

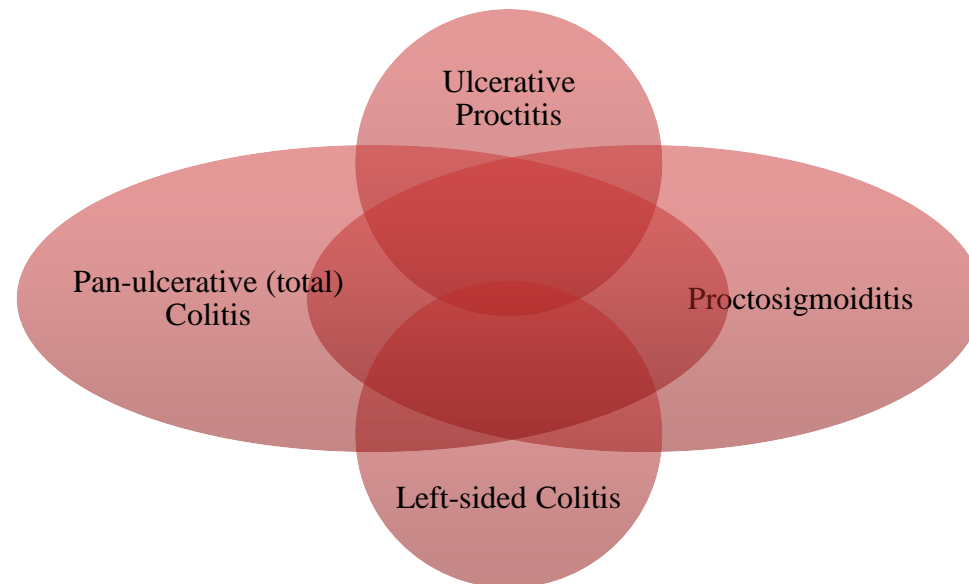
# ULCERATIVE COLITIS WITH HEMORRHOIDS

SHWETA D. KAMBLI

R.D. INTERN

# ULCERATIVE COLITIS

- ▶ Inflammatory bowel disease (IBD) encompasses both ulcerative colitis (UC) and Crohn's disease (CD).
- ▶ Ulcerative colitis affects the colon and rectum and typically involves only the innermost lining or mucosa, manifesting as continuous areas of inflammation and ulceration.
- ▶ The different types of ulcerative colitis are classified according to the location and the extent of inflammation.



## Ulcerative Colitis



proctitis



proctosigmoiditis



distal colitis



pancolitis

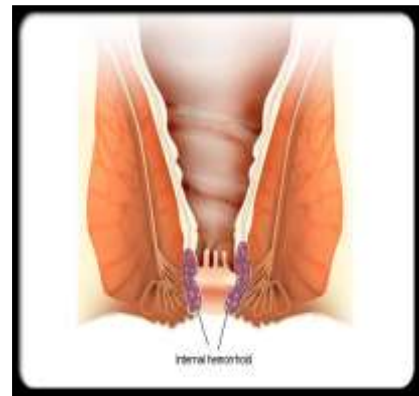
## SYMPTOMS OF PAN-ULCERATIVE COLITIS:

- ▶ Abdominal pain and cramps
- ▶ Diarrhea with blood, mucus and/or pus
- ▶ Tenesmus - feeling the need to pass stools despite bowel being empty
- ▶ Fatigue
- ▶ Weight loss
- ▶ Fever

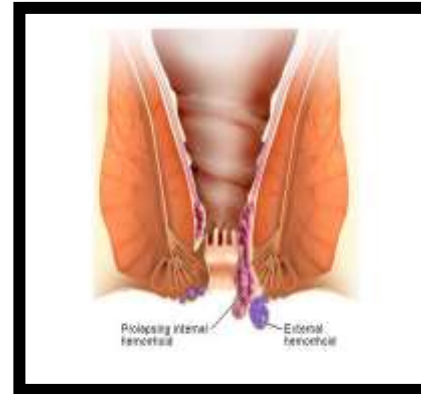
**H**emorrhoids are ruptured blood vessels located near the anal sphincter.

- These vascular structure under any normal condition act as cushions that facilitate stool control.
- They become pathological or piles when swollen or inflamed. At this point the condition is technically known as **hemorrhoidal disease**.

