

# THE UNDULATING PATH OF ENTEROCUTANEOUS FISTULAE

BAPEN Conference 2017

BAPEN Medical Trainee Symposium

Tuesday 21<sup>st</sup> November, Birmingham

## EXPERT PANEL

- Dr Martyn Dobb; Consultant Gastroenterologist , Royal Liverpool and Broadgreen University Hospitals NHS Trust
- Mr Paul Rooney; Colorectal Surgeon, Royal Liverpool and Broadgreen University Hospitals NHS Trust
- Ms Alyson Young; Consultant Nutrition Specialist Nurse, Royal Liverpool and Broadgreen University Hospitals NHS Trust
- Dr Jo Ablett; Consultant Clinical Psychologist, Salford Royal Hospital
- Ms Nicky Wyer; Senior Specialist Dietician, University Hospitals of Coventry and Warwickshire NHS Trust

# CASE HISTORY

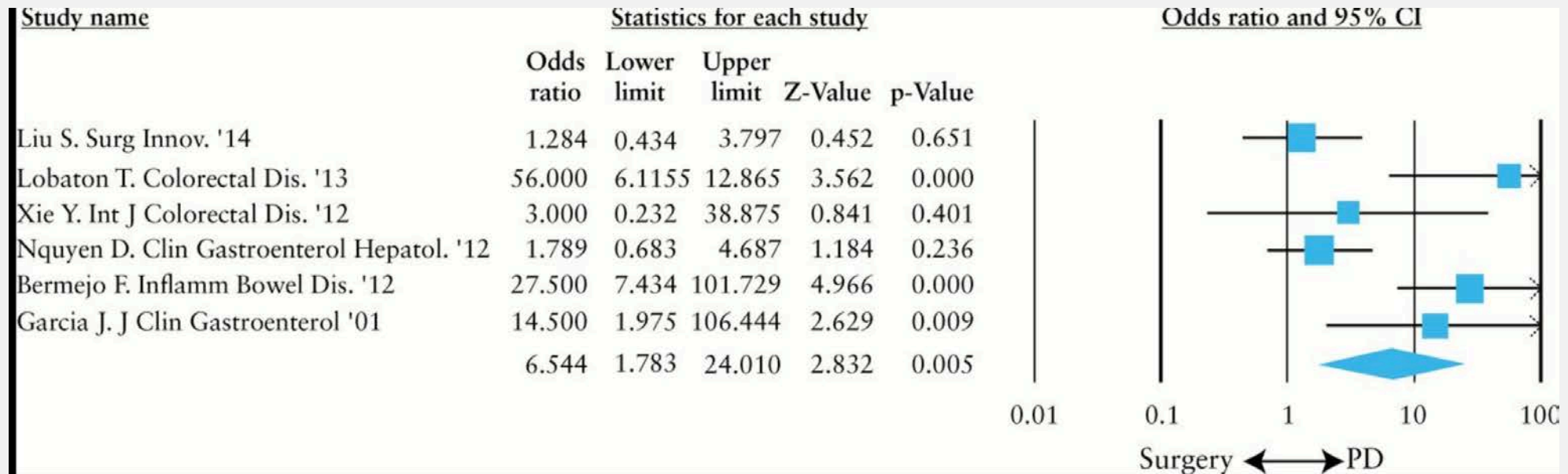
- 35 year old male with Crohn's disease- smoker
- Past surgical history – Subtotal Colectomy and small bowel resection, Side to End Ileorectal Anastomosis 2002
- Limited engagement with IBD therapies and clinics
  - Thought to be due to active life (restaurant owner with young family)
  - Suspicion of limited engagement with medical treatments
  - Colleague once asked to do a mitigation letter for driving 100mph+ whilst on steroids!
- Presented in 2011 with increasing diarrhoea, obstructive symptoms and weight loss.
- MR Small bowel shows stricturing at the anastomosis and 1 possible mid-ileal stricture
- BMI 17.8
- Treated with Exclusive Enteral Nutrition (EEN) (Modulen) and then low residue diet – Infliximab commenced

