Update of high-resolution anorectal manometry interpretation using the London classification

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Abstract

High resolution anorectal manometry is a diagnostic test, used for anorectal motor and sensory disorders. It consists of measurement of basal tone, anal contraction and squeeze, the rectoanal inhibitory reflex (RAIR), and rectal sensory parameters. The conventional interpretation of anorectal manometry focuses on describing the dysfunctional anatomical region in isolation. However, the London classification seeks to standardize the report of these results, grouping them into major, minor and inconclusive findings in a manner similar to the Chicago classification for esophageal motor disorders.

Keywords

Anorectal manometry, anorectal functional disorders, anorectal physiology, London classification.

INTRODUCTION

Fecal incontinence and constipation are the most frequent anorectal disorders. (1) Their origins can be structural or functional alterations so symptoms and initial physical examinations are not enough to determine the cause. Complementary imaging such as magnetic resonance defecography, fluoroscopy, colonic transit, rectoanal endosonography and/or high-resolution anorectal manometry is also required. (2-4)

The American Gastroenterological Association (AGA) introduced the use of anorectal manometry, rectal sensitivity tests and balloon expulsion for diagnosis and evaluation of the anal sphincter and anorectal coordination in 1999. (5) However, throughout the years it has not been possible to standardize performance and interpretation. This has affected the external validity diagnostic results of these tests. (6-8) For this reason, the International Anorectal Physiology Working Group (IAPWG) was formed to standardize anorectal manometry. It consists of 29 gastroenterologists, coloproctologists and physiologists from 12 countries. In August 2019, they published their proposal which is now known as London classification for disorders of anorectal function. (9)

EPIDEMIOLOGY

The overall prevalence of constipation and incontinence in developed countries is said to be close to 20%. (10) However, this deserves careful evaluation since measuring prevalence depends on the diagnostic criteria used for these two pathologies plus patients’ ages, study locations, and study factors such as whether patients were outpatients, hospitalized or in geriatric homes. This is why a 9.9% prevalence for fecal incontinence and a prevalence of up to 20% for constipation were found for an over 60 population among whom up to 50% reside in geriatric homes. (11, 12)

INDICATIONS FOR ANORECTAL MANOMETRY

The main indications for anorectal manometry are constipation and fecal incontinence, but less common indications...
include anorectal pain, megacolon and megarectum. Table 1 describes the indications for high-resolution anorectal manometry in greater detail.

Table 1. Indications for performing anorectal manometry, rectal sensitivity test and balloon expulsion

<table>
<thead>
<tr>
<th>Indication</th>
<th>Parameters to be evaluated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constipation</td>
<td>Anorectal coordination (dyssynergia and abnormal balloon expulsion test) RIR</td>
</tr>
<tr>
<td>Megarectum/megacolon</td>
<td>Presence of RIR Rectal hyposensitivity Absence of RIR</td>
</tr>
<tr>
<td>Fecal incontinence</td>
<td>Anal sphincter hypofunction Rectal hyposensitivity</td>
</tr>
<tr>
<td>Functional anorectal pain</td>
<td>Anorectal coordination Anorectal coordination (dyssynergia and abnormal balloon expulsion test)</td>
</tr>
<tr>
<td>Prior to anorectal surgery</td>
<td>Anal sphincter function Anorectal coordination</td>
</tr>
<tr>
<td>History of obstetric injury</td>
<td>Anal sphincter function</td>
</tr>
</tbody>
</table>

RIR: rectoanal inhibitory reflex

LONDON CLASSIFICATION OF ANORECTAL DISORDERS

In August 2019, the IAPWG presented the first protocol to standardize performance of high-resolution anorectal manometry, rectal sensitivity tests and balloon expulsion. It is now known as the London classification for disorders of anorectal function. (9)

The IAPWG standards propose the following procedure: 3-minute stabilization of the sensor be followed by taking anal sphincter pressure at rest for 60 seconds, three contraction maneuvers of 5 seconds each, prolonged contraction of 30 seconds, two simple cough maneuvers, three strong contraction maneuvers of 15 seconds each, rectal sensitivity measurement by ballooning at progressive volumes, RIR and, finally, the ball expulsion test. (15)

The London classification focuses on four large groups of anorectal abnormalities that we review in the following order: anal tone and contractility (Figure 1), anorectal coordination (Figure 2), rectal sensitivity (Figure 3), and rectoanal inhibitory reflex (RIR) (Figure 4).

