

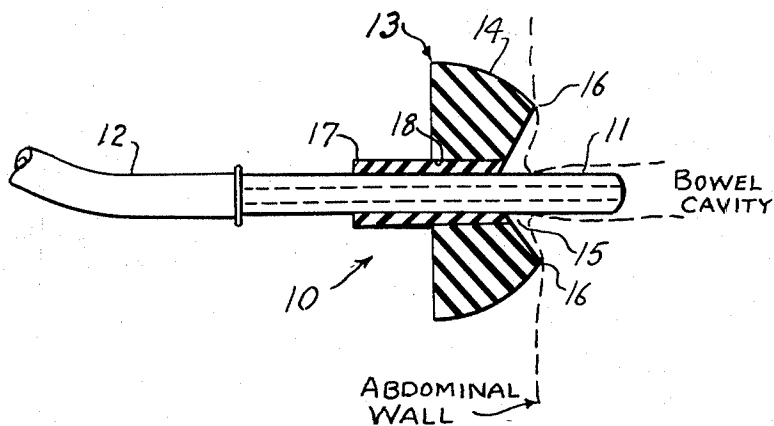
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COLOSTOMY SYRINGE NOZZLE OR THE LIKE

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COLOSTOMY SYRINGE NOZZLE OR THE LIKE

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2 Claims. (Cl. 128—239)

This invention pertains to a colostomy or ileostomy syringe nozzle and more particularly to such a nozzle having an improved flange of a particular shape.

A colostomy or ileostomy operation is performed when the lower portion of a bowel is obstructed, for example, by cancerous growth. To enable the elimination of waste material or faeces, the bowel is severed above the obstructed portion and an end of the unobstructed portion of the bowel—in a colostomy, the colon and in an ileostomy, the ileum—above the obstructed portion is fastened to the abdominal wall through an opening made therein. In such an operation, the end of the bowel is actually extended outwardly through the opening and flared and the flared end is then stitched to the abdominal wall. Thus the bowel actually protrudes through the opening slightly beyond the outer surface of the wall. The opening formed in such an operation is not circular but, rather, is ovaloid to better conform with the lateral cross-sectional shape of the bowel. Further, the periphery of the opening, being formed by the inner surface of the bowel, is irregularly corrugated due to the muscular nature of the bowel.

People who have undergone such operations generally discharge waste material from the bowel about twice a day by injecting water into the opening of a colostomy or ileostomy syringe. The syringe nozzle is then removed and the combined water and waste material is drained into an appropriate receptacle. This is, of course, a bothersome and messy task. Without further discussion, it will be readily understood that a prime objective of people who have undergone one of these operations is to maintain the utmost possible cleanliness in the discharging procedure. One of the best ways to maintain cleanliness is to provide a good seal between the syringe nozzle and the abdominal wall to effectively control the injected water and waste material.

Presently known colostomy and ileostomy syringe nozzles comprise injection tubes with flanges circumventing the tubes to limit the extent of penetration into the bowel opening and to form a seal so as to prevent leakage of the combined water and waste material. The flange of any known syringe nozzle has a semi-spherical or conical forward surface that contacts the periphery of the opening formed by the bowel, when the nozzle is in operating position. This flange, however, does not form an effective seal because of the corrugated periphery and ovaloid shape of the bowel opening. The cross-sectional shape of that portion of the nozzle flange contacting the opening is circular and the nozzle must, therefore, be pressed hard enough into the opening to stretch it to a circular shape so that its wall can contact the flange at all portions of its periphery. Even with sufficient pressure applied, an effective seal is not maintained because of the non-uniform pressure between the bowel opening and the flange which results in "weak spots" in the seal. Such weak spots enable the injected water and waste material to squirt out at inopportune moments. Further, the pressure applied to the periphery of the

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opening, and resulting stretching thereof, tends to be discomforting and may cause irritation.

The above disadvantages are eliminated by a nozzle designed according to the teaching of the present invention, which nozzle has an annular, shallow ridge formed on a forward surface of a flange by an off-set portion around an injecting tube extending concentrically through the flange. When the nozzle is in operating position, this ridge contacts the smooth skin of the abdominal wall around the bowel opening with uniform pressure. Only slight pressure is necessary since an effective seal is easily obtained between the smooth, annular surface of the ridge and the smooth surface of the abdominal wall and it is not necessary to stretch the periphery of the intestinal wall to conform it to a circular shape. The uniform pressure between the ridge and the abdominal wall also eliminates any weak spots in the seal through which water and waste material can be ejected. Further, a nozzle according to the invention can accommodate any size opening of any shape with equal facility, as long as the largest dimension of the opening is less than the diameter of the annular ridge.

Another advantage of a nozzle according to the invention is that the slight, annular pressure produced by the ridge on the abdominal wall tends to slightly bulge that portion of the skin within the confines of the ridge. This slight bulging tends to place a compressive force on the bowel opening and cause it to slightly contract. For small openings and small bowels, particularly the ileum, the bowel is gently pressed against the injection tube of the syringe nozzle by the compression effect. A double seal is thereby formed, between the bowel and the injection tube and between the ridge of the flange and the skin of the abdominal wall.

