LOOP COLOSTOMY BRIDGE

Inventors: John L. Nolan, Glenview; Arnold A. Rivin, Chicago; Bremen L. Johnson, Cary, all of Ill.

Assignee: Hollister Incorporated, Chicago, Ill.

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References Cited

UNITED STATES PATENTS

817,871 4/1906 Pickles .................. 85/8.3 UX
2,473,689 6/1949 Colstad .................. 85/8.3 X
3,120,685 2/1964 Shears .................. 24/90 G UX

FOREIGN PATENTS OR APPLICATIONS

553,927 6/1943 Great Britain ................ 24/100.5

ABSTRACT

During a temporary colostomy a structurally unique bridge is used to prevent premature withdrawal of the intestine back into the abdominal cavity. A surgeon opens the abdominal wall and eases a short loop of intestine out of the opening. The colostomy bridge, having lateral extensions at each end, is positioned beneath the section of exposed intestine and is laid flat against the abdominal wall. If only a short loop of intestine is brought out of the abdominal cavity, the colostomy bridge may be folded and threaded beneath that portion of exposed intestine, then unfolded and laid flat against the abdominal wall. The bridge spans the incision beneath the section of exposed intestine to prevent withdrawal of the intestine into the abdominal cavity and by its structure is prevented from accidentally working out from beneath the intestine. After the medical objectives have been accomplished, the bridge can be folded and removed easily without cutting and without discomfort to the patient.

6 Claims, 5 Drawing Figures
LOOP COLOSTOMY BRIDGE

BACKGROUND OF THE INVENTION

1. Field of the Invention
The present invention relates to a surgical device and more particularly to a colostomy bridge for positively securing an intestine in exposed position and having the added characteristic of being efficient to insert and remove from said securing position.

2. Description of the Prior Art
A surgeon doing a temporary colostomy may divert a small section of intestine through an incision in the abdominal wall to form a loop in the intestine. With the intestine exposed the surgeon makes an incision in the portion of the intestine outside the body to permit discharge of waste material so that abnormalities, wounds or operative areas distal to the incision, in the lower intestine, lower bowel or rectum, have an opportunity to heal without having to handle the usual waste discharge function. In practice, the incision in the intestine or colon is later sutured closed and returned to its proper location inside the body.

Currently and heretofore, the surgeon placed a cylindrical glass or plastic rod beneath the loop in the intestine or colon in bridging relationship to the incision. The rod prevented the intestine from returning prematurely into the body, but such a rod does not lie flat against the skin, thereby making it difficult to fit an appliance over the temporary colostomy so that the appliance will function properly without leakage of wastes onto the surrounding skin, clothing and bed linens. In addition, the rod being of uniform diameter and thickness could work itself out of position, permitting the intestine to recede into the abdominal cavity prematurely unless it was anchored with additional materials. Such a premature recession of the intestine could permit discharge of wastes into the unprotected abdominal cavity causing severe problems.

One attempt to overcome the problem of premature backing out of the rod was the connection of a flexible tubing to each end of the rod, forming a loop around the exposed intestine, to prevent the rod from slipping out of position. This practice created crevices and recesses for entrapment of discharge, with potential subsequent contamination of the site of surgery. Another attempt to overcome the problem of premature backing out of the rod constituted a flattened bar having a greater diameter at the ends than in the middle. The enlarged ends were intended to prevent the bar from slipping out of position. Such a device was difficult to insert through a small opening between the exposed intestine and the abdominal wall. To remove the bar it was necessary to use a knife or scissors to cut it, which produced obvious dangers and disadvantages.

SUMMARY OF THE INVENTION
Our colostomy bridge incorporates a structure which overcomes the problems of the prior devices. Specifically our bridge is inserted and removed without the need for additional instruments such as scissors. When the bridge is in position it lies flat against the abdominal wall so as not to interfere with any appliance that may be fitted over the temporary colostomy. Our bridge has wide-spread wings which serve to distribute the pressure of the intestine or colon on the bridge so as not to be as uncomfortable as when the single round rod was used. The spread wings of the bridge serve the purpose also of preventing the bridge from being accidentally withdrawn from its intestine-supporting position.