## CASE HISTORY

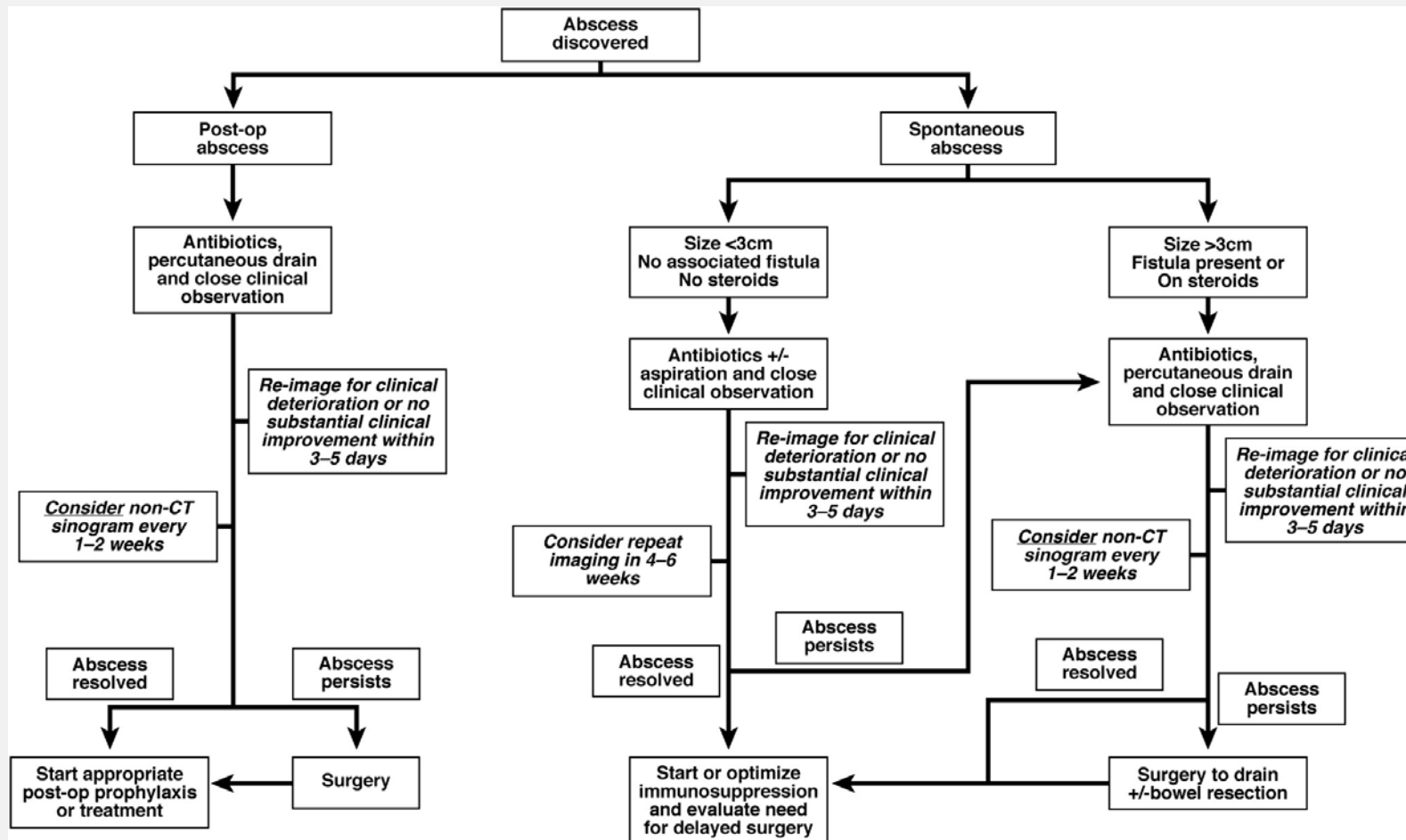
- 3/12/2011 admitted with pyrexia, lower abdominal pain and abscess near to the ileorectal anastomosis. Worsening obstructive symptoms. BMI 17.0
  - IR percutaneous drainage of abscess
  - Infliximab suspended
  - EEN restarted with supplemental PN
  - CT scan demonstrated resolution of pelvic collection, small bowel inflammation + dilatation (early Jan 2012)



# IR DRAINAGE VS IMMEDIATE SURGERY



# MANAGEMENT APPROACH OF ABSCESS



# CONTRAINDICATIONS TO PRIMARY ANASTOMOSIS

- ✓ Steroids
- ✓ Albumin under 30
- ✓ BMI under 18
- ✓ Intraabdominal sepsis
- Anti-TNF