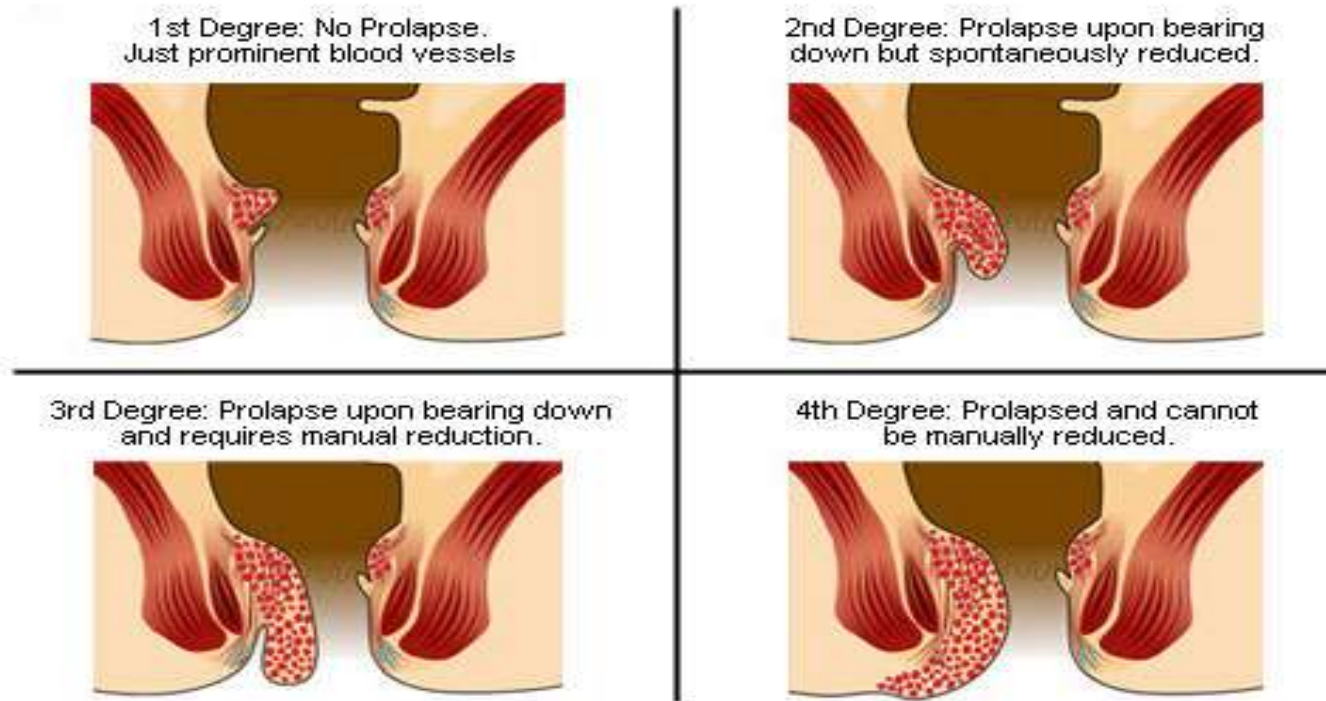
**Internal Hemorrhoid**

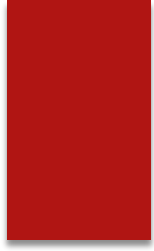


**External Hemorrhoid**



Internal hemorrhoids are further graded based on their appearance and degree of prolapse, known as **Goligher's classification**.





## **Hemorrhoidectomy (Operative management)**

- Excisional hemorrhoidectomy is the most effective treatment for hemorrhoids with the lowest rate of recurrence compared to other methods.
- In clinical practice, the third-degree or fourth-degree internal hemorrhoids are the main indication for hemorrhoidectomy.

# PATIENT PROFILE

- ▶ Name: Mrs. XYZ
- ▶ Age: 53 years
- ▶ Gender: Female
- ▶ Community: Gujrati (Jain)
- ▶ State: Maharashtra
- ▶ Residential area: Urban
- ▶ Economic Status: Upper middle class
- ▶ Addictions: None
- ▶ Dietary pattern: Jain (no onion, no garlic)
- ▶ SGA Score: A
- ▶ Date of Admission: 7/12/2016
- ▶ Date of Discharge: 12/12/2016
- ▶ Length of hospital stay: 6 days



# ANTHROPOMETRIC ASSESSMENT

MEASUREMENTS	VALUES
Height	157cms
Weight	50kg
Body mass index (BMI)	20.28 Kg/m <sup>2</sup>
Ideal Body Weight (IBW)	52kg

# CLINICAL ASSESSMENT

- ▶ **Present Complaints:** k/c/o Ulcerative colitis on medications. Pain in the abdomen, loose stools; now admitted with c/o bleeding with swelling protruding out of the anal canal since last 15 days.
- ▶ **Past Medical History:** k/c/o Ulcerative Colitis. Past s/o Hysterectomy done 27 years back.
- ▶ Colonoscopy done on 22/11/2016 which indicated pan ulcerative colitis with grade 3 internal and external hemorrhoids.
- ▶ **Operative details:** Hemorrhoidectomy with excision of anal skin tags and lateral anal sphincterotomy.

