Usefulness of Castor Oil and Elobixibat and Lactulose and Ascorbic Aid (Movicol) for Bowel Preparation for Colon Capsule Endoscopy: A Case Report

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ABSTRACT

Colon capsule endoscopy was approved for reimbursement under the national health insurance system of Japan in 2014. However, the capsule excretion rate after recommended bowel preparation reportedly ranges from 70% to 90%, and administration of boosters is also necessary. The caster oil-based booster had an emission rate of 97%, but required a total water content of 3L. Some patients have been tested for the second and third time since the test was started in 2014. There is an opinion that these patients could reduce the booster more, and this time we will use the booster with mobiprep to perform the booster on the day with 350 ml.

Keywords: Castor Oil, Elobixibat, Lactulose and Ascorbic Aid (Movicol)
Introduction
Capsule excretion rate after recommended bowel preparation reportedly ranges from 70% to 90%, and administration of boosters is also necessary. For dialysis patients, liquid loading is a problem. About 700 dialysis patients go to our hospital. When these patients have a positive fecal occult blood test, a first-line examination with a colon capsule endoscope is performed. However, many patients have water restriction and may not be able to drink water or vomiting may occur when the booster is applied\(^1\)\(^2\). This is one of the causes of a decrease in the colonoscopy capsule endoscope discharge rate. By using castor oil, the capsule discharge rate is 97% made\(^3\)\(^4\).

Ascended, but the booster needs 3L. After that, by using goofis\(^5\)\(^6\) and lactulose\(^7\)\(^8\) together, the emission rate was 100%, and the booster could be reduced. It was used for the procedure, and the booster volume on the day was reduced by 350 ml, and the colon capsule was successfully excreted.

<table>
<thead>
<tr>
<th>Day of</th>
<th>Time</th>
<th>Procedure</th>
<th>Regimen</th>
<th>Liquid volume</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>endoscopy</td>
<td>9:00</td>
<td>Capsule ingestion</td>
<td></td>
<td>545ml</td>
<td>545ml</td>
</tr>
</tbody>
</table>

Table 1 Bowel preparation regimen

<table>
<thead>
<tr>
<th>Day before endoscopy</th>
<th>Time</th>
<th>Procedure</th>
<th>Regimen</th>
<th>Liquid volume</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>movicol 2T water 120ml</td>
<td>120ml</td>
<td>120ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morning, noon, and evening</td>
<td>Low-residue diet</td>
<td>Enemacillin movicol 3T water 180ml goofic 2T</td>
<td>180ml</td>
<td>300ml</td>
<td></td>
</tr>
<tr>
<td>21:00</td>
<td>Bowel cleansing</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After 21:00</td>
<td>Fasting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Case report
A 54-year-old man obtained the written consent and conducted this study.
This patient had undergone colonoscopy twice before, but had no history of surgery but had adhesions to the sigmoid colon, and the capsule endoscopy was performed twice in time before the site. Has not been discharged. However, when it was the first discharge office, colonoscopy was performed and small polyps were found, but no colon cancer was found. This study patients who underwent colon capsule endoscopy at Masuko Memorial Hospital

OJGH: https://escipub.com/open-journal-of-gastroenterology-and-hepatology/ 2
December 2019. Patients was informed of the risks and complications Colon Capsule, such as capsule retention. Written informed consent was obtained from all patients. Colon capsule endoscopy was performed with PillCam COLON Capsule (Medtronic, Minneapolis, MN, USA). In the protocol used this time, 120 ml of water was administered to Goofis 2T and Movicol 2T\textsuperscript{9,10} before dinner two days before the test. In the package insert, Mobicol was to be increased every day and required 60 ml of water per 1T, so this time, administration was started 2 days before the test. The day before the test, in the morning, Movicol 3T and water 180ml were administered immediately before dinner, 3T of Movicol, 180 ml of water and 2T of Goofis were administered. The diet was a low residue diet. On the day of the test, 500 ml of water, 30 ml of lactulose, 15 ml of castor oil and Mobicol 3T were used as boosters. On the day before the examination, the stool scale was also good, but an abdominal CT image was taken before taking the capsule on the day of the examination in order to confirm the presence or absence of stool residue (Fig1). Although fecal residue was observed in the ascending colon, the capsule was taken as it was because the fecal scale was good (Table 1).

![Image]

**Fig 1** abdominal CT image was taken before taking the capsule on the day of the examination in order to confirm the presence or absence of stool residue

**Results**

The colon capsule was excreted 2 hours after oral administration.

The amount of booster used after taking the capsule on the day was 350 ml. The degree of lavage was good in the ileocecal area (Fig.2), the ascending colon was good, small polyps could be observed (Fig3), and the sigmoid colon was good. The capsule endoscope, which had been
caught in the sigmoid colon even with a large amount of booster, could now be drained at 350 ml. Since the stool scale was clear from the day before, the patient could finish the test in the morning because the test could be started immediately after the CT test upon arrival at the hospital.

**Fig 2** the degree of lavage was good in the ileocecal area

**Fig 3** the ascending colon was good, small polyps could be observed

**Discussion**

We use a capsule endoscope as the first choice for colon examination of dialysis patients. Hemodialysis patients have weakened...
intestines and are taking oral anticoagulants, so there is a risk of bleeding. However, some dialysis patients discontinue the test on the day when they have a restriction on water and cannot drink the booster or they need a booster of about 2-3L from the beginning. Therefore, we were able to use castor oil, goofil, and lactulose to reduce the water content to around the level of a normal colonoscopy panel. However, patients who performed tests twice or three times still requested that the amount of water be reduced. All of the medicines used this time were very safe and can be used by children. Movicol dose increase had to be performed at intervals, so pretreatment was required 2 days before the test. In addition, since one of the side effects, abdominal bloating, appeared at the time of the first administration, it is considered necessary to inform patients that such side effects will appear in the future. However, although only one case has been performed, the stool scale was cleared the night before, so if a test can be introduced immediately after visiting the hospital, the patient's restraint time can be reduced. According to the rules of our hospital, it is possible to return home when it is confirmed that a capsule has entered the colon or when the booster ends. As a future study, in order to keep the stool scale clear by the night before, it is necessary to check the patient's defecation status and create a protocol such as how many days before the test day you should take Mobicol. It is conceivable that. Whether or not the booster volume can be reduced to 500 ml or less will require accumulation of patients, but if this method is possible, it will be possible for many dialysis patients with limited water to benefit.

**Conclusion**

In this study, it was possible to discharge capsules early by combining many constipation drugs, and to minimize the booster volume to 350 ml. Whether or not the booster volume can be reduced to 500 ml or less will require accumulation of patients, but if this method is possible, it will be possible for many dialysis patients with limited water to benefit.

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