbirth, surgery or trauma.³ Another cause is the loss of sensation usually related to a peripheral neuropathy (inflammatory or iatrogenic), or to cerebral cortex events too. There are some evidences that suggest that rectal hyposensitivity contributes to the passive incontinence.^{4, 5}

Urgency incontinence

Urgency incontinence is characterized by the loss of the ability to hold gas or stools deciding to postpone the defecation. The main causes are the changes in rectal compliance subsequent to an inflammatory diseases, surgical procedures or radiation therapy.³ Rectal hypersensitivity with a lower threshold contributes also to urge incontinence.^{6,7} The weakness of sphincter muscles complex, especially the external (EAS) results in a low squeezing pressure.

Risk factors for fecal incontinence

Many different conditions may impact on the continence mechanism in multiple ways. All the principal risk factors are listed in Table I.

Gender

Many studies report the same incidence of fecal incontinence in men and women⁸⁻¹⁰ even if the physiopathologic mechanism seems to be different between the two genders.^{4,11} The presence of oestrogen and progesterone receptors in the anal sphincter muscles induced some Authors to propose the menopause as a risk factor for anal incontinence but is not yet demonstrated a clear relationship.¹²

Age

Several studies identified the age as a risk factor for fecal incontinence in both genders.^{13,14} Even if this relationship is well documented, the physiopathology mechanism are unclear. There are conflicting results regarding the effect of aging on resting pressure, squeezing pressure and rectal sensitivity whose modification does not certainly correlate with the symptoms.^{15,16}

Diabetes

Diabetes is identified as a risk factor for fecal incontinence in many prevalence studies^{12,17,18} and the symptoms are more frequent in those patients who developed diabetic complications such as neuropathy or retinopathy.^{19,20} It is unknown if the duration of the disease and its glycaemic control may increase the likelihood of incontinence.^{19,21} The main hypothesis at the base of this relationship is the microvascular changes resulting in nerves and muscles damages.²²

Obesity

Many studies identified obesity and Body Mass Index (BMI) as an important risk factor

Table I Faecal Incontinence risk factors.

Gender Age Diabetes Obesity
Gastrointestinal disorders Diarrhoea Constipation Irritable bowel syndrome Rectal compliance alterations
Neurological disorders <i>Central nervous system disorders</i> Dementia Stroke Spinal cord injury Multiple sclerosis <i>Peripheral nervous system disorders</i> Polineuropathy Nervous injuries
Psychiatric disorders Depression
Muscular disorders <i>Miopathy</i> Miastenia gravis Muscular dystrophy Systemic sclerosis <i>Muscular injuries</i> Obstetrical injury Anal surgery Anal abscess/fistula Trauma

for fecal incontinence.¹² This relationship is supported by studies showing how the incidence rate of fecal incontinence decreases after bariatric surgery and weight loss.^{23, 24} Two factor need to be considered as confounding element: the frequent presence of diarrhoea in obese patients and the frequent presence of other well defined risk factors as diabetes and neurological changes.^{25, 26}

Gastrointestinal disorders

Diarrhoea

Diarrhoea is a risk factor for fecal incontinence. Liquid stools were demonstrated as an independent risk factor that may enhance the symptoms if associated to other risk factors such as sphincter injuries.^{12, 13, 27}

Constipation

Constipation and incomplete evacuation are reported as risk factors for fecal incontinence in several studies mainly conducted in elderly patients. It is still unknown if these conditions may play the same role in patients with normal anorectal function.^{28, 29} A frequent condition in case of fecal impaction is the overflow diarrhoea with subsequent incontinence that is exacerbated by the use of laxative.³⁰

Irritable bowel syndrome

Irritable bowel syndrome was identified as risk factor in some studies. The likely pathologic mechanisms are loose stools, colonic hypermotility and rectal sensitivity alterations.^{12, 13, 31}

Rectal compliance alterations

Rectal compliance alterations are frequently due to Inflammatory bowel diseases (Crohn disease or ulcerative colitis), ischemic proctitis or subsequent to pelvic radiotherapy.