**Final Medical Diagnosis: HEMORRHOIDS WITH FISSURE.**

# BIOCHEMICAL ASSESSMENT

## a. Blood Investigations:

TEST	7/12/2016	9/12/2016	11/12/2016	REFERENCE RANGE
WBC	7.07	7.09	7.08	4-10 10 <sup>3</sup> /uL
Hemoglobin	11.2	11.2	11.5	11.5-16g/dL
Platelets	359	359	360	140-440 10 <sup>3</sup> /uL
Sodium	145	140	139	137-145mmol/L
Potassium	5.4	4.5	4.10	3.5-5.1mmol/L
Chloride	108	106	100	98-107 mmol/L
Fasting Blood sugar	99	-	-	65-165mg/dL
Serum Creatinine	0.7	0.7	0.7	0.7-1.2mg/dL

b. Other Investigations:

<b>Date</b>	<b>Time</b>	<b>Temperature (F)</b>	<b>Pulse (b/min)</b>	<b>Respiration (b/min)</b>	<b>Blood Pressure (mmHg)</b>	<b>SPO2</b>
7/12/2016	10:00am	98	72	22	110/70	98%
8/12/2016	10:00am	98	72	22	110/70	97%
9/12/2016	10:00am	97	62	20	100/60	96%
10/12/2016	10:00am	98	82	20	110/70	97%
11/12/2016	10:00am	98	75	20	110/70	98%



# MEDICATIONS DURING HOSPITAL STAY

MEDICATION	DOSAGE	MECHANISM OF ACTION	SIDE EFFECTS
Tab. Orni O	1-0-1	Works by Inhibiting the growth of microorganism and killing the infection causing bacteria.	Loss Of Appetite For Food, Dizziness, Diarrhea
Tab. Nexpro 40 mg	1-0-1	Works by lowering the acid production in the stomach.	Nausea, Headache, Abdominal pain, Constipation, Diarrhoea, Flatulence
Syp. Duphalac 30ml	At bedtime	An oral solution which works by drawing water into the intestine through osmosis, that makes the stools soft and easier to pass.	Dehydration, Drug dependence
Saazo 500	2-0-2	Works by blocking the action of certain chemical messengers that are responsible for inflammation.	Reduced blood platelets, Rash, Joint pain, Abdominal pain, Indigestion, Decreased white blood cell count, Diarrhoea, Decreased appetite.
Softovac powder	1 tsp. in 1 glass of water	Works by increasing the quantity of water in the stool	Stomach Cramping

# **D**IETARY ASSESSMENT : 24Hr. Home diet recall





## *Nutritional calculation of home diet recall*

- ▶ Energy: 1071Kcal (21Kcal/Kg BW)
- ▶ Proteins: 25g (0.5g/Kg BW)
- ▶ HBV: 4.95g
- ▶ Carbohydrate: 152g (57% of TC)
- ▶ Fats: 44g (37% of TC)
- ▶ Calories to Nitrogen ratio: 268:1

### ▶ Interpretation of home diet recall:

- ▶ The recall indicates that the patient consumes low calories than required.
- ▶ There is severe lack of protein in the diet.
- ▶ No cereal pulse combination recipes included.
- ▶ The consumption of fruits and vegetables is almost negligible.
- ▶ There is a regular consumption of pickle and papad in the diet.

# NUTRITION ASSESSMENT SUMMARY

- ▶ BMI = 20.28 Kg/m<sup>2</sup> which indicates that the patient is within the normal range of BMI.

Classification	BMI(kg/m <sup>2</sup> )	
	Principal cut-off points	Additional cut-off points
Normal range	18.50 - 24.99	18.50 - 22.99
		23.00 - 24.99

*Source: Adapted from WHO, 1995, WHO, 2000 and WHO 2004.*

- ▶ SGA Score –A (Well nourished)
- ▶ Low hemoglobin levels indicating the presence of Anemia. Hence, provide optimal iron through diet and nutrition supplement. Include source of Vitamin C in the diet to enhance the absorption of Iron.

# MEDICAL NUTRITION THERAPY

**ENERGY:** Patient with a significant weight loss should be started on a refeeding calorie level (20–25 kcal/kg) and monitored before advancing to a higher calorie goal.

Suggested energy requirements for patients based on Body Mass Index (BMI).

BMI (kg/m <sup>2</sup> )	Energy Requirements (kcal/Kg/d)
< 15	36–45
15–19	31–35
20–29	26–30
> 30	15–25

*(Kelly Anne Eiden, M.S., R.D., CNSD; Nutritional Considerations in Inflammatory Bowel Disease; PRACTICAL GASTROENTEROLOGY • MAY 2003)*

## **PROTEIN:**

- Patients with IBD may have increased protein needs due to losses from inflammation of the intestinal tract, catabolism when an infection is present (i.e. abscess) and possibly for healing if patient requires surgery. Protein needs are assessed based on disease status and body weight.
- The recommended daily allowance (RDA) for protein is 0.8g/kg actual weight.
- The majority of IBD patients free from renal disease require approximately 1.0–1.5g/kg body weight.

