



Putting **patients**
at the **HEART**
of everything we do

NHS

London North West
University Healthcare
NHS Trust



Fistuloclysis (distal limb feeding)

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The Lennard-Jones
Intestinal Failure Unit



Overview

- Consider the evidence
- Describe the practicalities
- Present some cases

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Fistuloclysis/distal limb feeding

- Originally suggested in 1964
- Infusion of nutrients via a fistula, loop stoma or mucous fistula
- Sole source of nutrition or trophic
- Enteral nutrition &/or reinfusion of ostomy effluent (chyme)
 - Bolus or continuous

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When should we do it?

- There is downstream bowel
- It is safe to use the bowel
 - Always have a distal contrast study first
- There is a clear goal
 - Nutrition support or trophic
 - Defined period or long term
- The patient can cope with it physically & psychologically
 - Help in community limited

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Potential benefits

- Intestinal adaptation
- Prevent atrophy of distal intestine
 - Trigger enteroendocrine hormones, inc GLP-2
- Improvement in LFTs¹
 - Prevent cholestasis
 - Diversion colitis
- Reduction in upper fistula output
 - Inhibition of upper GI secretions²
- Reduction in PN³

Fistuloclysis case series

Initial case series¹

- 12 patients
 - ≥75cm of distal SB (ECF/stoma)
 - No chyme reinfusion
- Polymeric feed
 - 30ml/h, ↑ by 20ml/h/d until 90ml/h over 12-16h
- Side effects
 - Initial abdo discomfort &/or diarrhoea
- Outcome
 - 11/12 (92%) patients weaned off PN

Follow on series²

- 69 patients
- 51 (74%) weaned off PN
- 45 (65%) had successful reconstructive surgery

¹Teubner *et al* (2004) *BJS*;91:625

²Farrer *et al* (2014), *Clin Nutr ESPEN*,10,e189

Methods of feeding

Continuous

Bolus

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Which method?



Described in the literature

Permits reduction in or independence from PN

Can be fiddly, frustrating & time consuming

Issues with compliance & leakage



No published reports to date

Unlikely to allow a significant reduction in PN

Easier

Increased compliance & reduced leakage

Aims of treatment & patient preference

Tube selection

- Balloon gastrostomy
 - 14-24 Fr in literature
- Gastrojejunostomy
 - Longer than balloon gastrostomy
 - Expensive
- Foley catheter
 - Risk of inward migration
 - Not licensed for enteral use
- Fine bore feeding tube
 - For intermittent use only as no external fixator

Must be ISO (ENFIT™)
compliant

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Appliance selection

- Involve stoma team
- No specific appliances
 - Separate from output stoma
 - Loop or double barrel
 - Within laparostomy
- Is tube remaining in situ?
 - Can appliance be changed with tube in situ?
 - Continuous or bolus?
- Need to consider
 - Ease of application
 - Availability of product in community