Neurological disorders

Central nervous system disorders

Dementia

The prevalence of fecal incontinence in patients affected by dementia is much higher if compared to with patients without dementia. It raises 34%^{32, 33} but there is not a direct correlation between the impact of dementia upon routinely ability and the entity of fecal incontinence.³⁴ It was supposed that the difficulty to recognize the stimulus and to communicate the bathroom's need play an important role in symptoms manifestation.

Stroke

Cerebral stroke was identified as a risk factor in many published surveys, especially in case of haemorrhagic cause or involving the cerebral cortex.^{10, 35} It is due to an injury of the central sites involved in continence mechanisms.

Spinal cord injury

Patients affected by spinal cord injuries may develop fecal incontinence or constipation. The level of the lesion is related to the impact on continence. In fact, cauda equina lesions determine loss of rectal sensation and tone with an impaired anal sphincter activity.^{36, 37}

Multiple sclerosis

Multiple sclerosis is associated to bowel dysfunction in around 68% of patients and the majority suffer of anal incontinence.³⁸

Peripheral nervous system disorders

Polineuropathy

Several causes may be involved such as: diabetes, toxic neuropathy or Shy-Drager syndrome.

Nervous injuries

Different conditions can cause nervous injuries such as: pelvic-perineal trauma, childbirth or iatrogenic (post-surgical and post-radiation procedures).

Psychiatric disorders

Depression

Many studies identified depression as a risk factor for fecal incontinence. Some Authors assume that is due to the side-effects of antidepressant drugs but some others stated that is the consequence of psychological effect of the disease.^{10, 39}

Muscular disorders

Miopathy

Different causes of myopathy are reported such as miastenia gravis, muscular dystrophy and systemic sclerosis which can induce fecal incontinence because of their effects of muscular functions. They are usually associated to other risk factors.^{40, 41}

Muscular injuries

Obstetrical injury

Obstetric trauma is the most frequent cause of fecal incontinence with an incidence rate ranging from 5% to 26% during the first year after delivery.^{42, 43} Instrumental vaginal delivery and 3rd/4th degree tear were identified as independent risk factors.⁴⁴ Usually the symptoms onset occur several years after childbirth, especially in the perimenopausal period with the oestrogens fall and the loss of compensation mechanisms. An important element that deserves attention is the unrecognised sphincter damage that is present in around 35% primiparous and 44% multiparous at 6 weeks postpartum. Less than half of these women will develop related symptoms.⁴³

Anal surgery

The main risk of every type of proctologic surgery is fecal incontinence even if each procedure has its own incidence rate due to the real involvement of anal sphincter complex during the operation. Lateral internal sphincterotomy for chronic fissure has a variable rates of postoperative anal incontinence (0-36%).⁴⁵⁻⁴⁷ Incontinence rate after haemorrhoidectomy ranges from 0% to 14%^{48, 49} which is similar to that reported after stapled hemorrhoidopexy.^{50, 51} Another important chapter is the incontinence rate after anal fistula surgery that varies according to the different procedures: cutting seton (5.6-67%),^{52, 53} fistulotomy (20-82%)⁵⁴⁻⁵⁷ and sphincter saving procedures that has no usually postoperative continence modifications.⁵⁸⁻⁶⁰ Some important considerations are necessary in case of postoperative fecal incontinence: the incidence is influenced by the preoperative anal

Table II Faecal Incontinence Severity Index (FISI).

Type of incontinence	Frequency of symptoms					
	Never	1-3 times a month	1 time a week	2 or more times a week	1 time a day	2 or more times a day
Gas	0	4	6	8	11	12
Mucus	0	3	5	7	10	12
Liquid Stools	0	8	10	13	17	19
Solid Stools	0	8	10	13	16	18

0 = perfect.