*Klein S; A Primer of Nutritional Support for Gastroenterologists. Gastroenterology, 2002*

## **GLUTAMINE:**

- Glutamine has been studied in the treatment of IBD due to its role as a fuel for rapidly replicating cells such as those lining the intestinal tract mucosa.
- In animal studies, glutamine has been found to improve gut mucosa and decrease damage after certain drug treatments.

*Dieleman LA, Heizer WD. Nutritional issues in inflammatory bowel disease. Gastroenterol Clin N Am, 1998;27:435-451.*

## **FODMAPS:**

- FODMAPs are sugars (carbohydrates) in the foods that are poorly absorbed by the gut.
- The intestinal bacteria in the gut can react to these foods and cause abdominal pain, gas, bloating, diarrhea and/or constipation.
- Reducing intake of high FODMAP foods may also help decrease GI symptoms for patients with Crohn's or Ulcerative Colitis (Inflammatory Bowel Diseases or IBD).
- FODMAP is an acronym for:
  - Fermentable (produces gas in the intestines)
  - Oligosaccharides (fructans and galactans/GOS)
  - Disaccharides (lactose)
  - Monosaccharides (excess fructose) And
  - Polyols (sugar alcohols like sorbitol, maltitol, mannitol, xylitol and isomalt)

## SHORT CHAIN FATTY ACIDS:

- They are mainly produced during fermentation of the soluble dietary fiber by beneficial large intestinal bacteria.
- SCFA are considered the main nutrients for the large intestinal lining cells; they also increase the blood flow, muscle activity and water absorption in the colon.
- SCFA are partly used as food for beneficial bacteria and partly they are absorbed and metabolized.

(Graham TO, Kandil HM. Nutritional factors in inflammatory bowel disease. Gastroenterol Clin N Am, 2002;31:203-218.)

- SCFA have immunomodulatory properties, they accelerate healing and regeneration processes of the intestinal epithelium, and they lower colonic pH thereby stimulating growth of the beneficial microflora and inhibiting growth of the pathogens.

(Pituch-Zdanowska, A., Banaszkiwicz, A., & Albrecht, P. (2015). The role of dietary fibre in inflammatory bowel disease. Przegląd Gastroenterologiczny, 10(3), 135–141.)

## PROBIOTIC:

- Researchers have examined the effects of probiotic supplementation in UC patients. Probiotic bacteria may include Lactobacilli, Streptococci, Bifidobacteria, and certain E. coli subspecies. Probiotics may be effective in UC because of lactic acid production, which reduces luminal pH content, inhibiting growth harmful bacteria.

*(Silva M, Jacobus NV, Deneke C, Gorbach SL. Antimicrobial substance from a human Lactobacillus strain. Antimicrob Agents Chemother 1987; 31:1231-1233.)*

- Another possible explanation is bacteriocin production, resulting in a direct antibacterial action.

*(Atrih A, Rekhif N, Michel M, Lefebvre G. Detection of bacteriocins produced by Lactobacillus plantarum strains isolated from different foods. Microbios 1993; 75:117-123.)*

## IRON:

- Blood losses, more prevalent in UC, can lead to iron deficiency anemia. This can be difficult to correct with diet alone. Iron supplements and iron rich foods may have enhanced absorption when a source of vitamin C is ingested at the same time.

*(Sturniolo GC, Tuccari G, D'Inca R, et al. Mucosal iron concentration and immunohistochemical evidence of iron-binding proteins in long-standing ulcerative colitis. Ital J Gastroenterol 1993;25: A68.)*

# CASE PROGRESSION

Day 1	Hemorrhoidectomy on 7/12/2016, Patient was NBM. Clear liquids at night
Day 2 – Day 3	Full liquids + Soft bland diet
Day 4 - Day 5	Soft bland diet
Day 6	Full bland diet



# SHORT TERM GOALS OF MANAGEMENT

- ▶ To treat symptoms and prevent complications.
- ▶ To prevent the progression of the complications and manage them.
- ▶ Reduce intestinal inflammation and if possible heal the mucosa.
- ▶ Eliminate symptoms and minimize side effects and long-term adverse effects.
- ▶ To correct nutritional deficiency if any.
- ▶ Maintain a good nutritional status.
- ▶ To provide adequate nutrition to avoid macronutrient and micronutrient deficiencies.
- ▶ To provide adequate protein with high Biological value to ensure anabolism and to prevent Protein breakdown for Energy Synthesis.
- ▶ To improve and maintain the nutrition status.
- ▶ Improve and maintain patients' general well-being (optimizing the quality of life, as seen from the patient's perspective).