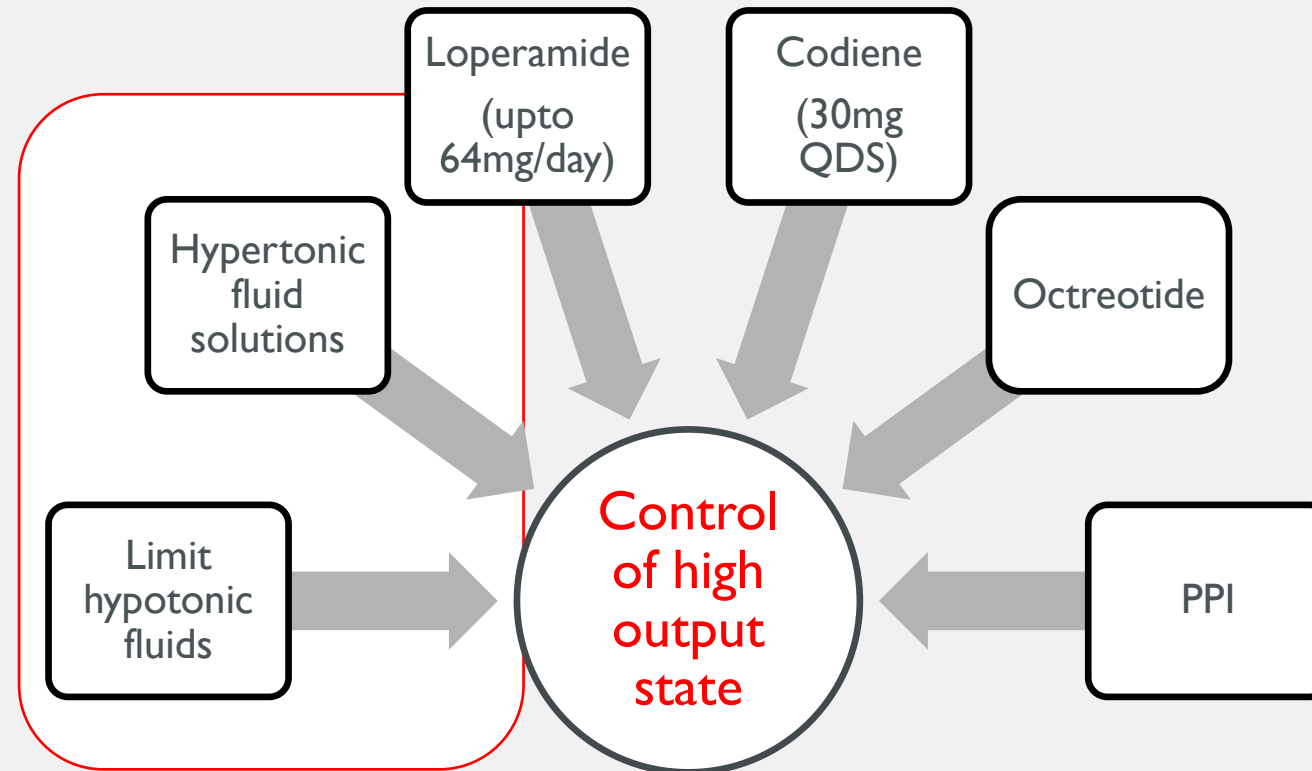


## CASE HISTORY

- 20/1/12 – Laparotomy (Cons Surgeon) Dense Adhesions. Defunctioning loop stoma – Jejunostomy. HPN commenced, due to proximal stoma and malnutrition.
- Psychologically struggled with control of stoma output and engaging with therapy
  - Drinking excess hypotonic fluids
  - Non-compliant with ORS / Loperamide
  - "You can just give me more TPN"
  - Output varying between 2-6L daily dependent on intake
  - Anxiety about heavily pregnant wife and financially supporting wife



# CONTROL OF HIGH OUTPUT PROXIMAL STOMA



# RATIONALE FOR LIMITING HYPOTONIC INTAKE



# ORAL REHYDRATION SOLUTIONS

	Sodium Content	Potassium Content	Energy (Kcal/L)
Double Strength Dioralyte	120mmol/L	40mmol/L	32
St Marks Solution	100-224mmol/L	0mmol/L	80
Glucodrate *	120mmol/L	0.9mmol/L	80
Cup a soup	96-150mmol/L	variable	variable



\*= Monitor U+E's and Bicarbonate – caution in OPD

# CASE HISTORY

- Proximal high output stoma. BMI 18 at time of surgery.
  - HPN 4 nights/week
  - Ongoing enteral intake
  - Loperamide/ORS/Codeine
  - Withheld IBD DMARD
  - BMI 20.4 after 6 months
  - Functionally good
- 18/9/12 – Elective Laparotomy (IBD surgeon) reversal of Jejunostomy, Adhesiolysis, abdominal wall reconstruction and end ileostomy (150cm SB)

