



Invention Arising From Surgical Service Needs; Stoma Bag Cover

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Abstract

Aim: In cases such as colostomies, enterocutaneous fistulas and catheters leaking fluid from the environment; the use of stoma bags is necessary. The aim of this study; it is to present the invention called "stoma bag cover" that can be used instead of laborious applications such as opening the stoma bag completely to make an enema or puncturing the bag for drainage.

Material and Methods: Stoma bag cover is a cover that can be placed in the anterior middle part of the stoma bags and provides an opening through which catheters can come out. In addition, in order to prevent leakage around the drain, there is a nylon structure prepared with a purse-shaped thread around the inside of the cover. By knotting this nylon structure after the drain or catheter is passed through the thread at the end, the space that will cause leakage around the drain is eliminated. In addition, if the need for the opening in the stoma bag ends, the cover is designed to be closed and leakproof.

Results: Stoma bag cover; it provides a more practical and effective mechanism for applications that are sometimes insufficient to prevent leakage, such as tying and taping applied to drains removed from the stoma bag. In addition, this invention is a valve mechanism that can enable some necessary applications without opening the stoma bag completely without contamination.

Conclusion: It is expected that this invention will provide healthier results and comfort compared to previous applications, both by providing ease of application and reducing contamination.

Keywords: Colostomy, stoma bag, drains, stoma bag cover

INTRODUCTION

Every year, tens of thousands of people in the world go through stoma formation. The most common conditions requiring stoma surgery are colorectal cancer, bladder cancer, ulcerative colitis and Crohn disease (1). This distinction is important primarily because of its features such as pre-operative location marking and the relative inadequacy of patient preparation for emergency surgeries. Although many patients cope with stoma, they experience considerable difficulty and distress, this situation is more common in emergency stomas; one study found that 51% of patients had their colostomy done in an emergency operation and without planning and preparation for a stoma (2).

Stoma formation is a simple surgical intervention, but its results are not only limited to a spectrum of morbidity expressed with difficulty in care and an uncomfortable

life, but also life-threatening complications can occur. In retrospective studies, the most common complications are dermatitis-skin irritation, parastomal pain and partial necrosis, prolapse, stenosis and parastomal hernia. Again, in unit-based evaluations, the general surgery service was found to be the unit with the highest number of complications, followed by gynecology, surgical oncology, pediatric surgery and trauma units, respectively (3,4).

Drains, as stomas are indispensable in many surgical interventions, are mostly used after surgery and in some cases to control bleeding and leakage without surgery and to remove body fluids, and today they are an indispensable part of treatment. Drains are used to control postoperative leakage and bleeding, to prevent fluid accumulation in the operation site, to prevent loculation and abscess formation, and to facilitate wound healing. In cases such as intra-abdominal collection, abscess, ascites, pleural effusion, it

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is placed percutaneously in body cavities accompanied by radiological imaging (5).

Although drains are one of the most preferred tools today due to the benefits they provide, the use of drains brings with it some problems (6). The efficiency of the drain, its ability to prolong the hospitalization period, the need for antibiotic use, etc. are among these (7). There are also problems such as pain in the area, fear, difficulty sleeping with the drain, the need for dressing around the drain, etc. in general terms, patient discomfort, especially in patients who need long-term drainage (5).

Stoma bags are designed for colostomies and ileostomies created after gastrointestinal surgeries and urostomies created after urological surgery and are commercially available as transparent or opaque. In order to fix the stoma bag to the patient's body, the so-called stoma adapter can be used as a separate adapter from the bag or adjacent to the bag depending on the product variety on the market. The stoma adapter is cut in a suitable width according to the width of the stoma and the stoma bag is then closed (8).

The use of stoma bags is not only limited to colostomy and ileostomies and urostomies created after surgery, but also for formations such as enterocutaneous fistula; It is useful to prevent skin erosion and contamination. In addition, although it is not mentioned in the literature, it is encountered in surgical services that stoma bags are used by creating various mechanisms for drains and catheters that leak fluid around and contaminate the dressing, or in other words, wet it and cause contamination and prepare the ground for infection.

The aim of this study; while making use of stoma bags to prevent contamination and infection, it is to reveal the equipment called "stoma bag cover", which contributes to clinical practice in terms of ease of dressing, patient comfort and hygiene, instead of open and troublesome mechanisms that are open to contamination and its benefits.

