A Plea for More Umbilical Stomas in Paediatric Surgical Practice
MV Vincent, SE Dundas Byles

INTRODUCTION
Enterostomy formation is commonly performed in paediatric surgical practice. Many surgical procedures in infants and children benefit from a periumbilically sited incision and stoma formation should be no exception. Because of the superior cosmesis following closure of an umbilically-sited colostomy or ileostomy, ease of stoma care and economic benefits, periumbilically sited stomas are an attractive alternative for use in both neonates and children.

Keywords: Children, developing countries, periumbilical incisions, umbilical stomas

CASE REPORT
A one-day old female neonate was referred to the paediatric surgical unit of the University Hospital of the West Indies after her newborn examination by the paediatrician at her local hospital revealed absence of an anal orifice. The baby had been born at term by normal spontaneous vaginal delivery to a 38-year old mother (G2 P1) whose antenatal history was uneventful. She weighed 3.22 kg at birth.

On surgical review, the neonate was active and pink with no dysmorphic features. Her abdomen was mildly distended, but soft and non-tender with no palpable masses. Perineal examination revealed well-formed buttocks with an anal dimple but no anal orifice. A rectovestibular fistula was noted through which extruded copious amounts of meconium and gas. She had no palpable vertebral or limb anomalies. Renal ultrasonography, cardiography and vertebral radiography were performed and excluded renal, cardiac and vertebral anomalies, respectively.

She remained well, tolerating breastfeeds and continued to decompress her bowel adequately through the fistula on the day of presentation. On Day 2 of life, a periumbilically sited stoma was performed. An infrumbral incision was made through which the contents of the peritoneal cavity were inspected. A urachal remnant was noted and divided, as were the medial umbilical ligaments.

The distal descending colon was mobilized and a loop colostomy was fashioned within the inferior umbilical skin crease. The proximal limb was sited superiorly to the distal limb. A fascial bridge was placed and the stoma matured using vicryl 3/0 sutures. Postoperative recovery was uneventful, the stoma became active within 24 hours and the baby was discharged home one week later. Prior to discharge, there was no evidence of peristomal skin excoriation or stomal prolapse.

At four months of age, the patient re-presented with a three day history of minimal passage of stool via the stoma. The mother reported that instead more stool was being passed perineally, via the rectovestibular fistula. On examination, the baby was noted to have stenosis of both the proximal and distal limbs of the colostomy. Both limbs were dilated up to a size nine Hegar dilator without anaesthesia and the baby was kept overnight for observations. Over the 24-hour observation period, she again began passing stool preferentially through the stoma and was thus discharged (Fig. 1).

She remained well, experiencing no further stomal stenosis and was electively re-admitted at eight months of age for posterior sagittal anorectoplasty (PSARP). At the end of the procedure, a Hegar #10 dilator was used to dilate the proximal limb of her umbilical stoma.

Fig. 1: Umbilical stoma as seen on day of colostomy closure (age four months).
The infant had a smooth postoperative recovery and was subsequently re-admitted electively at 18 months of age for closure of colostomy. The wound has since healed cosmetically (Fig. 2). Now two years of age, she is thriving and doing well. She is presently on a bowel management regime for treatment of anorectal malformation-associated constipation. This involves dietary manipulation and use of laxatives.

**DISCUSSION**

The first successful colostomy is said to have been performed by Duret in 1793 in a three-day old neonate with imperforate anus, who subsequently survived for 45 days (1). Today, stomas are surgical procedures frequently performed by paediatric surgeons, not only in the management of children with anorectal malformations (ARM) but also Hirschsprung’s disease, trauma, necrotizing enterocolitis and inflammatory bowel disease (2–4).

The search for a more cosmetically appealing stoma may well be attributed to Raza (5), who in 1977 reported his experience with performing umbilical colostomies in 101 adult patients. The emphasis on superior cosmesis is also highly regarded in paediatric surgery. As a result, an increasing number of surgical procedures in children are now being performed *via* an umbilical incision. These include umbilical and peri-umbilical herniorrhaphy (6), pyloromyotomy for pyloric stenosis (7), obtaining colonic biopsies for Hirschsprung’s disease (8), continent appendicostomy for bowel management in fecally incontinent children (9), continent conduit for managing urinary incontinence (10), transumbilical laparotomy for a wide range of surgical pathologies including jejunooileal atresias, intussusception and malrotation (11, 12) and a wide range of laparoscopic and laparoscopic-assisted procedures (13–15). The cosmetic outcome is excellent, as its position lies within a natural skin crease.

Another major advantage of umbilical stomas in neonates and infants is the decreased cost of care if a colostomy has been formed. The effluent from a colostomy is usually of a consistency (pasty or semi-solid) not likely to be associated with significant peristomal excoriation. As a result, colostomy bags are not mandatory as a normally fitted diaper is usually adequate to collect effluent drainage. This is particularly relevant in developing countries like Jamaica where colostomy care can be economically challenging, particularly because of the cost of colostomy bags. The patient hereupon reported has never used colostomy bags, relying solely on her nappy/diaper to collect effluent drainage from the umbilical stoma. If an ileostomy has been formed, however, we recommend usage of colostomy bags with the usual protection of the peristomal skin, for example application of barrier creams or wafers.

As Raza (5) initially observed in adults, complication rates of umbilically sited stomas in children are also minimal, comparing favourably with stomas sited elsewhere (2, 16).

The index patient, despite developing stomalstenosis, did not require surgical revision, with excellent response being obtained from stomal dilatation alone which did not require a general anaesthetic.

In an effort to decrease the risk of stomal prolapse which is one of the commonest complications of colostomy formation in the paediatric population (3, 17–19), we advocate adherence to the recommendation of using fixed portions of bowel when forming colostomies in neonates and infants using the periumbilical technique (3).

In summary, we recommend use of umbilical stomas in paediatric patients, particularly in neonates and infants, since they offer excellent cosmesis, minimal complications and are socio-economically advantageous.

**REFERENCES**