Pediatric- TOTAL PARENTERAL NUTRITION

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INTRODUCTION:

CHYLOUS ASCITES

Ascites is defined as an abnormal amount of intra-peritoneal fluid.

Chylous ascites is the extravasation of milky chyle into the peritoneal cavity. This can occur as a result of trauma or obstruction of the lymphatic system.

True chylous ascites is defined as the presence of ascitic fluid with high fat (triglyceride) content, usually higher than 110 mg/dL.

Chylous ascites may occur in neonates, with a slight male predominance. Neonatal chylous ascites is almost always idiopathic, but a congenital lymphatic abnormality is thought to be the usual underlying cause.

Characteristics of Ascitic Fluid in Chylous Ascites

Color	Milky and cloudy
Triglyceride level	Above 200 mg/dL
Cell count	Above 500 (predominance of lymphocytes)
Total protein	Between 2.5–7.0 g/dL
SAAG	Below 1.1 g/dL*
Cholesterol	Low (ascites/serum ratio <1)
Lactate dehydrogenase	Between 110–200 IU/L
Culture	Positive in selected cases of tuberculosis
Adenosine deaminase	Elevated in cases of tuberculosis
Cytology	Positive in malignancy
Amylase	Elevated in cases of pancreatitis
Glucose	Under 100 mg/dL

IU = international units; SAAG = serum-ascites albumin gradient.

* Is elevated above 1.1 g/dL in chylous ascites secondary to cirrhosis.

PATHOPHYSIOLOGY:

•Abdominal surgery

•Blunt abdominal trauma

•Malignant **neoplasms** - Hepatoma, small bowel lymphoma, small bowel angiosarcoma, and retroperitoneal lymphoma

•Spontaneous bacterial peritonitis

•Cirrhosis - Up to 0.5% of patients with ascites from cirrhosis may have chylous ascites.

•Pelvic irradiation

•Peritoneal dialysis

•Abdominal tuberculosis

•Carcinoid syndrome

•Congenital defects of lacteal formation

CLASSIFICATION:

Milky ascites is subdivided into 3 groups as follows:

- **True chylous ascites -** Fluid with high triglyceride content

- **Chyliform ascites -** Fluid with a lecithin-globulin complex due to fatty degeneration of cells

- **Pseudochylous ascites -** Fluid that is milky in appearance due to the presence of pus

CLINICAL FEATURES:

Abdominal distension
abdominal pain, anorexia, weight loss, edema, weakness, nausea, dyspnea, weight gain, lymphadenopathy, early satiety, fever, and night sweats.

COMPLICATIONS:

Sepsis is the most common complication, and sudden death has been reported in patients with chylous ascites.

GENERAL INFORMATION:

- **Name-** Baby. G
- **UHID: 429594**
- **Age-** 4months
- **Sex-** Female
- **Date of admission-** 26/12/2013
- **Date of discharge-** 25/01/2014
- **Duration of stay-** 31days

MEDICAL HISTORY:

- **History of presenting illness-**
- Gradual progressive abdominal distension since one month
- Vomiting after feeds
- Decreased feeding
- **Family medical history-**
- Nothing significant
- **Past medical history-**
- History of hypothyroidism detected in pregnancy

GENRAL PHYSICAL EXAMINATION:

- **Pallor-** No
- **Cyanosis-** No
- **Clubbing-** No
- **Edema-** No

VITAL DATA:

- **Temperature-** Afebrile
- **Pulse-** 140 beats/minute
- **Respiratory rate-** 40 cycles/min

SUBJECTIVE INFORMATION:

- **Appetite-** Poor
- **Thirst-** Normal
- **Micturition-** Normal
- **Bowel habit-** Normal
- **Sleep-** Normal
- **Social habit/ addictions-** None
- **Type of diet-** Breastfeed

SYSTEMIC EXAMINATION:

- **Cardiovascular system-** Normal
- **Neurologic system-** Normal

DIAGNOSIS:

- **Chylous Ascites, iron deficiency anemia**

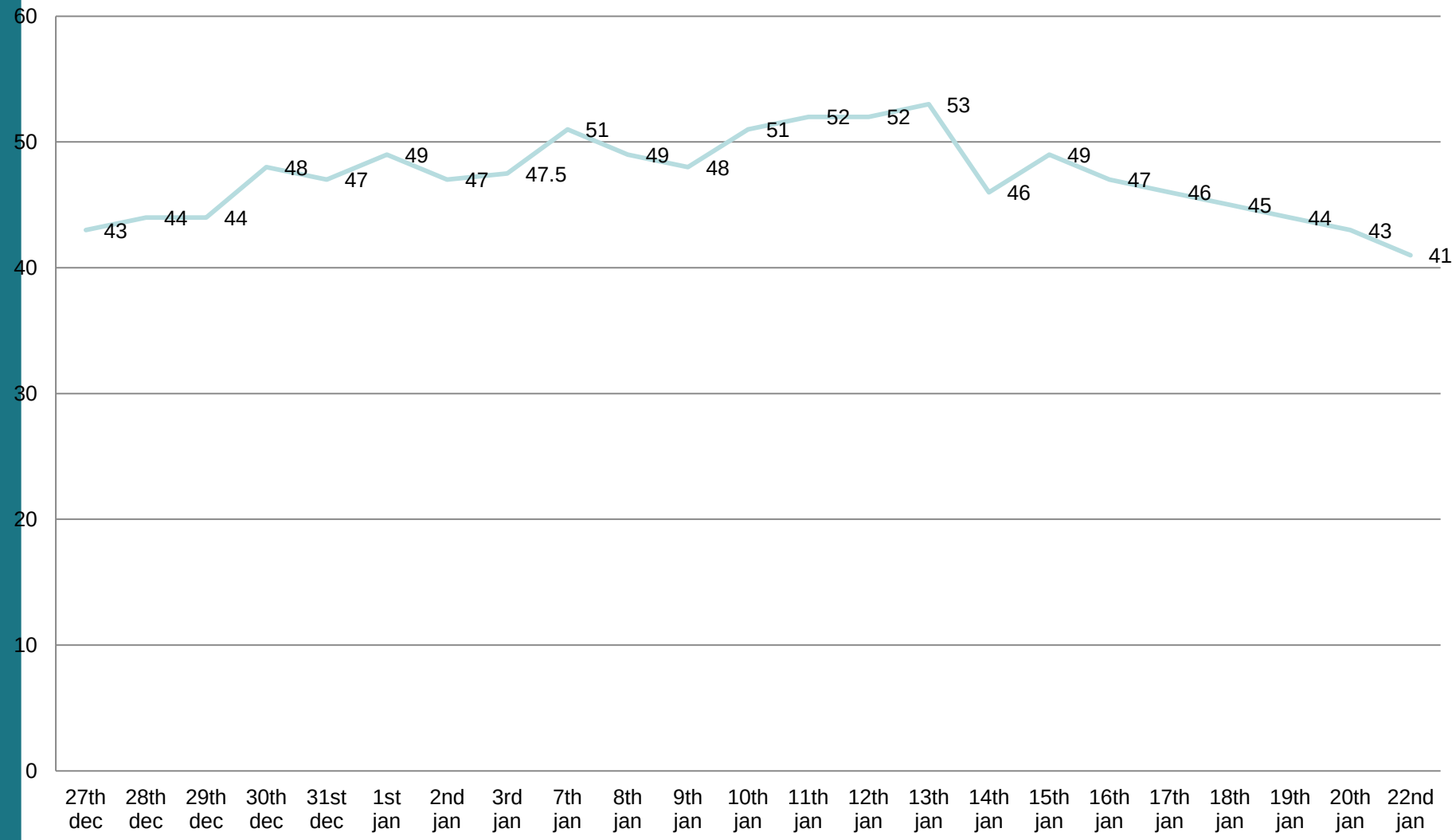
INTERVENTION:

Ascitic tapping on-
28/12/2013, 1/1/2014 (50ml), 10/1/2014 (100ml), 11/1/2014

Albumin infusion-
11/1/2014, 13/1/2014

PROCEDURE:
Explorative laparotomy

VARIATIONS IN THE ABDOMINAL GIRTH:



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BIOCHEMICAL PARAMETERS

Parameters	Normal Range	Results									
		26/12	5/1	6/1	8/1	9/1	11/1	12/1	13/1	16/1	21/1
Hb	13-17gm/dL	8.9*	-	-	-	10.9*	-	-	-	-	-
RBC	4.5-5.5*10^3 U/L	4.7	-	-	-	5.2	-	-	-	-	-
PCV	40-50%	32*	-	-	-	38*	-	-	-	-	-
WBC	4-11*10^3 U/L	9	-	-	-	8	-	-	-	-	-
S.Alk Ph	30-120 U/L	107	-	-	-	125*	-	-	-	-	-
S.Bilirubin	0.2-1.2 mg/dL	0.18*	-	-	-	0.42	-	-	-	-	-
S.Total Protein	6-8.5 g/dL	5.6*	-	-	-	4.7*	-	-	-	-	-
S.Albumin	3.5-5.2 g/dL	**3.6**	**2.7***	**-**	**2.8***	**2.8***	**2.2***	**2.2***	**2.5***	**-**	**3.4***

Parameters	Normal Range	Results								
		26/12	5/1	6/1	8/1	9/1	11/1	12/1	13/1	16/1	21/1
Triglycerides	60-150mg/dL	**1050**	**335**	-	-	-	-	-	-	**239**	-
HDL	40-65mg/dL	-	17	-	-	-	-	-	-	-	-
LDL	50-130mg/dL	-	97	-	-	-	-	-	-	-	-
SGOT	5-40mg/dL	21	-	-	-	44*	-	-	-	-	-
SGPT	5-45mg/dL	5	-	-	-	13	-	-	-	-	-
S.Creatinine	0.66-1.09 mg/dL	0.41*	-	0.37*	-	-	-	0.39 *	-	-	-
S.Sodium	135-145mEq/dL	-	138	-	136	-	-	133*	133*	-	-
S.Potassium	3.5-5.5 mEq/dL	-	5.2	-	4.8	-	-	4.1	5	-	-
S.Chloride	98-107 mg/dL	-	-	-	104	-	-	102	101	-	-
S.Urea	15-45mg/dL	-	-	12*	-	-	-	26	-	-	-

MEDICATIONS:

Medications	Dose	Purpose
Inj Lasix	-	Diuretic
Inj Cefirinone	250mg	Used to treat temporarily relieve sympoms of fever
Inj Amikacin	35mg	Antibiotic
Inj Pantodac	-	Used to treat conditions caused by excessive acidity such as stomach ulcers
Inj Monocef	250mg	Used to treat or prevent various bacterial infections
Inj Vancomycin	100mg	Glycopeptide antibiotic
Inj Octreotide	10ml	Somatostatin analog
Inj Piptaz	1g	Antibiotic
Inj Albumin	-	Protein in the blood.

DIET AT HOME (24hour RECALL):

Diet	Frequency
Daily Breast Feed	1time/4th hourly

ANTHROPOMETRIC MEASUREMNTS:

- **Height (cm)-** 68cm
- **Birth weight (kg) - 3.1kg**
- **Weight (kg)-** 5kg (**wet** weight)
- **Body Mass Index (kg/m^2)-** Not applicable
- **Ideal Body Weight (kg)-** Not applicable

ASSESSMENT:

- **Nutritional Requirements-** Energy- 600kcal, Protein- 8g

HOSPITAL FEED:

Date	Diet	Route	Energy (kcal)	Protein (g)
26/12/13	DBF	Oral	-	-
28/12/13	DBF	Oral	-	-
30/12/13	NPO	-	-	-
31/12/13	NPO	-	-	-
2/1/14	TPN 21ml/hr for 24hr +2ml intralipid	Parenteral	254.1	7.5
3/1/14	TPN 21ml/hr for 24hr +2ml intralipid	Parenteral	254.1	7.5
4/1/14	TPN 22ml/hr for 24hr +3ml intralipid	Parenteral	348.5	10.1
5/1/14	TPN 25ml/hr for 24hr +3ml intralipid	Parenteral	464	12.8
6/1/14	TPN 20ml/hr for 24hr +3ml intralipid	Parenteral	474.2	15.1
7/1/14-13/1/14	TPN 26ml/hr for 24hr +2ml intralipid	Parenteral	474.2	15.1
13/1/14 (6pm)	NPO	-	-	-
14/1/14 6pm	TPN 20.3ml/hr for 24hr +1ml intralipid	Parenteral	262	15
15/1/14	TPN 20.3ml/hr for 24hr +1ml intralipid	Parenteral	262	15
15/1/14 4pm	TPN 22ml/hr for 24hr +2ml intralipid	Parenteral	370	15

Date	Diet	Route	Energy (kcal)	Protein (g)
16/1/14	TPN 22ml/hr for 24hr +1ml intralipid +RTF 20ml/2nd hrly	Parenteral Oral	370 150	15 1.25
17/1/14	TPN 14ml/hr for 24hr + RTF 40ml/2nd hrly	Parenteral Oral	310 527	15 14.1
18/1/14	TPN 14ml/hr for 24hr + RTF 40ml/2nd hrly	Parenteral Oral	310 527	15 14.1
18/1/14 2pm	RTF 60ml/2nd hrly	Oral	651	15
19/1/14-23/1/14	RTF 60ml/2nd hrly	Oral	651	15
23/1/14 10am	Bottle feed	Oral	100	-
24/1/14-25/1/14	Bottle feed	Oral	200	-

TPN Calculation

Ingredients	Quantity					
	2/1	**3/1**	**4/1-13/1**	**14/1**	**15/1**	**16/1**
25 % dextrose	90 ml	80 ml	135 ml	60 ml	70 ml	70 ml
Isolyte P	280 ml	130 ml	200 ml	200 ml	200 ml	200 ml
NS	50 ml	200 ml	125 ml	80 ml	80 ml	80 ml
10 % infant aminoven	75 ml	100 ml	150 ml	100 ml	150 ml	150 ml
MVI	5 ml	5 ml	4 ml	5 ml	5 ml	5 ml
KCl	4 ml	5 ml	2.5 ml	5 ml	5 ml	3 ml
Ca gluconate	5 ml	5ml	12.5 ml	12.5	12.5	12.5 ml
Total	**509 ml**	**525 ml**	**604 ml**	**463 ml**	**523 ml**	**521 ml**
20 % intralipid (separately)	50 ml (2ml/hr)	50 ml (2ml/hr)	50 ml (3ml/hr)	50 ml (1ml/hr)	50 ml (2ml/hr)	50 ml (2 ml/hr)
Total cocktail	**559 ml**	**575 ml**	**654 ml**	**513 ml**	**573 ml**	**571 ml**

RTF:

Time	Feed
6am	TCW

Energy (kcal)	Protein (gm)	Fat (gm)	CHO (gm)
651.15	16.651	20.02	82.224

2pm	Rice ganji 10ml + dal soup 5ml + 5ml simyl MCT
4pm	Rice ganji 10ml + dal soup 5ml + 5ml simyl MCT
6pm	Rice ganji 10ml + dal soup 5ml + 5ml simyl MCT
8pm	Rice ganji 10ml + dal soup 5ml + 5ml simyl MCT
10pm	TCW
12am	Rice ganji 10ml + dal soup 5ml **(without simyl MCT)**
2am	Rice ganji 10ml + dal soup 5ml **(without simyl MCT)**
4am	Rice ganji 10ml + dal soup 5ml **(without simyl MCT)**

ADVICE AT THE TIME OF DISCHARGE:

Zero fat weaning foods (using only MCT)

No breastfeeds


Thank you!