MATERIAL AND METHOD

For the solution of the difficulties that are often overlooked in surgical services; that the stoma is removed from the bag and tightly tied around it, and applications such as tying and taping to prevent the stoma from leaking will be applied in a more practical and effective way; In addition, in order to prevent uncontrolled separation of the stoma bag from the adapter in order to prevent contamination in interventions such as enema from the stoma, a valve mechanism called "stoma bag cover" was introduced during the search for an effective solution to this need of surgical services. The main feature of this mechanism is; the stoma bag cover is an independent part of the stoma bag structure and can be used by the part of the stoma bag cover to be attached to the stoma bag on the patient. This mechanism becomes usable after the connection with the inside of the stoma bag is made by puncturing through the line where the lid opening is and will be pierced by the

person. There is a cylindrical nylon structure inside the stoma bag lid that can fit into the closed lid volume. The fact that this structure has a thread mechanism at the end, which is used to knot the nylon by shrinking, is another basic feature of this cover that provides its functionality. The stoma bag cover is opened and closed with the help of the segment to be held during opening and closing; It can be closed again safely and easily thanks to the presence of a compatible segment that prevents leakage when the cover is closed. It also includes additional features that are carefully designed to ensure that the segments forming it can be easily closed again when the process is finished, by means of the connection extension that prevents the cover from being completely separated from each other during opening and closing.

This equipment, which is useful in patient-based trials in the clinic, can be produced from the same materials (polyurethane) as all kinds of stoma bags and adapters in the market, with any manufacturer team and equipment capable of producing stoma bags and adapters. Patent procedures have been started by the by the Patent and National Trademark Institution; the process continues with the application number 2021/006679.

RESULTS

Products called stoma bags and stoma adapters have already been used for a long time. The stoma bag cover is used by sticking it to the surfaces of the stoma bags (Figure 1, Figure 2). On the floor of the cover is the part of the stoma bag cover to be attached to the stoma bag on the patient. After the stoma bag is adhered to the appropriate place on the surface of the bag, the flap of the stoma bag is opened with the help of the segment to be held during opening and closing, while the flap is on the stoma bag. Since the opened cover is connected to the floor by the connection extension, it is not completely separated; It provides ease of closing again when the process is finished. After opening the lid of the stoma bag, it is seen that there is a nylon structure inside the cylindrical lid that can fit into the closed lid volume. At the end of this structure, there is a thread for knotting the nylon by shrinking it. Before this mechanism is knotted and tightened, a hole is drilled on the surface of the bag at the point where the stoma bag lid is attached to the bag, through the line where the lid opening is and will be pierced by the person, in order to provide a passage between the lid and the bag. After the hole is opened, the stoma bag is intervened with enemas, etc. At the end of the process, the nylon structure is knotted. Then the cover is closed tightly with the help of the segment to be held during opening and closing. The compatible segment, which prevents leakage when the lid is closed, is present in the lid mechanism and ensures safe closing at the end of the process.

Apart from enema etc. interventions, drains can also be removed through the hole opened in the stoma bag. After the drain is removed from the hole, the nylon structure inside the stoma bag cover and the thread mechanism at the end are knotted and the mechanism becomes usable

by tightening the drain with a knot. If the need ends, the knot is loosened; then the drain is removed or the drain stays in place and the stoma bag can be removed and a new stoma bag inserted. If the drain is pulled, the thread is knotted again and the cover is tightly closed.

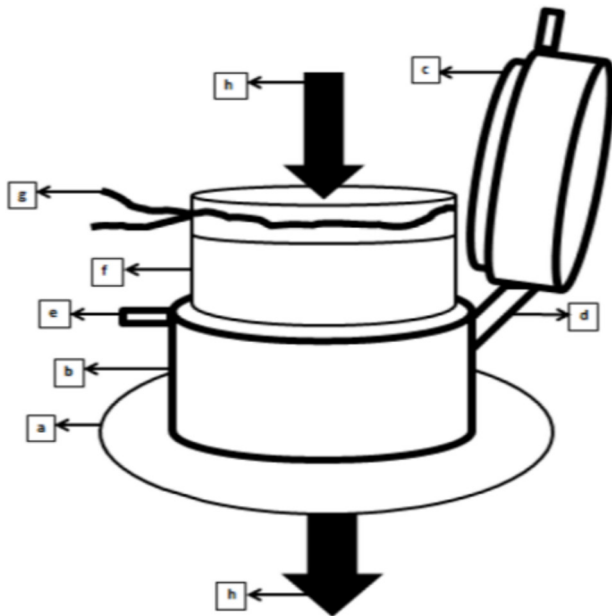


Figure 1. Stoma bag cover, open view **a**. The part of the stoma bag cover on the floor of the cover to be attached to the stoma bag on the patient **b**. Stoma Bag Cover **c**. Compatible segment that prevents leakage when the lid is closed **d**. Connection extension that connects the cover to the floor and prevents it from being completely separated and provides ease of closing when the process is finished **e**. Segment to be held during opening and closing **f**. After the stoma bag cover is opened, the nylon structure inside the cylindrical cover and can fit into the closed cover volume **g**. Thread for knotting the nylon at the end of the nylon structure by shrinking it **h**. The line on the bag surface at the point where the stoma bag cover is attached to the bag, where the flap opening is to allow passage between the cap and the bag and to be pierced by the person.

