



## Diarrhea and Intestinal Microbiota

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### Abstract

We carry out a review of the world literature, regarding the role played by the Intestinal Microbiota (IM), when transplanted - in the decrease and disappearance of diarrhea, in many conditions. Some acute and most chronic.

Also, we show our little experience regarding the effect of Intestinal Microbiota Transplant (IMT), also known as Fecal Microbiota Transplant (FMT). We refer to how patients with Irritable Bowel Syndrome, Diarrhea variety, Anxiety, Systemic Lupus Erythematosus, Pseudomembranous Colitis, Intestinal Malabsorption Syndrome, Amyotrophic Lateral Sclerosis and Retroperitoneal Cancer operated on 4 occasions, secondary to left seminoma and right testicular teratoma (excised). We show that in all of them, the diarrhea was reduced substantially and that the complications that appeared were minimal; without relevance or significant effect.

**Keywords:** Chronic diarrhea; Fecal Microbiota Transplantation (FMT); Intestinal Microbiota Transplantation (IMT); Intestinal Microbiota (IM)

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### Introduction

#### Findings

We analyze 17 cases with 33 to 86 years of age, 9 male and 8 females. The main diagnosis appears in the Table 1. The evolution time of the stools appears in the Table 2.

#### Number of depositions, daily

They happened in number from 2 to 8, in 24 h. The number of evacuations that was presented the most was 6 a day. Some of the evacuations were on alternate days. In 3 cases there were bloody stools and these occurred in a patient with pseudomembranous enterocolitis, in a patient with rectal polyps and in rectal vascular ectasia.

In addition, other secondary comorbidities appeared, such as the following Table 3 (Evolutions is included).

#### Type of transplant

He was colonic in 13 cases, Jejunal in 3 and mixed (jejunal and colonic in 3). The patient with pseudomembranous enterocolitis required 3 transplants. The findings of the endoscopic studies were in Table 4.

The amount of transplanted Microbiota was 200 ml, in ascending colon, 100 ml, in transverse colon and 200 ml, in descending colon in 10 patients. In the patient with pseudomembranous Colitis, 3 transplants were performed, for the same amount, on alternate days.

In 2 cases 250 ml were instilled into the jejunum. And then in ascending colon 200 ml, 100 ml in transverse colon and 200 ml in the descending colon. In 1 case: 250 ml in the jejunum and then: 100 ml in ascending colon, 50 ml in transverse colon and 100 ml in the descending colon.

We applied the Microbiota in 3 cases, through the jejunum, depositing 250 ml in one case, and in another 400 ml.

#### Complications

They were presented in 4 cases. One of them diarrhea in number of 8 a day and abdominal

**Table 1:** Main Diagnostic.

Anxiety 7 Cases
Ibs, Variety Diarrhea 4 Cases
Retroperitoneal Cancer Operated In 4
Occasions, Secondary to Seminoma
Left and Right Teratoma. (Remove)
Amyotrophic Lateral Sclerosis
Active Systemic Lupus Erythematosus
Bad Absorption Syndrome
Pseudomembranous Enterocolitis
Chronic Alcoholism
Total 17 Cases

**Table 2:** Time of Evolution of Depositions.

5 Days. 1 patient
1 Month. 1 ""
2 Months. 3 patients (alternate days)
3 Months. 4 "" (alternate days)
5 Months. 1 patient (alternate days)
6 Months. 2 patients (alternate days)
12 Months. 1 patient (alternate days)
24 Months. 1 "" (alternate days)
15 Months. 1 "" (alternate days)
3 Years. 1 "" (alternate days)
5 Years. 1 "" (alternate days)
Total 17 Cases

pain. They ceded at 24 h spontaneously. The second with diarrhea and abdominal pain, which yielded with antispasmodics and probiotics at 48 h. The third with bloating and pain on both flanks, which disappeared at 24 h. The fourth case presented with diarrhea, from overeating Chile, mole and tamarind. Containing the problem with antispasmodics, probiotics and antidiarrheals. We consider that this case was not a complication of the TMI, but of the excess when eating, despite having been told otherwise. The problem gave way in 3 days.

Although comments have already been made on some comorbidities, the time and percentages of the improvements appear below. Which occurred in all cases.

In the main diagnosis, the evolution was:

**Anxiety 13 cases**

(Decreased from the 4<sup>th</sup> day to 3 weeks, in all cases, considering the Hamilton Scale). The patient with the greatest anxiety had 40 points, and the one with the least anxiety 16. In the comparative lines, the initial anxiety and below the anxiety after the TMI are observed:

Initial anxiety: 20, 40, 37, 24, 21, 22, 33, 22, 32, 16, 19, 30, 22.

Anxiety with TMI: 10, 04, 06, 09, 12, 13, 08, 09, 16, 04, 05, 14, 08.

Case number 9 was the survey conducted in its first phase to the son of the lady, because she is unconscious.

