

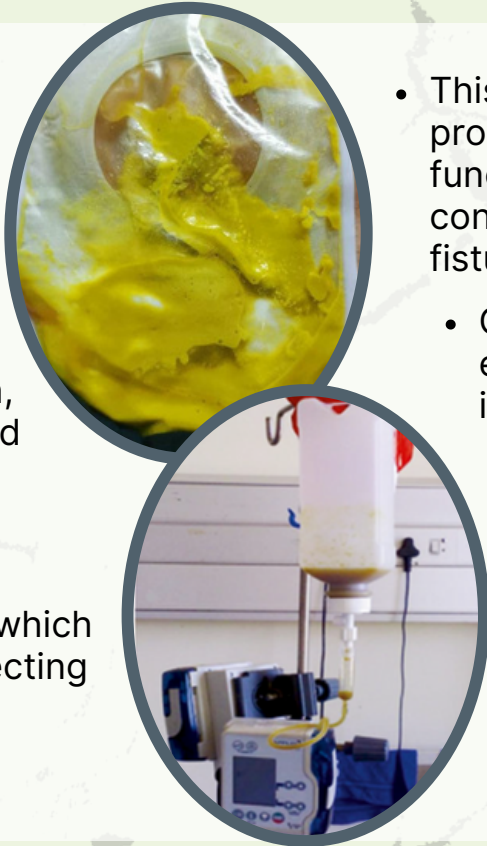
Managing High-Output Ileostomy with the INSIDES® System: Insights into Intestinal Adaptation and Body Composition Changes

Thiagaraj V^{1*}, Nor Ilyani M¹, Yunrong T¹, Alexander LZY¹, Guhan M², Sekappan T¹, Mahendran HA¹

¹ Department of General Surgery, Hospital Sultanah Aminah Johor Bahru
² Department of General Surgery, Hospital Canselor Tuanku Muhriz UKM
*Corresponding author: hmahendran@moh.gov.my

INTRODUCTION

- Greek roots of the word **enteroclysis**:
 - “Entero-” means “intestine” and “-clysis” means “a washing out” or “washing”
 - Refers to the process of flushing or **instilling liquid into the intestine**
- High ileostomy output can lead to dehydration, severe electrolyte imbalances, malnutrition and significantly reduced quality of life due to fluid loss, frequent bag changes, and related complications.
- Enteroclysis here refers to **chyme reinfusion** which involves restoring intestinal continuity by collecting chyme from a proximal stoma or fistula and externally reinfusing it into the distal bowel segment.