# HOSPITAL PRESCRIBED DIET

## *Nutritional calculation of Hospital diet*

### *(Full liquids + Soft bland diet)- Day 2 & Day 3*

- ▶ Type of diet: Full liquids + Soft bland diet
- ▶ Frequency of meals: 7 small frequent meals
- ▶ Consistency of diet: full liquids + Soft diet
- ▶ Energy: 1387Kcal (27Kcal/Kg BW)
- ▶ Proteins: 51g (1g/Kg BW)
- ▶ HBV: 22g
- ▶ Carbohydrate: 203g (58% of total calories)
- ▶ Fats: 44g (28% of total calories)
- ▶ Calories to Nitrogen ratio: 170:1

Menu	Ingredients	Amounts	Energy (Kcal)	CHO (g)	Protein (g)	Fat (g)	Vit C (mg)	Fe (mg)	Na (mg)	K (mg)	IF (g)	SF (g)	Calcium (mg)
<b>9:00am - BREAKFAST</b>													
Milk	Milk	100ml	29	4.6	2.5	0.1	2	0.2	73	140			120
	Proteinex	25g	76	10.9	7.5	0.28	28	4.5	110	300	0.6	3.1	350
Upma	Rawa	30g	100	21	2.5	0.5	0	0.48	6.3	24.9	2.88	0.87	3
	Oil	5ml	45	0	0	5							
<b>11:00am - MIDMORNING</b>													
Oats Porridge	Oats	30g	100	22	5	3		1.02	31.2		1.88	1.28	
	Sugar	5g	20	5	0	0		0.07					
Fruit	Banana	100g	50	10	0	0	7	0.36	36.6	88	1.1	0.7	17
<b>1:00pm - LUNCH</b>													
Tomato soup	Tomato	50g	12.5	3	0.5	0	13.5	0.32	6.46	73			24
Khichdi	Rice	30g	100	21	2.5	0.5	0	0.21			0.96	0.27	3
	Moong dal	15g	50	8.5	3.5	0.25	0	1.17	4.08	172.5	0.975	0.255	11.25
	oil	5ml	45	0	0	5							
Grilled paneer	Paneer	40g	100	2	7	8							83.2
	oil	5ml	45	0	0	5							
Aloo bhaji	Boiled potato	100g	100	24	1	0	17	0.48	11	247	1.1	0.6	10
	oil	5ml	45	0	0	5							
<b>4:00pm - SNACK</b>													
Buttermilk	Curd	100ml	29	4.6	2.5	0.1	2	0.2	73	140			120
<b>6:00pm - LATE EVENING</b>													
Greenpea Soup	Greenpeas	50g	46	7.9	3.6	0	4.5	0.75	3.9	39.5			10
<b>8:00pm - DINNER</b>													
Soft Rice	Rice	30g	100	21	2.5	0.5	0	0.21			0.96	0.27	3
Dal with tadka	Moong Dal	30g	100	17	7	0.5	0	1.17	8.16	345	1.95	0.51	22.5
	oil	5ml	45	0	0	5							
Buttermilk	Curd	100ml	29	4.6	2.5	0.1	2	0.2	73	140			120
Dudhi bhaji	Dudhi	75g	18.75	4.5	0.75	0	0	0.345	1.35	65.25	1.275	0.225	15
	Tomato	25g	6.25	1.5	0.25	0	6.75	0.16	3.23	36.5			12
	Oil	5ml	45	0	0	5							



## *Nutritional calculation of Hospital diet*

### *(Soft bland diet)- Day 4 & Day 5*

- ▶ Type of diet: Soft bland diet
- ▶ Frequency of meals: 7 small frequent meals
- ▶ Consistency of diet: Soft diet
- ▶ Energy: 1471Kcal (29Kcal/Kg BW)
- ▶ Proteins: 50g (1g/Kg BW)
- ▶ HBV: 22g
- ▶ Carbohydrate: 214g (58% of total calories)
- ▶ Fats: 48.83g (30% of total calories)
- ▶ Calories to Nitrogen ratio: 185:1