# ABDOMINAL WALL RECONSTRUCTION VIDEO

- TOO BIG TO EMAIL

## CASE HISTORY

- 26/9/12 – Laparotomy, reformation of stoma and washout (Stoma necrosis) Further 5-10cm SB removed.
  - Good surgical recovery
  - HPN continued 4 nights a week (planned clinic wean)
  - Smoking cessation advice
  - BMI 19 in months following surgery
- 3/11/12 – Midline wound breakdown and development of Enterocutaneous fistula. Possible pre-stomal stricture on imaging. Fistulae output 50-250ml. Difficulty preventing wound contents contaminating the tunneled CVC line

CT IMAGE (DEC 2012)



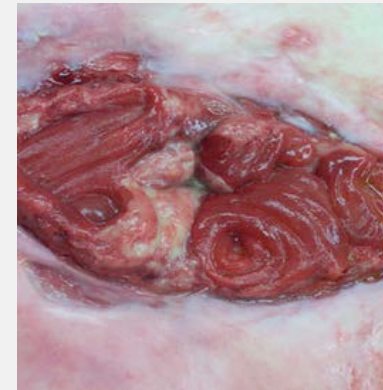
# WOUND CONTROL



# DELINEATING ANATOMY

Define/Delineate:-

- Fistulae
  - Internal/External
- Presence of Defunctioned segments
- Presence of Diseased segments
- Total length of viable bowel
- Presence of retained colon



Radiology

- Contrast studies
- SB enema/ BAFT
- Fistulogram
- Proctogram
- Urostography
- Tubogram



# NUTRITION IN EC FISTULAE:- EN VS PN

- Enteral Nutrition
  - Promotes gut barrier function and promotes adaptation
  - Physiological → Morale
  - Cost
- Parenteral Nutrition
  - Feeding blind ending cavity (if combined with clear fluids only)
  - Proximal high output fistulae (consider fistuloclysis)
  - SBS
  - Obstruction



1. Braunschweig C et al. Am J Clin Nutr. 2001; 534-42
2. Buchman AL et al. JPEN 1995; 19: 453-60
3. Woodcock NP et al. Nutrition 2001; 17: 1-12.

# PN REQUIREMENTS

- Without Colon

<200cm – Manage oral intake

<100cm – Parenteral Electrolytes

<75cm – PN and Saline

- With Colon

<80cm+Colon – Manage oral intake

## Factors modifying Fluid/PN dependence

- Disease (eg. Crohn's)
- Compliance
- Adaptation
  - GH
  - Teduglutide
  - ?Exanatide