Challenges



Creating a good skin seal

Tube port and fixator bigger than stoma diameter

Easier if tube can be inserted after stoma appliance applied

Stoma seals & creativity required



Seal between tube & appliance

Hollister universal cone

Fiddly, falls off if gets wet

Waterproof tape

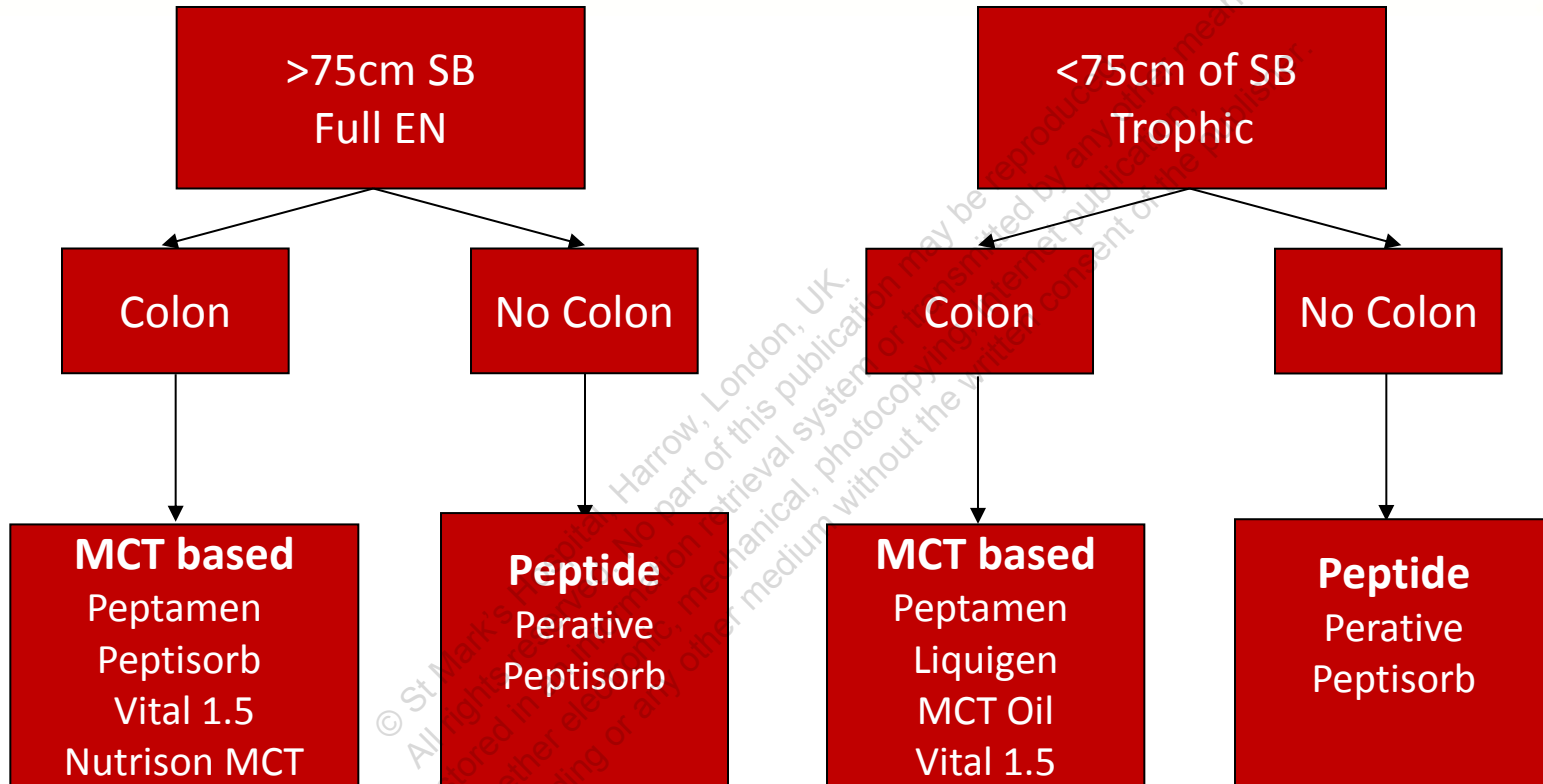
Slit in upper edge of bag



Which feed?

- No comparative studies
- Reports of polymeric, semi elemental & elemental tolerated
- May be beneficial to select MCT feeds if feeding into the colon

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If reinfusing chyme then polymeric 1st choice



Reinfusion of chyme (succus entericus)

- Semi fluid mass partly digested food
- Contains enzymes & bile
 - Salivary amylase, pepsin, pancreatic
 - Maintains enterohepatic circulation
- May promote absorption & adaptation
 - Vitamin B₁₂ absorption
- Alone or with enteral nutrition
 - Should be a fresh sample
 - Recycling after 90 mins may be harmful¹

¹Pataki et al, *J Pediatr Surg* 2013 **48**(3): 579.

Reinfusion of chyme

n=26

End double barrel jejunostomy n=16, loop stoma n=6, separate end stomas n=4

Median upstream small bowel length 127 ± 97 cm (20-250cm)

Parameter	Before reinfusion	During reinfusion	P value
Intestinal absorptive function			
Intestinal wet weight output (ml/day)	2384 ± 969	216 ± 242	<0.0001
Net digestive absorption nitrogen (%)	44.5 ± 12.5	84.0 ± 12.2	<0.0001
Net digestive absorption fat (%)	47.8 ± 25.0	89.3 ± 11.1	<0.0001
Parenteral nutrition delivery (n) (%)	17 (65)	2 (8)	<0.0001
Nutritional status			
BMI (kg/m ²)	20.6 ± 3.8	21.5 ± 3.4	<0.001
Serum albumin (g/dL)	2.8 ± 0.9	3.5 ± 0.9	0.0003



Monitoring

Same as for any
artificial nutrition
support

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Complications

- GI related
 - Nausea
 - Vomiting
 - Abdominal pain
 - Diarrhoea
- Tube related
 - Falls out
 - Blockage
 - Migration

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Sending a patient home

- Enteral nutrition & ancillaries
 - Dietitian
- Enteral tube
 - Nutrition nurse
- Stoma supplies
 - Stoma nurse
- Training plus troubleshooting
- Points of contact

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Case study 1

- 50 year old female
 - 2 years post bariatric surgery
- Complicated anatomy
 - Oesophageal stump not connected to stomach
 - Segment of stomach & duodenum to a stoma
 - 2 metres of floating bowel jejunostomy to ileostomy (not working)
- 100ml bd bolus 1.5kcal/ml polymeric feed
 - Ileostomy started functioning

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Case study 2

- 64 year old male
 - Sigmoid Ca
 - Ileostomy
- Infarcted bowel
 - Jejunostomy 60-70cm
 - Ascending colon mucous fistula
- Distal bowel not used for 14 years
 - 150 ml bd bolus 1.5kcal/ml semi-elemental
 - Bowels now opening
 - ↓ nights on PN

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Summary

- Fistuloclysis/distal feeding should be considered in patients with downstream bowel
 - Tailored to the needs of the patient
- Patient participation & MDT involvement essential
- More research required to optimise efficacy

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