Menu	Ingredients	Amounts	Energy (Kcal)	CHO (g)	Protein (g)	Fat (g)	Vit C (mg)	Fe (mg)	Na (mg)	K (mg)	IF (g)	SF (g)	Calcium (mg)
<b>9:00am - BREAKFAST</b>													
Milk	Milk	100ml	29	4.6	2.5	0.1	2	0.2	73	140			120
	Proteinex	25g	76	10.9	7.5	0.28	28	4.5	110	300	0.6	3.1	350
Daliya Upma	Daliya	30g	100	21	2.5	0.5	0	1.59	6	94.5	2.88	0.87	12.3
	Greenpeas	25g	23	3.97	1.8	0	2.25	0.375	1.95	19.75			5
	Oil	5ml	45	0	0	5							
<b>11:00am - MIDMORNING</b>													
Oats Porridge	Oats	30g	100	22	5	3		1.02	31.2		1.88	1.28	
	Sugar	5g	20	5	0	0		0.07					
Fruit	Papaya	100g	50	10	0	0	57	0.5	6	69	1.3	1.3	17
<b>1:00pm - LUNCH</b>													
Soft Rice	Rice	30g	100	21	2.5	0.5	0	0.21			0.96	0.27	3
Mori dal	Moong Dal	30g	100	17	7	0.5	0	1.17	8.16	345	1.95	0.51	22.5
	Oil	5ml	45	0	0	5							
Dudhi bhaji	Dudhi	75g	18.75	4.5	0.75	0	0	0.345	1.35	65.25	1.275	0.225	15
	Tomato	25g	6.25	1.5	0.25	0	6.75	0.16	3.23	36.5			12
	Oil	5ml	45	0	0	5							
Minted paneer	Paneer	40g	100	2	7	8							83.2
	oil	5ml	45	0	0	5							
	Mint leaves	10g	2.5	1.5	0.25	0	2.7	1.56			0.5	0.13	20
Curd	Curd	100ml	29	4.6	2.5	0.1	2	0.2	73	140			120
<b>4:00pm - SNACK</b>													
Fruit	Watermelon	100g	50	10	0	0	1	7.9	27.3	160	0.3	0.3	11
<b>6:00pm - LATE EVENING</b>													
Carrot and dill soup	Carrot	50g	20	5	0.5	0	1.5	0.515	17.8	54	1.5	0.7	40
	Dill	10g	2.5	1.5	0.25	0		1.74					19
	oil	5ml	45	0	0	5							







# NUTRITIONAL COMPLIANCE

Day	Type of diet	Planned	% Compliance	Reasons
Day 1	NBM (Clear liquid diet at night)			Patient had a good appetite and was eating well.
Day 2	Full liquids + Soft bland diet	Energy- 1387Kcal	Energy- 100%	
		Protein- 51g	Protein- 100%	
Day 3	Full liquids + Soft bland diet	Energy- 1387Kcal	Energy- 100%	
		Protein- 51g	Protein- 100%	
Day 4	Soft bland diet	Energy- 1471Kcal	Energy- 100%	
		Protein- 50g	Protein- 100%	
Day 5	Soft bland diet	Energy- 1471Kcal	Energy- 100%	
		Protein- 50g	Protein- 100%	
Day 6	Discharged on a Full bland diet			



# DISCHARGE DIET

# LONG TERM GOALS OF MANAGEMENT

- ▶ To attain remission and maintain the remission of ulcerative colitis.
- ▶ Eliminate symptoms and minimize side effects and long-term adverse effects.
- ▶ To provide adequate nutrition to avoid macronutrient and micronutrient deficiencies.
- ▶ To prevent the progression of the complications and manage them.
- ▶ To prevent nutritional deficiency.
- ▶ To provide nutrition education to the patient and the care giver.
- ▶ To improve quality of life.

## *Nutritional calculation of Discharge diet (Full bland diet)*

- ▶ Type of diet: Full bland diet
- ▶ Frequency of meals: 8 frequent meals
- ▶ Consistency of diet: Full diet
- ▶ Energy: 1457Kcal (29Kcal/Kg BW)
- ▶ Proteins: 53g (1.1g/Kg BW)
- ▶ HBV: 12.3g
- ▶ Carbohydrate: 220g (60% of total calories)
- ▶ Fats: 42g (26% of total calories)
- ▶ Calories to Nitrogen ratio: 171:1



# EXCHANGE LIST OF THE PRESCRIBED MNT

Food group	Exchange	Amounts	Energy (Kcal)	CHO (g)	Protein (g)	Fat (g)
Cereal	4	120g	400	84	10	2
Oats	1	30g	100	21	5	3
Pulse	2 1/2	75g	250	42.5	17.5	1.25
Milk & Milk products	2	200ml	132	8	6.6	8
Veg A	2	200g	50	12	2	0
Veg B	1/2	50g	20	5	0.5	0
Veg C	1/2	50g	50	12	0.5	0
Fruits	1	100g	50	10	0	0
Sugar/Jaggery	10g	2 tsp.	40	9.6	0	0
Oil	25ml	5 tsp.	225	0	0	25
Proteinex	30g	6 tsp.	91.2	13.08	9	0.33
Garden cress seeds	5g	2 tsp.	22.7	1.65	1.26	1.22
Flaxseed	5g	2 tsp.	26.5	1.445	1	1.85
<b>TOTAL</b>			<b>1457</b>	<b>220</b>	<b>53</b>	<b>43</b>
<b>CALORIE (Kcal)</b>				<b>881</b>	<b>213</b>	<b>384</b>
<b>PERCENT (%)</b>				<b>60</b>	<b>15</b>	<b>26</b>
			<b>29KCal/Kg BW</b>		<b>1.1g/Kg BW</b>	