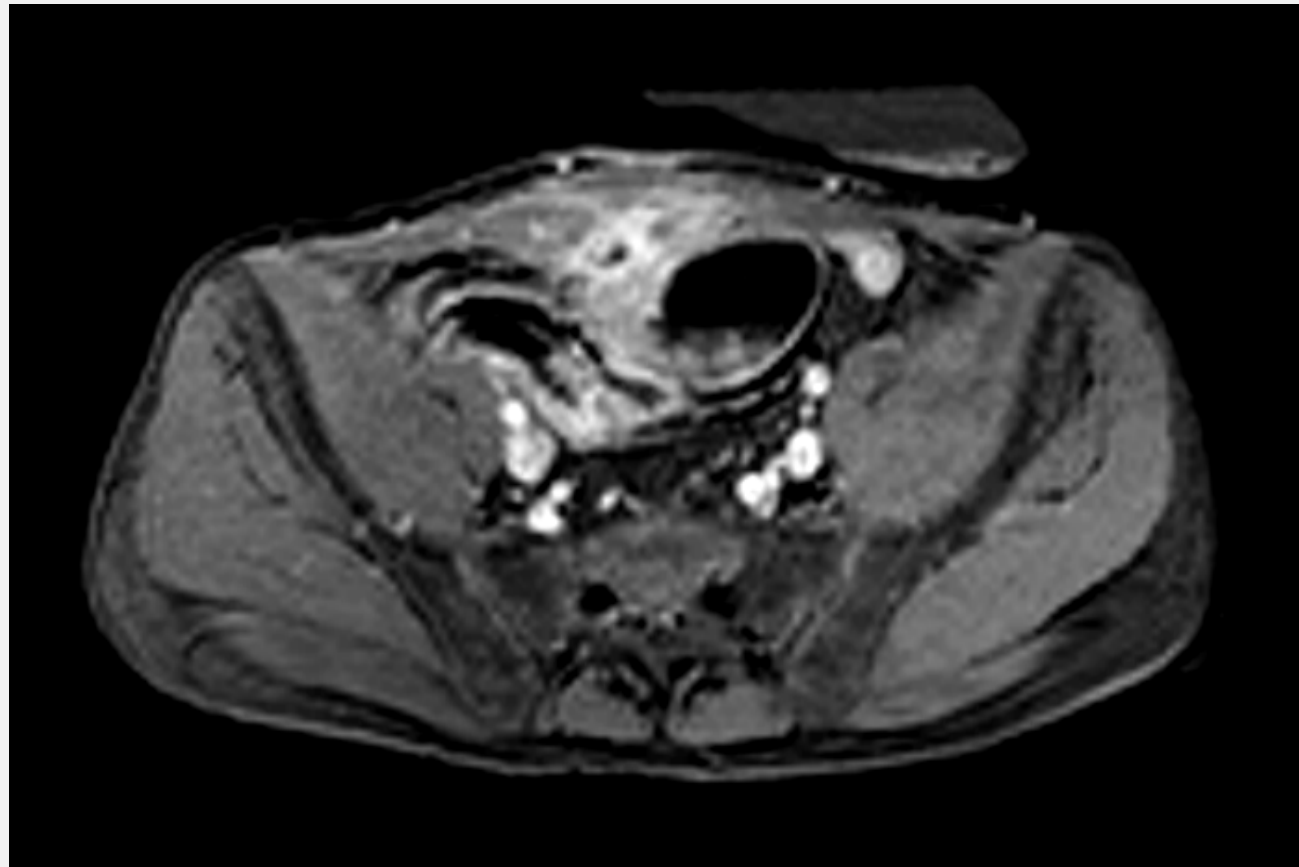


# FISTULA CLOSURE – SOMATASTATIN

## CASE HISTORY

- 30/1/13 – Refashioning of stoma, exploration of wound
- Gradual improvement with HPN and conservative management 2013. CRP improved from 106 to <5. Progress with BMI 15 → 16.5. Methotrexate.
- 22/8/2014 – Represented unwell with a pyrexia, raised CRP and recurrent UTI. Cholestasis and raised CRP. New small fistulae – adjacent to the stoma. Passes bowel contents via urine on occasion. CT Abdo – Thickened Ileal loops inseparable from the bladder. Oral Antibiotics (APRICOT regime – Ciproxin, Doxycycline, Hydrochloroquine)

MR IMAGE (NOV 2014)



## CASE HISTORY

- 11/11/14 – MR SB – Distal Ileal loop thickening, with an enhancing fistulae towards the bladder and to the skin. Underneath the base of the fistulae – 15mm Abscess.
  - Abscess too small to be drained
  - IV Ertepenum
  - Infliximab with antibiotic cover once CRP improved
  - During 2015 remained on TPN, initiated Azathioprine (vomiting).
  - Switched to low dose 6MP
  - BMI 17 HPN 6 nights a week.
  - Fistulogram – Complex fistulous communication (entero-enteral, Enterocutaneous and enterovesical)