Our colostomy bridge is comprised of a pair of hinged together mating halves of relatively flat flexible material, such as plastic. Each half is flat and has a curved shape somewhat resembling an arc or a crescent and is hingedly joined to the other half at approximately the mid-portions of the outside edge of the arc or crescent. During installation, if it is not practical to insert the bridge in its flat configuration, the halves are folded upon themselves and are threaded in an arcuate path underneath the loop in the exposed intestine. Once the bridge is centered with respect to the exposed intestine the two halves are spread at the hinge until they lie in the same general plane against the abdominal wall. Release of the intestine will now permit the intestine to rest on the flat surface of the bridge with the four ends diverging apart so as to form spread wings for preventing withdrawal of the bridge from its intestine-supporting position. For removal, the two halves are folded upon each other and backed out from beneath the intestine along an arc somewhat similar to the radius of the crescent. Once removed, the intestine can be replaced in the abdominal cavity.

BRIEF DESCRIPTION OF THE DRAWINGS
FIG. 1 is a perspective view of a portion of a patient with the improved colostomy bridge in operative position supporting an intestinal loop; and
FIG. 2 is an elevational view of the colostomy bridge in a flat position;
FIG. 3 is a cross-sectional view taken along the line 3—3 of FIG. 2 with an alternate position of the ends of the bridge being shown in phantom;
FIG. 4 is a cross-sectional view taken along the line 4—4 of FIG. 2 with an alternate position of the halves of the bridge being shown in phantom; and
FIG. 5 is a side view of the colostomy bridge in position on a patient and as it is being extracted from the intestine-supporting position on a patient.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Similar reference numerals refer to similar parts throughout the several views and as shown in FIG. 1 a patient is reclining on a supporting surface such as a bed and has a temporary colostomy incision in the abdominal wall. A short stretch or length of intestine has been lifted out from the abdominal cavity to form a loop and is supported in exposed position exterior of the cavity by means of the improved colostomy bridge.

The colostomy bridge as seen in FIGS. 2, 3 and 4, is comprised of a pair of elongate, substantially flat, accurately shaped mating members or halves and joined together at a hinge along a mid or central portion thereof. The members and hinge can be integrally formed or separate. The bridge is formed of a resilient material such as a plastic or the like and is relatively flat in one plane so as to be somewhat flexible in a plane perpendicular thereto. Each half and is shown having a relatively flat or elliptical shape in cross section with the long axis of the ellipse lying in a plane substantially parallel to the abdominal wall of a patient when in position on the patient. Each half and is curved in the plane of the long axis of the ellipse to form an arc or a crescent.
3 shape with a relatively long radius of curvature such that the arc of each half is pronounced but neither excessively rounded nor excessively flat. In the vicinity of the mid portion 28 of the outside edge 30 of each half is integrally formed the hinge 26 which is reduced in thickness as compared to the thickness of each half so as to offer less resistance to bending upon the application of a folding pressure on each half as will be explained more fully hereinafter.

Due to the curved or arcuate shape of each half, a pair of spaced-apart flared or extended ends or wings 32 and 34 are formed on half 22 and a pair of spaced-apart flared extended ends or wings 36 and 38 are formed on half 24 such that in the substantially flat condition of the bridge 20, (FIG. 2) ends or wings 32 and 36 are spaced apart on one end of the hinge 26 and ends or wings 34 and 38 are spaced apart on the other end of said hinge. The two halves 22 and 24 may be urged toward each other whereupon the hinge 26 bends until the ends or wings 32 and 36 of the respective halves 22, 24 abut each other as shown in dotted lines in FIG. 4. Release of the ends or wings will permit the halves 22 and 24 of the bridge to return to a relatively flat condition such as the solid line position of FIGS. 3 and 4. The bridge 20 primarily has at least one end portion of each half formed at an angle to the axis of the hinge 26 in the plane of said half such that when the halves are spread or unfolded the end portions will be in spaced-apart condition.

The improved bridge 20 is primarily used during a temporary colostomy procedure although it could be used in any procedure wherein an organ or vessel, i.e., vein, artery, intestine or the like, is removed from a body cavity and is to be supported in exposed position during some corrective or diagnostic treatment.