# MEAL DISTRIBUTION



Food group	Early morning	Breakfast	Midmorning	Lunch	Snack	Late Evening	Dinner	Bedtime	Total Exchanges
Cereal		1		1	1		1		4
Oats	1								1
Pulse		1/2		1			1		2 1/2
Milk & Milk products									2
Veg A		1/2		1/2		1			2
Veg B		1/2							1/2
Veg C							1/2		1/2
Fruits			1/2					1/2	1
Sugar/Jaggery					10g				10g
Oil		5ml		10ml		5ml	5ml		25ml
Proteinex	15g							15g	30g
Garden cress seeds					5g				5g
Flaxseed					5g				5g
<b>Total Calories</b>	<b>145.6</b>	<b>260.5</b>	<b>25</b>	<b>335.5</b>	<b>222.2</b>	<b>70</b>	<b>295</b>	<b>103.6</b>	<b>1457</b>



# DETAILED PRESCRIBED MENU

Menu	Ingredients	Amounts	Household measures	Energy (Kcal)	CHO (g)	Protein (g)	Fat (g)	Vit C (mg)	Fe (mg)	IF (g)	SF (g)	Calcium (mg)	Na (mg)	K (mg)
<b>8:00am - EARLY MORNING</b>														
Oats porridge	Oats	30g	2 tbsp.	100	21	5	3		1.02	1.88	1.28		31.2	
	Proteinex	15g	1 tbsp.	45.6	6.54	4.5	0.165	16.8	2.88	0.36	1.86	210	66	180
<b>10:00am - BREAKFAST</b>														
Handvo	Rawa	30g	2 tbsp.	100	21	2.5	0.5	0	0.48	2.88	0.87	3	6.3	24.9
	Moong	15g	1 tbsp.	50	8.5	3.5	0.25	0	1.17	0.975	0.255	11.25	4.08	172.5
	Bottle gourd	25g	3 tbsp.	6.25	1.5	0.25	0	0	0.115	0.425	0.07	5	0.45	21.75
	Peas	50g	3 tbsp.	20	5	0.5	0	4.5	0.75			10	3.9	39.5
	Curd	50g	1/2 cup	33	2	1.65	2	1	0.1			60	36.5	70
	Groundnut oil	5ml	1 tsp.	45	0	0	5							
Coriander chutney	Coriander leaves	25g	4 tbsp.	6.25	1.5	0.25	0	33.75	0.35	0.75	0.325	46	14.57	64
<b>12:00pm - MID MORNING</b>														
Fruit	Chickoo	50g	1no.	25	5	0	0	3	0.625	4.55	0.9	14	2.95	134.5
<b>1:00pm - LUNCH</b>														
Khichdi	Rice	30g	2 tbsp.	100	21	2.5	0.5	0	0.21	0.96	0.27	3		
	Moong dal	15g	1 tbsp.	50	8.5	3.5	0.25	0	1.17	0.975	0.255	11.25	4.08	172.5
	Rice bran oil	5ml	1 tsp.	45	0	0	5							
Dahi kadhi	Curd	50ml	1/2 cup	33	2	1.65	2	1	0.1			60	36.5	70
	Besan	15g	1 tbsp.	50	8.5	3.5	0.25	0	1.425	3.78	0.465	8.7	5.595	121.2
	Rice bran oil	5ml	1 tsp.	45	0	0	5							
Cucumber salad	Cucumber	50g	1/2 small	12.5	3	0.5	0	3.5	0.3	1	0.3	5	5.1	25
<b>4:00pm - SNACK</b>														
Tea	Milk	50ml	1/2 cup	33	2	1.65	2	1	0.1			60	36.5	70
	Sugar	5g	1 tsp.	20	4.8	0	0		0.07					
Roasted kurmura	Kurmura	30g	1 bowl	100	21	2.5	0.5	0	1.98	0.96	0.27	6.9		
Aliv Ladoo	Aliv	5g	1 tbsp.	22.7	1.65	1.26	1.22	0	5			18.85		
	Roasted flaxseed	5g	1 tbsp.	26.5	1.445	1	1.85	0	0.135			8.5		
	Jaggery	5g	1 tsp.	20	4.8	0	0		0.132			4		
<b>6:00 - LATE EVENING</b>														
Tomato soup	Tomato	100g	2 small	25	6	1	0	27	0.64			48	12.92	146
	Rice bran oil	5ml	1 tsp.	45	0	0	5							