Still another important advantage of a syringe nozzle according to the invention is that the annular ridge can be slightly eccentrically placed around the opening in a different position each time the nozzle is used. The skin is thus contacted at different points during each discharging procedure and the bowel is not contacted at all, thus further preventing the possibility of irritation.

In a preferred embodiment of a syringe nozzle according to the invention, a sleeve is attached to the bore of the flange through which the injection tube extends. The sleeve frictionally engages the injection tube with slidable contact to enable the tube so be longitudinally adjusted with respect to the flange and thus vary the depth of penetration of the tube into the bowel cavity.

It is, therefore, a principal object of the present invention to provide a colostomy or ileostomy syringe nozzle that forms an effective seal with an abdominal wall when the nozzle is in an operating position.

Another object of the invention is to provide a syringe nozzle that produces an effective seal with an abdominal wall with less pressure applied to the nozzle.

A further object of the invention is to provide a colostomy or ileostomy syringe nozzle that is more comforting and less irritating to use.

A still further object of the invention is to provide a syringe nozzle with an adjustable flange by means of which penetration of the injection tube into a bowel cavity can be readily varied.

Other objects of the invention will be apparent from the following detailed description of a preferred embodiment thereof, reference being made to the accompanying drawing in which the single figure shows a partially cross-sectional view of a syringe designed according to the present invention.

Referring to the drawing, a syringe nozzle indicated at 10 has an injection tube 11 connected to a flexible conduit 12 which is attached to a pressure bulb or other suitable device (not shown), for supplying water under pressure

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through the injection tube 11 and into a bowel cavity, shown in dotted lines. Adjacent the open end of the injection tube 11 is a flange generally indicated at 13. This flange is preferably made of a somewhat resilient material, or coated with a resilient material, to enable it to be slightly deformable. The flange 13 has a forward surface 14 shown in the shape of a segment of a sphere but which can also be shaped as a truncated cone or variations thereof. A recess or depression 15 is formed in the flange 13 around the tube 11. The recess 15 is shown as having a conical shape, but can also be in the shape of a segment of a sphere, either concave or convex, or variations thereof. A ridge 16 is formed at the intersection of the surface 14 and the recess 15. The ridge 16 preferably has a shallow taper so as to exert gentle pressure on the abdominal wall.

The flange 13 is fitted with a sleeve 17 in a central bore 18. The sleeve 17 slidably engages the injection tube 11 so that the tube 11 can be longitudinally extended or withdrawn with respect to the flange 13 to properly set the depth of penetration of the tube 11 into the bowel cavity.

In operation, the tube 11 is inserted into a bowel cavity until the ridge 16 forms a slight pressure on the skin of the abdominal wall around the bowel opening. This slight pressure produces an effective, uniform contact between the skin and the ridge 16 regardless of the size of the bowel opening, the shape of it, or the amount the bowel that protrudes from the surface of the abdominal wall. This slight pressure also makes the skin within the confines of the ridge 16 slightly bulge and exert a small compressive force on the bowel opening. For smaller openings and bowels, the bowel is thereby gently pressed into contact with the injection tube 11 to form another seal. Thus, a first seal is formed between the inner surface of the bowel the injection tube 11, and a second seal is formed between the ridge 16 and the skin of the abdominal wall. Any leakage past the tube 11 around the bowel is still confined by the ridge 16. Further, each time the syringe nozzle 10 is used, it can be slightly off-set so that the ridge 16 is slightly eccentric with respect to the bowel opening. The ridge 16 thereby contacts the skin in a slightly different area each time

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and lessens the chance for irritation. Since only slight pressure is necessary to effect a good seal, greater comfort is also afforded the user.

It will be readily seen that the simple but effective syringe nozzle designed according to the teachings of the present invention has many advantages over presently known nozzles. The new nozzle forms an effective single or double seal with less pressure, with uniform contact, and with no resulting weak spots. The ridge of the flange of the nozzle can contact the skin at different areas each time it is used and need never contact the bowel itself. Further, a single sized syringe can be effectively used for many sizes and shapes of colostomy or ileostomy openings.

I claim:

1. A colostomy or ileostomy syringe nozzle comprising an injection tube having an open end adapted to fit into a bowel cavity in an abdominal wall, a resilient flange substantially concentrically engaging a portion of said tube perpendicular thereto, said flange having a converging forward surface with a recess portion concentrically located about said tube, said converging surface forming an annular ridge with said recess portion, the diameter of said ridge being sufficiently large to enable it to contact the abdominal wall around the bowel cavity without contacting the end of the bowel.

2. A colostomy or ileostomy syringe nozzle comprising an injection tube having an open end, a resilient flange substantially concentrically disposed about a portion of said tube and having a shallow ridge concentrically located on the surface of said flange adjacent the open end of said tube, said ridge being sufficiently large to circumvent an end of a bowel at an opening in an abdominal wall, and a sleeve between the flange and the tube which frictionally engages one of the tube and the flange and slidably engages the other to enable said tube to be longitudinally moved with respect to said flange.

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