For the purpose of this description the use of the bridge is during a colostomy procedure, wherein an incision 14 is made in an abdominal wall 16. The surgeon eases a short stretch of intestine out through the incision forming a loop between the intestine and the abdominal wall. If the loop is too small to readily permit insertion of the bridge 20 in its unfolded state, the bridge 20 is folded to the dotted line position of FIG. 4 by squeezing the ends 32, 36 of the halves 22, 24 together. The folded bridge 20 is then positioned with the free ends 34, 38 of the halves 22, 24 projecting forward with the ends 34, 38 pointing into the open loop between the intestine and the abdominal wall. The ends 34, 38 are threaded through the loop in bridging relation to the incision and into the solid line position of FIG. 5 whereupon the ends 32, 36 are released and the two halves 22 and 24 are spread apart into the relatively flat position shown in dotted lines in FIG. 5. The intestine 18 is released thereby permitting it to rest upon the mid-portions 28 of the bridge 20. The bridge 20 has the wings or ends 32, 36 and 34, 38 spaced apart from each other to prevent the bridge from working out of the holding position. The halves 22 and 24 with the portion 28 of the outside edge 30 of each half form an integral flexible member for distributing the pressure from the intestine onto the bridge and from the bridge over a wide area of the abdominal wall on both sides of the incision which is a much more comfortable arrangement. With the plane of the bridge being relatively flat, i.e., see solid line positions of FIGS. 3 and 5, the bridge is free to assume any shape necessary to conform to the shape of the supporting surface. This last named feature also serves to distribute the load to the abdominal wall more evenly thereby reducing irritation caused by excessive pressure at one small location as was true of the prior round rod arrangement.

Due to the relatively thin and flat body conforming characteristic of the bridge 20, it is readily possible to affix the various drainage bags or devices to the patient around the intestine for collecting emissions from the opened intestine.

When it is desired to replace the intestine in the patient’s body, the incision in the intestine is closed and the intestine is eased away from the abdominal wall slightly. The bridge 20 is folded by pressing the ends 32, 36 (or 34, 38) together to the position shown in solid lines in FIG. 5. The bridge 20 is then threaded from the intestinal loop by backing it out (as shown in dotted lines in FIG. 5) along somewhat of an arc resembling the curvature of the bridge. Once the ends 34, 38 clear the loop the bridge can be discarded. The surgeon now returns the intestine to the abdominal cavity and closes the incision 14 by any one of the known methods.

The bridge is inexpensive to manufacture being molded of plastic or of materials of equivalent characteristics. The widespread ends or wings in two perpendicular planes provide wide support for the load on the bridge and at the same time prevent the bridge from working out from the incision-bridging loop-supporting position. The bridge has some flexibility in the plane perpendicular to the plane of the two halves 22, 24 when said two halves are spread out wide. The flexibility just referred to permits the bridge to conform to the shape of the supporting surface against which the bridge is urged.

It is to be understood that the bridge could be made in parts, i.e., each half separate, and could then be joined together in a way to form a hinge without departing from the spirit of the invention. The cross-sectional shape of the halves and the arcuate curvature thereof is also not to be considered as the only forms of the invention. In its broadest context it is contemplated that the bridge have two parts hinged together with one end of each part angled with respect to the axis of the hinge or shaped in such a way that upon spreading the parts the ends will be spaced apart so as to prevent the bridge from working out from beneath a supported member.

We claim:

1. For use during a surgical procedure such as that requiring a looped section of the anatomy to be supported externally of a body wall through an incision therein, a bridge having a pair of substantially flat elongate mating members, hinge means for hinging said members together on an axis parallel to the direction of elongation of said members, the end portions of each member being formed generally at an angle with respect to the axis of said hinge means whereby when said members are folded into face-to-face relation along said axis said end portions can be introduced through the opening between the looped section of the anatomy and the body wall and whereby when said members are unfolded generally into a common plane the outer ends of said end portions of the members will be spaced apart in a position to retain said bridge and said looped section in fixed relative position.
2. The bridge as claimed in claim 1 wherein each member is arcuately curved in the plane of said member.

3. For use during a surgical procedure such as that requiring a looped section of intestine to be supported externally of an abdominal wall through an incision therein, a colostomy bridge having a pair of substantially flat elongate mating members, means for hinging said members together on an axis parallel to the direction of elongation of said members, at least one end portion of each member being formed generally at an angle with respect to the axis of said hinging means whereby when said members are folded into face-to-face relation along said axis said one end portion can be introduced through the opening between the looped section of said intestine and the abdominal wall and whereby when said members are unfolded generally into a common plane the outer ends of said end portions of the members will be spaced apart in a position to retain said bridge and intestine in fixed relative position.

4. The colostomy bridge as claimed in claim 3 wherein each member is arcuately curved in the plane of said member.

5. The colostomy bridge as claimed in claim 4 wherein said hinging means is located at the midportion of each member and has an axis lying in the plane of each member.

6. The colostomy bridge as claimed in claim 5 wherein when said arcuately curved members are folded in abutting relation to each other the bridge assumes a single curved shape and when unfolded the bridge assumes a flat shape with the ends of the members spaced apart from each other.

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