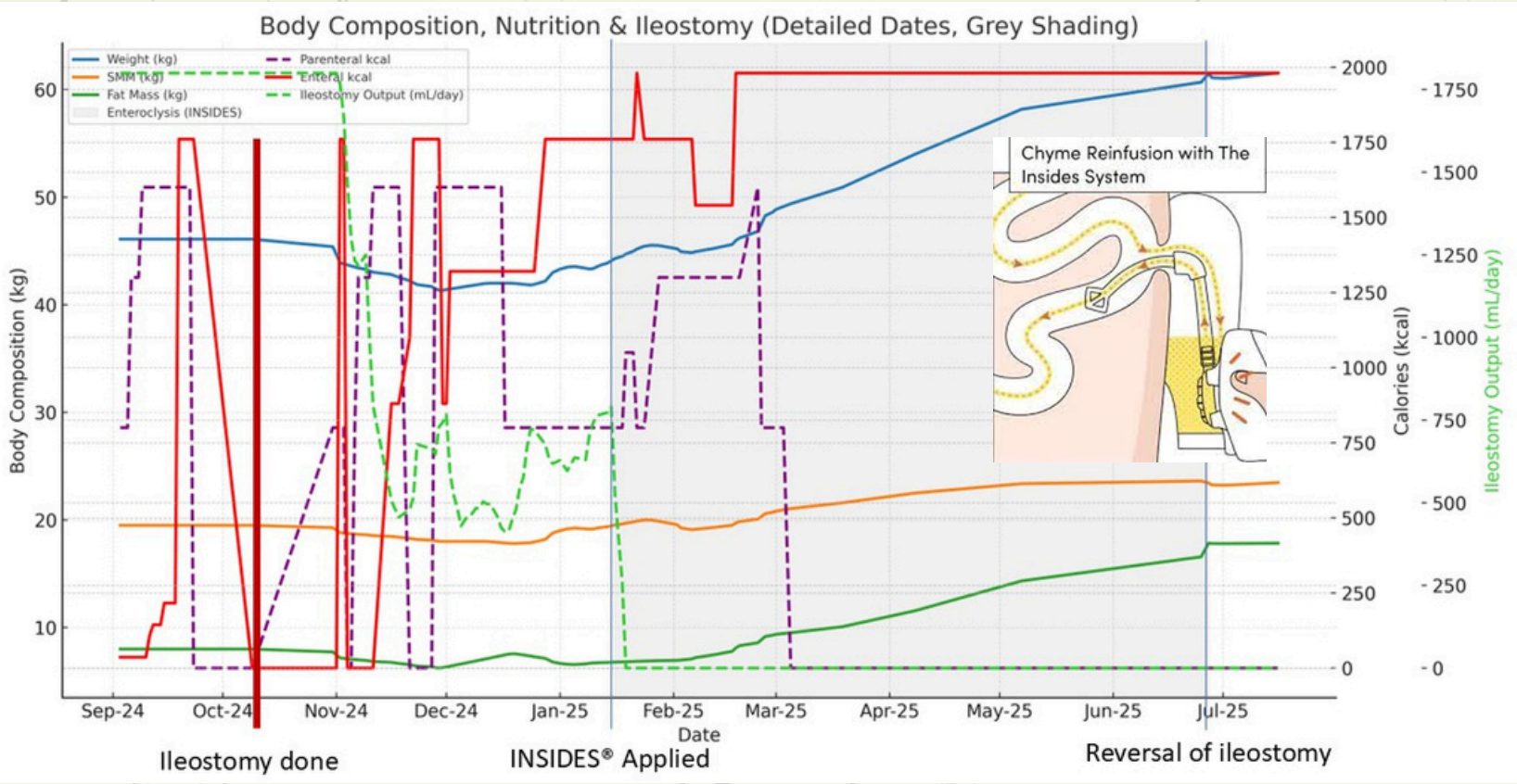


- This preserves physiological digestive processes, nutrient absorption, and gut function that would otherwise be lost with conventional enterostomy or high-output fistula management.
- Common factors for unsuccessful enteroclysis attempts: messy, labour intensive, inconvenient.
- The fluid and electrolyte shifts were often difficult to correct with intravenous fluids and parenteral nutrition; the INSIDES® system overcomes many of these problems.
- This is a case report of the first patient managed in Malaysia using this novel system.

CASE REPORT

This is a single case study of a 31-year-old gentleman who developed a small bowel obstruction secondary to inflammatory complications of typhoid infection. He underwent an emergency right hemicolectomy, and in view of sepsis and high inotropic support, a defunctioning ileostomy was fashioned.

- Parameters recorded for comparison before and after the introduction of the INSIDES® system:**
- Fluid requirements
 - Parenteral nutrition supplementation
 - Enteral nutrition provision
 - Ileostomy output discarded
 - Weight, skeletal muscle mass (SMM), fat mass (FM) in kg



Postoperatively, the patient had high ileostomy output exceeding 1L/day requiring fluid boluses and substantial parenteral nutrition, with transient kidney and liver injury that resolved.

During the first 8 weeks, erratic enteral and parenteral delivery amid sepsis caused weight and muscle loss.

After stabilization, stoma output settled at 500-700ml/day, yet 800kcal/day of parenteral nutrition remained.

After initiation of INSIDES®, enteral tolerance improved within 3 weeks; bowel motions returned by D5, normalized by D10.

Enteral intake was maximized and parenteral support weaned by 6 weeks.

SMM increased, electrolytes stabilized, and no device complications occurred thereafter fully.

DISCUSSION / CONCLUSION

Chyme reinfusion restores intestinal continuity in high-output ileostomy, enabling distal absorption, enterohepatic bile acid recycling, and normal gut hormone responses. This physiologic approach improves enteral tolerance, stabilizes hydration and electrolytes, and permits de-escalation of parenteral nutrition, limiting catheter-related infection and liver dysfunction.

In this case, the INSIDES® device was well tolerated, simplified stoma care, had no blockages, which supported practicality in routine use. In patients with high output ileostomy where there is no distal segment obstruction, the INSIDES® system can be very useful in managing these patients without the need for long term parenteral nutrition, offering a pathway to intestinal adaptation, weight and muscle recovery, timely stoma reversal - potentially improving quality of life.

REFERENCES

1. Levy E, Cosnes J, Parc R, Bloch P, Huguet C, Loygue J. Continuous reinstallation of chyme in digestive resuscitation: demonstration of negative retro-action on the digestive secretion output. *Nouv Presse Med.* 1978;8(10):782-783.
2. Thibault R, Picot D. Chyme reinfusion or enteroclysis in nutrition of patients with temporary double enterostomy or enterocutaneous fistula. *Curr Opin Clin Nutr Metab Care.* 2016;19(5):382-387.
3. The Insides Company. (n.d.) The Insides System™ (<https://www.theinsides.co/system>)