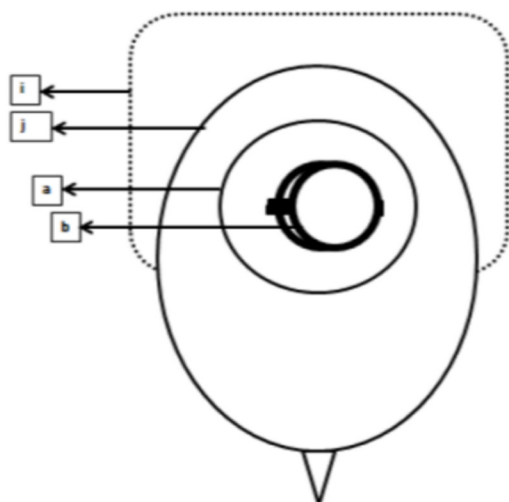


Figure 2. The view of the stoma bag cover while it is on the stoma bag **a**. The part of the stoma bag cover on the floor of the cover to be attached to the stoma bag on the patient **b**. Stoma Bag Cover **i**. Stoma adapter (any market product) **j**. Stoma bag (any market product)

DISCUSSION

In addition to the routine care and cleaning of stomas, intervention by enema through the stomal opening in cases of constipation, subileus and ileus or to give luminal contrast for imaging is a frequently applied practice in general surgery and emergency surgery units (9,10). Sometimes due to clinical necessities, in surgeries where a double-barreled stoma is opened from the proximal intestinal loops, in order to prevent the development of short bowel syndrome by ensuring the continuity of the gastrointestinal passage, in some surgical services in such patients, the intestinal fluid from the proximal stomal opening is given through a foley catheter or a feeding catheter from the distal end of the stoma. Ans can also be provided to participate in digestion. Sometimes, leakage may occur around the drain in the drains placed in the patient after the surgery, the drains placed in interventional radiology, acid drainage catheter, etc. Contamination, which sometimes occurs due to abundant drainage and sometimes due to insufficient functioning of the drain, cannot be adequately prevented despite frequent dressings, and an effective solution is required to control this drainage fluid (11,12). For this, sticking a stoma bag over the drain outlet and removing the drain from the bag is not uncommon in clinical practice.

When enema needs to be made from a stoma, the stoma bag is opened by separating it from the adapter. After the enema, the enema fluid and if the enema works, the fecal contents are scattered around. In one-piece stoma bags where the adapter is not separate, this process is performed by separating the bag from the skin where it is completely adhered. This invites epidermal and dermal injuries that may occur on the skin, on top of contamination with the intestinal contents in other types of stoma bags and contamination to the environment. In order to prevent short bowel syndrome in stomas with double barrels opened from the proximal, it is an application used in surgical services to ensure the continuation of intestinal content from the proximal anus to the distal anna. For this purpose, a catheter is placed in the distal stomal ann; the ends of such catheters and the ends of various drain and drainage catheters on which a bag is attached because it leaks around; In clinical practice, the bag is punctured to remove it from the stoma bag. In order to prevent leaks around the bag hole, various suture materials, threads and tapes are used to tightly connect the hole created in the bag and the drain/catheter that comes out of it, however, leakage and contamination from the puncture site of the bag continues (Figure 3). Although it is difficult to create this mechanism in terms of time and effort, if a leakproof condition can be achieved, patients stay as much as possible so that the mechanism does not deteriorate, and their mobilization is inevitably restricted. This, in turn, invites secondary complications such as deep vein thrombosis, decubitus wounds, etc., which cannot be predicted at first glance.

Although such special applications arising from the needs of surgical service bring various secondary problems such as contamination of the procedure area with intestinal



Figure 3. Stoma bag placed in the drain outlet area in order to prevent leakage around the drain, but it is seen that the leak continues from the outlet hole of the drain bag

contents, ineffective mechanisms, and ignoring patient comfort, while being performed under current conditions, the desired results are not always achieved with the mechanisms that are tried to be created.

The stoma bag cover is designed to facilitate the mechanism to be applied in a more practical and effective way, such as binding and taping applied to the drains removed from the stoma bag, in a more practical and effective way, and also to prevent contamination and to provide hygienic conditions more easily when enema is required.

CONCLUSION

With this invention, it is aimed to achieve better results with a comfortable mechanism for the procedures that are performed by puncturing stoma bags or separating them from their adapters, which cause a lot of time and effort, as its benefits can be seen in patient-based trials in the clinic. In this way, in addition to the standard use of stoma bags, it is expected that various bag arrangements, which are tried to be applied to facilitate the treatment process, will be made more efficient, and a more hygienic, more effective process that causes less comorbidity in patients.

As a result, it is expected that this invention will provide healthier results and comfort compared to previous applications, both by providing ease of application and reducing contamination.

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Conflict of Interest: The authors have no conflicts of interest to declare.

Ethical approval: Ethics committee approval is not required.

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