61 = totally incontinent.

sphincter conditions; frequently there is not a real incontinence but a minimal leakage due to the keyhole deformity or only an irregular anal profile because of a retracting scar.

Anal abscess/fistula

The presence of a perianal abscess or its chronic manifestation with anal fistula often leads to a muscular erosion of one or both sphincter muscles which is clearly highlighted during preoperative ultrasound imaging.

Post-traumatic

The main causes are: sexual abuse, violent and/or sadomasochist sexual intercourses, roads or works accidents with ano-perineal trauma.

The aim of an adequate anamnestic evaluation is to make the diagnosis of fecal incontinence. Then it is mandatory to understand when it occurs, its characteristics (frequency of incontinence and types of leak: flatus, liquid or solid stools) and the real entity of the problem with its impact of patients' quality of life.

Indeed, validated measures assessing the nature, severity and quality of life involvement should be part of the medical assessment. Various scoring systems have been published and validated, and the mainly used are: Fecal Incontinence severity Index⁶¹ (Table II), St. Marks Incontinence Score⁶² (Table III) and Cleveland Clinic Florida fecal Incontinence Score (Table IV).⁶³

Weighting is the most important variable in self-reported fecal incontinence severity. Different type of incontinence and coping behaviors are not equal whereby the use of a non-weighted score is no more adequate. Specific and weighted score such as FISI are recommended to investigate fecal incontinence. Moreover, an important parameter to be considered is the Quality of Life of these patients. Assessing QoL it should take in mind some elements: QoL is not directly observable and it is not the same of well-being or severity. Different points of view from individuals, population or clinician are related to a different perception of the problem with an inference on the measures.⁶⁴ The role of the clinician is evaluate the QoL according to the patients' view considering at the

Table III St. Mark's Incontinence Score (Vaizy Score).

Type of incontinence	Frequency of symptoms				
	Never	Rarely	Sometimes	Weekly	Daily
Solid	0	1	2	3	4
Liquid	0	1	2	3	4
Gas	0	1	2	3	4
Lifestyle alteration	0	1	2	3	4

	No	Yes
Need to wear a pad or plug?	0	2
Taking constipation medicines?	0	2
Lack of ability to defer defecation for 15 min	0	4

Never: No episodes in the past 4 weeks.
 Rarely: 1 episode in the past 4 weeks.
 Sometimes: > 1 episode in the past 4 weeks but < 1 a week.
 Weekly: 1 or more episodes a week but < 1 a day.
 Daily: 1 or more episodes a day.
 0 = perfect continence.
 24 = Totally incontinence.

Table IV Cleveland Clinic Incontinence Score (Wexner Score).

Type of incontinence	Frequency of symptoms				
	Never	Rarely <1 month	Sometimes <1 week >1 month	Usually <1day >1 week	Always >1 day
Solid	0	1	2	3	4
Liquid	0	1	2	3	4
Gas	0	1	2	3	4
Wears pad	0	1	2	3	4
Lifestyle alteration	0	1	2	3	4

0 = perfect.
 20 = complete incontinence.

same time the real possibility of available treatments and their own efficacy to improve symptoms.

There are validated score to investigate the symptoms-related quality of life like Fecal Incontinence Quality of Life Scale⁶⁵ that is frequently associated to a more general QoL measurement such as SF-36 or SF-12. There is not a direct correlation between these specific instruments of assessment and the outcome prediction of different specific treatments. Hence, these scores help the surgeon to obtain a more standardized and reproducible pre- and postoperative assessment, facilitate the comparison of studies outcomes but they should not be considered as absolute parameter. In fact, an improvement of 50% of a specific score may be considered theoretically or mathematically satisfactory but it can still have a great impact on patients' QoL.

In conclusion, the anamnestic data collection represents a milestone of the patient's assessment. It provides all the information that added to the physical examination allow to reach the diagnosis, to orient the preoperative investigations and the following treatment.

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