# SEPSIS

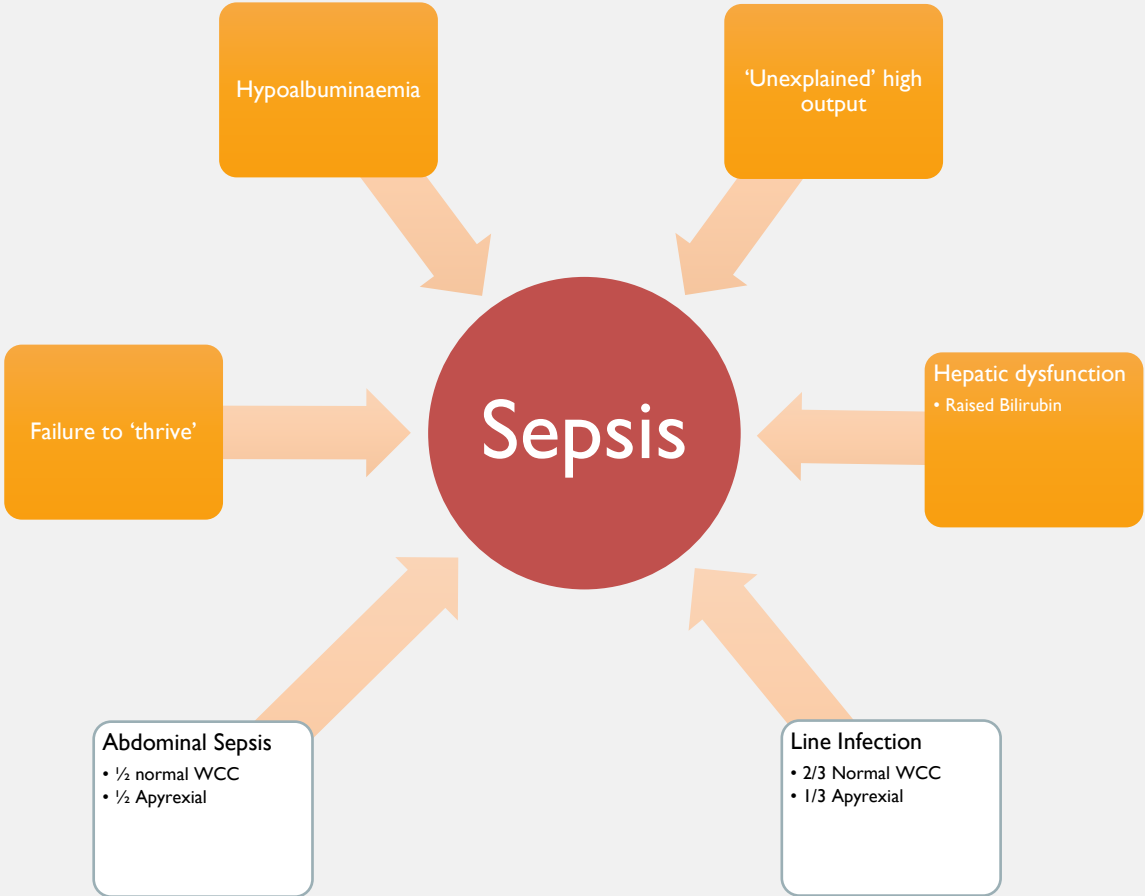
**Table 7** Factors associated with mortality in 174 patients with postoperative enterocutaneous fistulas (univariate and multivariate analysis)

Variable	Number of dead patients/total	Univariate analysis <i>p</i> Value	Multivariate analysis	
			OR (95% CI)	<i>p</i> Value
Serum albumin <3 g/dl				
Yes	22/114 (19%)	0.002	5.389 (0.487–59.594)	0.170
No	1/60 (2%)			
High output				
Yes	16/57 (28%)	0.001	1.479 (0.368–5.938)	0.581
No	7/117 (6%)			
Hydroelectrolytic imbalance				
Yes	17/68 (25%)	0.001	1.512 (0.337–6.782)	0.590
No	6/106 (6%)			
Multiple fistulas				
Yes	13/32 (40%)	0.001	5.881 (1.487–23.253)	0.012
No	10/142 (7%)			
Sepsis				
Yes	22/80 (27%)	0.001	16.59 (1.84–149.05)	0.012
No	1/94 (1%)			
Jejunal fistula				
Yes	14/48 (29%)	0.001	4.628 (1.167–18.346)	0.029
No	9/126 (7%)			
Complex tract				
Yes	5/15 (33%)	0.032	1.509 (0.205–11.095)	0.686
No	18/159 (11%)			