No large studies have been done in Colombia that would allow establishment of normal values for anal resting pressure, contraction pressure and rectal pressure for our

Figure 1. Disorders of anal tone and contractility (9)
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**Figure 2.** Anorectal coordination disorders (9)

- **Major disorders**
  - Abnormal expulsion with poor propulsion and dyssynergia
  - Abnormal expulsion with normal anorectal coordination

- **Minor disorders**
  - Abnormal expulsion with poor propulsion
  - Abnormal expulsion with dyssynergia

- **Inconclusive disorders**
  - Normal expulsion with altered anorectal coordination

**Figure 3.** Rectal sensitivity disorders (9)

- **Major disorders**
  - Rectal hypersensitivity

- **Minor disorders**
  - Borderline rectal hypersensitivity

- **Inconclusive disorders**
  - Normal rectal sensitivity

**Rectal sensitivity parameters**
- Sensation: 20-60 mL
- Discomfort: 60-100 mL
- Urgency: 100-200 mL
Table 2. Comparison between the London classification and conventional nomenclature for high-resolution anorectal manometry

<table>
<thead>
<tr>
<th>London Classification</th>
<th>Conventional Nomenclature</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Major disorders</strong></td>
<td></td>
</tr>
<tr>
<td>Anal hypotension with hypocontractility</td>
<td>Alteration (hypotonia) of the internal anal sphincter. Alteration of the external anal sphincter</td>
</tr>
<tr>
<td>Anal hypotension with normal contractility</td>
<td>Alteration (hypotonia) of the internal anal sphincter</td>
</tr>
<tr>
<td>Normal anal tone with hypocontractility</td>
<td>Alteration or dysfunction of the external anal sphincter</td>
</tr>
<tr>
<td>Rectal hyposensitivity</td>
<td>Rectal hyposensitivity disorders</td>
</tr>
<tr>
<td>Rectal hypersensitivity</td>
<td>Rectal hypersensitivity disorders</td>
</tr>
<tr>
<td>Rectoanal Areflexia</td>
<td>Absent inhibitory rectoanal reflex</td>
</tr>
<tr>
<td><strong>Minor disorders</strong></td>
<td></td>
</tr>
<tr>
<td>Anal hypertension</td>
<td>Hypertonic anal sphincter</td>
</tr>
<tr>
<td>Abnormal expulsion with dyssynergia</td>
<td>Type I or type III defecation dyssynergia</td>
</tr>
<tr>
<td>Abnormal expulsion with poor propulsion</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Abnormal expulsion with poor propulsion and dyssynergia</td>
<td>Type II or type IV defecation dyssynergia</td>
</tr>
<tr>
<td><strong>Inconclusive disorders</strong></td>
<td></td>
</tr>
<tr>
<td>Abnormal expulsion with normal anorectal coordination</td>
<td>Abnormal balloon expulsion</td>
</tr>
<tr>
<td>Normal expulsion with abnormal anorectal coordination</td>
<td>Type I - IV defecation dyssynergia</td>
</tr>
<tr>
<td>Borderline rectal hyposensitivity</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

diverse population. Also, there are no values for anal relaxation and rectal sensitivity parameters, so we have taken them from international studies and we adapted them for the London classification. (9, 16-19) Like the Chicago classification for esophageal motility disorders, the London system classifies anorectal disorders as major, minor and non-significant according to pathological relevance. (20) Table 2 compares the terminology of this new proposal with that of conventional manometry.

CONCLUSION

Anorectal manometry is a useful diagnostic tool for anorectal sensory-motor disorders. Proper performance and interpretation are essential for providing patients with adequate treatment. The London classification is the first proposal that seeks to standardize reporting of high-resolution anorectal manometry results.

REFERENCES


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