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Commentary: Improvised Low-Cost Colostomy Appliance: Innovation Driven by Necessity

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Introduction

Colostomy creation is a common and often unavoidable practice in both adult and paediatric surgery. Beyond the clinical indication, many patients encounter psychosocial stigma associated with carrying a faecal collection bag.[1,2,3] In resource-limited settings, this challenge is exacerbated by the high costs and limited availability of standard colostomy bags.[1,4] This commentary describes a novel colostomy appliance improvised by a patient to mitigate the financial burden imposed by commercially available devices.

Patient and Improvised Colostomy Appliance

The patient, a 37-year-old cobbler, underwent abdomino-perineal resection for rectal adenocarcinoma with a permanent end sigmoid colostomy. Initially, he used commercially available colostomy bags (AI-generated sampled illustrations shown in Figure 1) for several weeks post-discharge. However, due to financial constraints, he discontinued these and was using cellophane bags secured to the peristomal skin with adhesive paper tape. Eventually, he developed a more practical, low-cost solution: a self-designed colostomy belt to which the cellophane bag could be attached.

The device consisted of a leather belt with a buckle, a plastic rim, cellophane bag and rubber band (Figure 2). The leather belt features a widened, double-breasted central ellipsoidal segment with an opening around which a rigid, flanged plastic rim is permanently fitted. A disposable cellophane bag is secured over the plastic rim with a rubber band, serving as the collection pouch. When worn around the abdomen (Figure 3), the stoma protrudes through the rim, allowing faecal effluent to drain directly into the attached bag. This device was easier to use, required no skin adhesive tape, and was easier to maintain without additional financial burden.

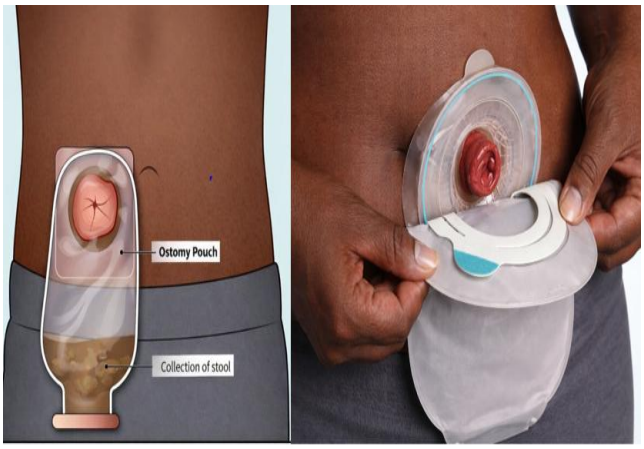

Figure 1: AI-generated sampled illustrations of commercially available colostomy bags

Figure 2: Self-designed leather colostomy belt featuring a rigid, flanged plastic rim protruding from a central opening on the ellipsoidal segment of the belt. A

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disposable cellophane bag is attached to the plastic rim by a rubber band.

Figure 3: Self-designed leather colostomy belt worn by the patient in the standing position, demonstrating a ball of faeces within the attached cellophane bag.

Discussion

The commercial colostomy bags are preferred for their aesthetic acceptability, adaptability, ease of use, comfort and enhanced psychosocial acceptance.[4] However, they are costly and often not readily available in some settings, with expenses reaching several dollars per day or tens per week without subsidies.[4,5,6]

In resource-limited environments, such expenses are frequently unaffordable, prompting the use of improvised alternatives. One example is the Zaria Colobelt, reported by Odigie VI et al, which was explicitly characterised as "cheap, affordable, and reusable".[7] Some patients who initially start with standard colostomy bags may later revert to homemade methods of stool collection due to financial constraints, as illustrated in the patient discussed herein. Similar adaptation have been documented elsewhere; for instance, one report detailed a patient who collected the empty containers of intravenous fluids used during her hospital admission and converted them into a colostomy collection system.[8]

The commonly employed improvised alternatives in low-resource settings include plastic or cellophane bags, jar lids, paper films or foils, cellotapes, plasters, elastic garters, wraparound waistbands, and cloth or leather belts.[4,9,10] The innovative design created by this patient utilising a leather belt is unsurprising, considering his occupation as a cobbler.

Although these homemade devices may lack the aesthetic appeal and adaptability of commercial colostomy bags, their economic advantage is significant and particularly desirable in our setting.[11] Notably, studies comparing these alternatives with standard bags have reported comparative effectiveness and safety, with some demonstrating improved quality-of-life scores.[4,9]

Conclusion

Improvised colostomy devices can provide a practical and cost-effective alternative in resource-limited settings, offering acceptable safety and functionality when standard commercial bags are unavailable or unaffordable.

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