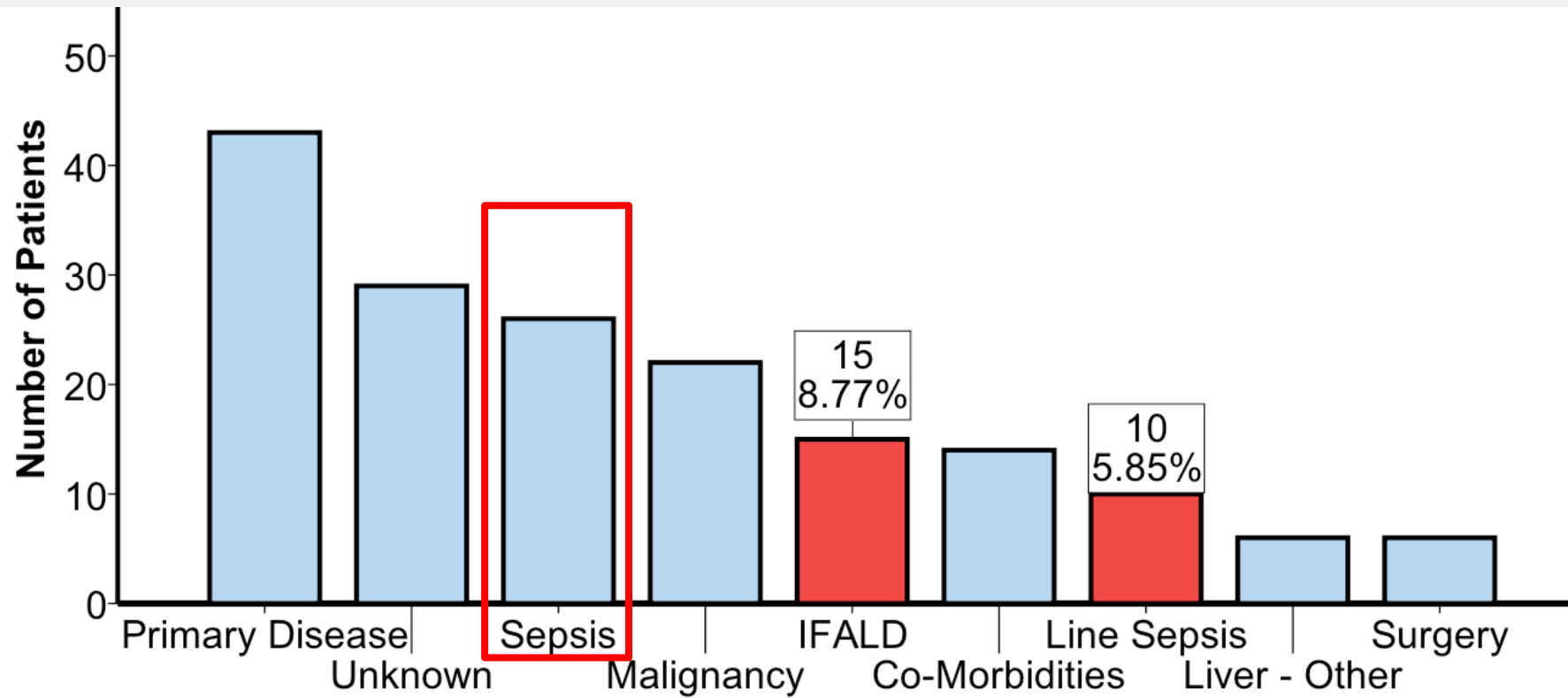
OR odds ratio (mortality versus survival)