# DIETARY ALTERNATIVES

MENU	ALTERNATIVES	FUNCTIONAL FOOD
<b>8:00am - EARLY MORNING</b>		
Oats porridge	Oats Smoothie/ Oat bites with milk	Cardamom powder, nutmeg powder
<b>10:00am - BREAKFAST</b>		
Handvo	Vegetable pudla/ Thepla/Dhokla	Asafoetida, turmeric
Coriander chutney	Mint chutney	Lemon juice
<b>12:00pm - MID MORNING</b>		
Fruit	Banana/Melons/Papaya	
<b>1:00pm - LUNCH</b>		
Khichdi	Vagharela bhath/Dal khichdi/ Rice with dal	Turmeric, curry leaves, asafoetida
Dahi kadhi	Buttermilk/ Raita/Plain curd	Turmeric, curry leaves, asafoetida, Methi seeds
Cucumber salad	Tomato slices/ Boiled french beans	
<b>4:00pm - SNACK</b>		
Tea	Coffee	Lemon grass leaves
Roasted kurmura	Roasted Poha/Roasted makhana/Khakra	Turmeric, curry leaves, asafoetida
Aliv Ladoo	Aliv chikki	Roasted flaxseeds, garden cress seeds
<b>6:00 - LATE EVENING</b>		
Tomato soup	Spinach soup/ Dudhi soup	Cumin seeds
<b>8:00pm - DINNER</b>		
Chapati	Rotla/ Thepla/Rice/Pulao/jeera rice	
Bateta nu shaak	Kacha kela nu shaak/ Sweet potato sabji	Curry leaves, mustard seeds, Turmeric
Dal	Boiled moong sprouts	
<b>10:00pm - BEDTIME</b>		
Fruit Custard	Fruit kheer/ Fruit pudding/ Plain milk & fruit	Cardomom powder, nutmeg powder

# FAT CALCULATIONS

- ▶ Fat allowance: 42.65g
- ▶ Visible fat: 25g
- ▶ Invisible fat: 17.65g
- ▶ Achieved ratio of SFA: MUFA: PUFA is 1:1.5:1
- ▶ Achieved ratio of  $\Omega$ 3: $\Omega$ 6 is 1:5

Food Item	SFA	MUFA	PUFA	Ω3	Ω6
Wheat	0.15	0.09	0.38	0.05	0.33
Rice	0.40	0.36	0.45		0.45
Moong dal	0.27	0.03	0.48	0.12	0.36
Milk & Milk products	5.552	2.24	0.2		0.2
Flaxseeds	0.185	0.185	1.48	1.332	0.148
Groundnut oil (10ml)	2.09	4.93	2.99		2.99
Rice bran oil (15ml)	3.315	6.15	5.355	0.21	5.14
Achieved fat ratio	11.96	13.98	11.34	1.7	9.6



# SUPPLEMENTS RECOMMENDED ON DISCHARGE

SUPPLEMENT NAME	DOSAGE	FORM	COMPOSITION	COST/DAY
INLIFE™ Flaxseed Oil	1-0-0	Capsule	Flaxseed oil (500mg)	Rs 7/-
Bifilac	0-1-0	Capsule	Clostridium Butyricum (2 Million Spores); Bacillus Mesentericus (1 Million Spores); Strep Faecalis (30 Million Spores); Lactobacillus Sporegens (50 Million Spores)	Rs 10/-
Dexorange Hematinic Capsules	1-0-0	Capsule	Ferric ammonium citrate – 160 mg (equivalent to 32.8 mg elemental Iron); B12 I.P – 7.5 mcg; Folic acid I.P – 0.5 mcg; Zinc Sulphate monohydrate – 20.61 mg	2.68/-
Softovac powder	0-0-1 1 tsp. in 1 glass of water	Powder	Psyllium Husk - 2 g; Senna - 0.75 g; Terminalia Chebula - 0.5 g; Cassia Fistula - 0.5 g, Liquorice - 0.25 g; Rose Petals - 0.25 g; Fennel Seeds 0.25 g ; Fennel Oil - 0.05 g	Rs. 6/-
<b>TOTAL COST PER DAY</b>				<b>Rs. 19/-</b>

# GENERAL RECOMMENDATIONS

- ▶ Consume small frequent meals.
- ▶ Avoid fasting and feasting.
- ▶ Avoid the consumption of aerated drinks.
- ▶ Reduce sodium intake: avoid processed and packaged foods.
- ▶ Aim for 2-3 servings of fruits each day.
- ▶ Aim for 3-5 servings of vegetables each day.
- ▶ Include recipes of cereal pulse combination in meals.
- ▶ Bland/non-spicy foods should be consumed as per tolerance.
- ▶ Avoid fried, greasy and junk foods.
- ▶ Avoid excess salt and foods with preservatives.
- ▶ Reduce stress and maintain good health.

# OPD FOLLOW-UP

- ▶ Patient was called for a follow up on 15/01/2017.
- ▶ She was asymptomatic.
- ▶ Body weight was maintained to 50Kg.
- ▶ Patient's diet related queries were resolved.
- ▶ Dietary recommendations were reinforced to the patient.

Thank You