The 13 patients with IBS, Variety diarrhea, as initial diagnosis, as well as the 4 patients with the same Syndrome detected as secondary comorbidity, no longer had liquid stools, at 2 weeks after the IMT.

**Table 3:** Secondary comorbidities.

• Anxiety. 7 cases (Separate comment)
• Obesity. 6 cases (3 patients started losing weight)
• IBS, diarrhea variety. 6 cases (Separate comment)
• Diverticular disease of the colon. 5 cases (Pending long-term evaluation)
• Arterial hypertension. 5 cases (Without improvement)
• Hiatal hernia. 4 cases (3 patients improved completely)
• Diabetes mellitus type 2, stable adult. 3 cases (Without improvement)
• Benign prostatic hypertrophy. 3 cases (Without improvement)
• Neuropathies. 3 cases (He improved the pain)
• Dyslipidemia. 3 cases (Pending long-term evaluation)
• Lactose intolerance. 2 cases (They improved in 10 days)
• Dermatopathy. 2 cases (They were completely corrected before two weeks)
• Spastic colon. 2 cases (They were totally corrected, in 8 days)
• Peripheral vascular insufficiency in podic members. 2 cases (Without improvement)
• Allergy to cold. 2 cases (They gave in 1 week)
• Disc degeneration and listesis grade I-II (L-2) (Decreased pain, at 10 days)
• Malnutrition. (Corrected in 4 months)
• COPD. (Without improvement)
• Fibromyalgia. (It improved completely a week).
• Lupus glomerulonephritis. (Biopsy was required to Evaluate the case)
• Non-alcoholic fatty liver. (In Ultrasound control under 1 to 0).
• Uterine myomatosis. (Without improvement)
• Facial neuralgia on the left side. (It improved completely in 10 days)
• Weight loss. (At 48 hours he no longer lost weight)
• Insufficient weight. (He gained 4 Pounds in 10 days).
• Bilateral pterygium, predominantly left. (Without improvement)
• Neurocardiogenic syndrome. (Without improvement)
• Smoking. (Without improvement)
• Vulvovaginitis. (Decreased, by 8 days)

**Table 4:** Endoscopic findings.

• Colon Diverticular Disease. 3 Cases.
• Gastritis. A Case
• Gastric Polyp. One Case (Remove)
• Rectorragy For Rectal Vascular Ectasia (Spontaneously Yielded)
• Rectorragy For Rectal Polyps. (Yielded)

The 2 patients with lactose intolerance and the patient with retroperitoneal cancer operated on 4 occasions, secondary to left seminoma and right teratoma (extirpated) tolerate all foods and beverages, including mole, Chile, guacamole and beer. Patients with IBS, Variety diarrhea, comment that their stools are formed. (In the long-term cases, they say that for years they did not evacuate formed and solid).

**Literature Review**

One of the conditions that are most often treated with IMT is diarrhea. All over the world, the criteria tend to be standardized and the methodology to equalize, in order to obtain better answers [1-3].

Diarrhea caused by IBS, inflammatory processes (IBD, Crohn's disease, immunological disorders, and others), are frequent and can

be seen to affect the quality of life and good personal development [4-6].

The referenced authors have witnessed the importance of Intestinal Microbiota Transplantation in diseases as frequent as IBS, diarrhea variety [7], and the inflammatory processes of Ulcerative Colitis and Crohn's Disease, with generation of diarrheic evacuations [8-12], as well as the correction, with an enormous frequency of inflammatory processes and consequently diarrhea [13,14].

Remission of diarrheal processes has been frequently observed in other diagnoses, such as Lupus erythematosus [15].

## Comments

In our casuistry we observed that the majority of patients with chronic diarrhea had anxiety, as the first diagnosis, followed by IBS, diarrhea variety. And in all of them there were good results. We note that both primary and secondary comorbidities improved in most patients. Most of the transplants performed were performed in the colon, with amounts around 500 ml of Microbiota.

We have started to administer IMT in cancer, with surprising results. We tried that the patient was in a remission phase and the fact that the fall of the weight stops, as well as recover the appetite, especially of foods that he liked, for us was a truly favorable surprise.

The comments made by some patients with chronic diarrhea, which included that they did not evacuate solid or formed for months, also surprised us, as well as the recovery of weight and the decrease of intestinal disorders added.

## Conclusions

- Mixed Intestinal Microbiota Transplant (jejunum and colon, gives better results).
- The increase of the amount of 500 ml. It helps to improve the morbid processes, more quickly.
- Complications are usually benign and correct alone or with conventional treatment.
- We believe that it is time to gradually add more conditions to the list of cases treatable with TMI.
- The IMT should be added to the therapeutic guidelines. In the world. Given the presence of COVID-19, the FDA recommends only using Microbiota made before November 1, 2019, and searching for donors for SARS-CoV-2 [16,17].

## Ethical Approval

The present report does not contain any study with human or animal subjects made by the authors.

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