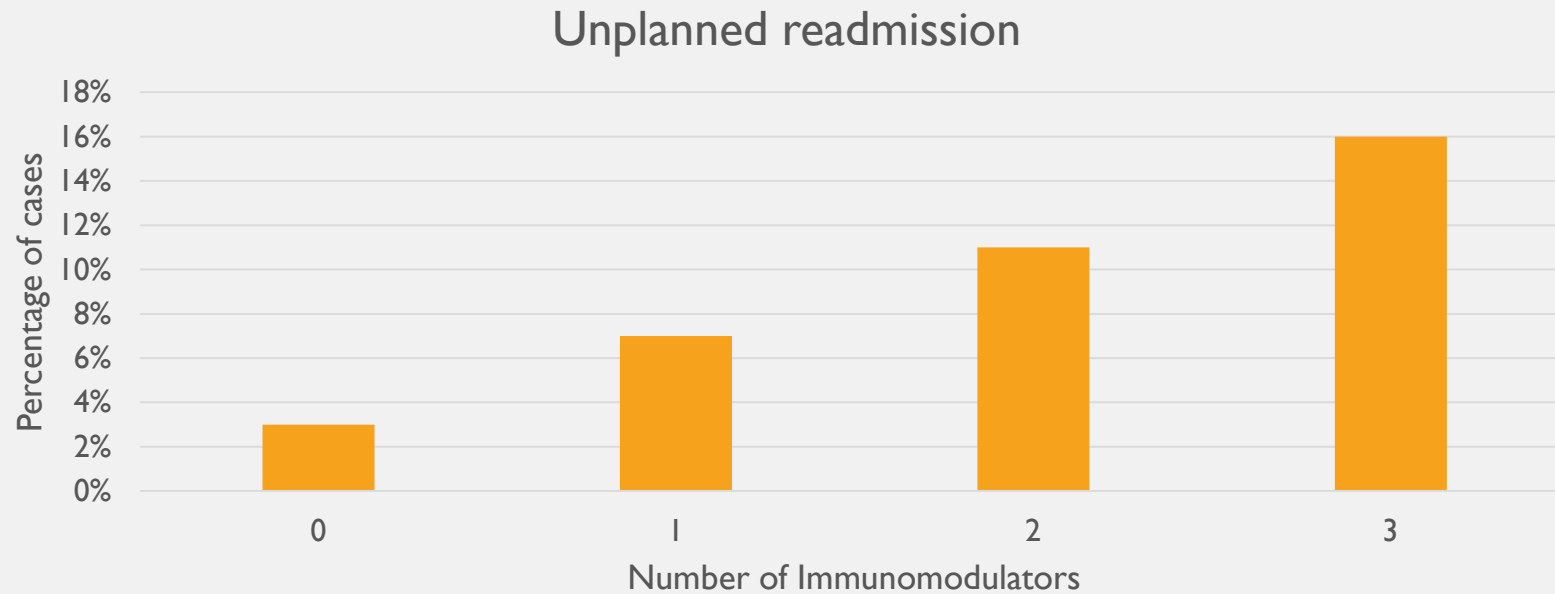
# SEPSIS



# SEPSIS



# IMMUNOMODULATORS AND SURGERY



## IBD THERAPIES AND IF

Agent	Abscess	Phlegemon	ECF (+Sepsis)	ECF (-Sepsis)
Antibiotics	Yes	?Yes	YES	?No
EEN	Yes (If not worsening uncontrolled sepsis)	YES	Yes (if not worsening uncontrolled sepsis)	Yes
Thiopurine	Continue (Don't initiate)	Continue (Don't initiate)	Continue (Don't initiate)	Yes
Anti-TNF	No	Yes ?Antibiotic cover	Yes ?Timing post-antibiotics	Yes
Vedolizumab	?	?	?	?Yes
Ustekinumab	?	?Yes	?	Yes

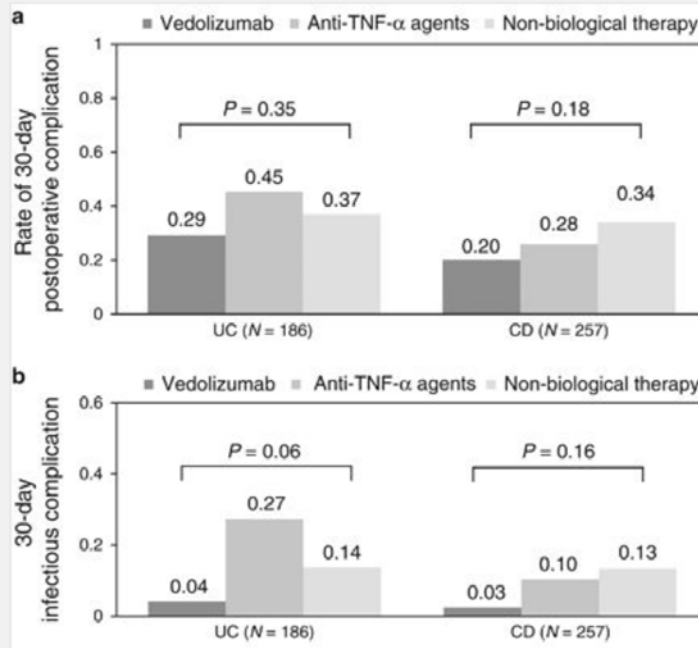


# IBD THERAPIES AND SURGERY

Agent	Post-Operative Infection Risk	Evidence
Thiopurine	Yes	
Anti-TNF	Yes	Morar et al, JCC 2015
Combination Therapy	Yes	White EC et al Dis Colon Rectum 2012
Vedolizumab	Yes (Primary Pouch Surgery)	Ferrante et al, JCC 2017
Ustekinumab	?Yes	Lightner et al, Poster presentation 2017



# VEDOLIZUMAB AND POST-OPERATIVE COMPLICATIONS



- Mayo Group (Lightner et al)
- Vedo and UC – Similar Infectious complications to Anti-TNF
- Higher risk of intra abdominal abscesses in Primary Ileoanal Pouch formations



# CASE HISTORY

- Laparotomy and SB resection Oct 2016
- 90cm SB to end-ileostomy
- Early recommencement of 6MP
- Adalimumab started once wounds healed
- Stopped smoking
- Psychologically struggled with impact of illness
  - Anxiety
  - Agoraphobia (tunnel under the Mersey)
  - Having to engage with treatment to reach home
  - Citalopram Drops 10mg OD

# TODAY

- BMI 23.4
- Well – Slightly subtherapeutic Adalimumab /Azathioprine
- TPN reduction to 5/7 (aiming to reduce to 3 nights week)
- Optimize immunosuppression
- Not smoking.