

A Case Report

Lower segment caesarean section in a patient with multiple risk factors: Chronic kidney disease, acute myeloid leukemia and double renal transplant

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Abstract

The journey of challenging health conditions yet a healthy baby delivery is a case study presented here. It highlights the triple risk factors associated with a pregnant woman, which involve chronic kidney disease, acute myeloid lymphoma, and a history of double renal transplant. The case explores the importance of managing a multidisciplinary approach in a patient with such co-morbidities. The case experienced stable treatment and recovery during the pregnancy and even after delivering the baby. In the hospital, the patient was recommended a diet as per the health condition and at the time of discharge, a high-calorie and high-protein diet was given according to the lactating mother's requirements.

Keywords: LSCS, Renal Transplant, Acute Myeloid Leukaemia, High-Risk Pregnancy, Nutrition Therapy

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Received on: 20 April 2025 – Accepted on: 10 June 2025 – Published on: 30 June 2025

Citation for the paper

Sharma P, Yadav A. Lower segment caesarean section in a patient with multiple risk factors: Chronic kidney disease, acute myeloid leukemia, and double renal transplant. International journal of nutrition & lifestyle 2025; 5(2):87-97. DOI: 10.69859/ijnl.2025.v5i2003



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Introduction

A 33-year-old female with primigravida 35+4 weeks of Period of Gestation with Intrahepatic cholestasis of pregnancy and known case of chronic kidney disease with hypertension and a history of renal transplant two times. The patient belongs to Bharatpur, Rajasthan, admitted on 6th May 2025 for 5 days till the delivery under the Department of obstetrics.

Case History

At the age of 21 she was hypertensive and diagnosed with Acute Myeloid Leukaemia, she had also undergone pleural tapping. The patient was also suffering from chronic kidney disease and had multiple sessions of dialysis, renal transplant in 2014 with father as a donor and went for second renal transplant in 2022 where sister was a donor. Investigations at the time of admission have been shown in table 1. It showed that the patient was anemic. Her uric acid levels were also towards a higher side.

Parameters	Reports at the time of admission	Reference range
COMPLETE BLOOD COUNT (CBC)		
Hemoglobin	10 g/dl	11.0-14.0g/dl
Platelets	243	200 – 490
RBC	0.0-1.0/HPF	0-2/HPF
ELECTROLYTES		
Serum sodium	136 mmol/L	135-145 mmol/L
Serum potassium	5 mmol/L	3.5- 5 mmol/L
Serum chloride	110 mmol/L	98-107 mmol/L
RENAL FUNCTIONING TEST (RFT)		
Uric acid	8.1 mg/dL	Adult 2.5 - 6.2 mg/dL
Serum creatinine	0.9 mg/dL	Adult 0.5 – 1.25 mg/dL
Blood urea	42.3 mg/dL	Adult 15 - 45 mg/dL
LIVER FUNCTIONING TEST (LFT)		
Serum Bilirubin Direct	0.4 mg/dl	<0.3 mg/dl
SGPT/ALT	84.6 U/L	13-69 U/L
SGOT/AST	32.9 U/L	15-46 U/L

Table 1: Investigations of the patient at the time of admission

Final Medical Diagnosis

Primigravida with 35+4 weeks Period Of Gestation with Hypertension with H/O renal transplant with Intrahepatic cholestasis of pregnancy (IHCP)

Procedure - Pre term lower segment caesarean section on 7/5/2025. Indicates - Primi breech with history of dual renal transplant.

Medical management

Medication	Dosage	Action
Tab AUGMENTIN 625mg	1-1-1 in morning, afternoon & night	to treat bacterial infections
Sporlac DS Tab	1-1 tablet in morning and night	Probiotic supplement (management of diarrhea associated with infarction, antibiotics)
Pantocid D Cap	1 in morning	To treat acid reflux, dyspepsia, gastritis
Dolo 650 mg	1-1-1 in morning, afternoon and evening	pain relief and control fever
Megadus Cap	1 in evening	Antioxidant (help protect cells from damage)
HB Count Tab	1 in night	Manage iron efficiency
Tab Shelcal HD	1 in morning	Provide essential calcium and vitamin D3
Syp- Duphalac 150 ml	1 in night	
Tab Labetalol 100 mg	1-1-1 in morning, afternoon and evening	To treat hypertension
Tab Omnacortil 5 mg	1 in morning	To manage inflammatory and auto-immune condition (like-lung, kidneys)
Cap Tacsant 1 mg	1 in morning	To treat Constipation
Tab Azathioprine 50 mg	1 in morning	To prevent organ rejection after organ transplant

Table 2: Medical management of the patient

Nutritional management

Nutrition care process is an integral part for better patient outcome that involves steps of nutritional assessment, nutritional diagnosis, nutrition intervention and monitoring & evaluation. It has been described further -

1. **Assessment of nutritional status:** It is based on anthropometric assessment, biochemical parameters, clinical signs and symptoms and diet history of the patient.

1.1 Anthropometric measurements at the time of admission

Parameters	Values
Weight	70 kg
Height	160 cm
BMI (Body mass index)	27.3 kg/m ²
IBW (Ideal body weight)	55 kg

Table 3: Anthropometric measurements

1.2 Biochemical reports: These have been previously mentioned as a part of medical assessment according to which the patient was found to be anemic with higher uric acid levels.

1.3 Clinical Signs & symptoms: Patient was found to have fatigue, weakness, anorexic at the time of admission due to delivery and intrahepatic cholestasis.

1.4 Diet history: Patient's 24 hour's home diet recall was noted that has been shown below:

Time	Food intake	Household measurement
8:00 am	Milk	1 glass
	Dry fruits (almonds soaked)	5-6
12:00 – 12:30 pm	Chapati	3
	Vegetables	1 bowl
	Salad	1 plate
	Buttermilk	1 glass
4:00 pm	Tea	1 cup
	Biscuits	2
	Roasted chana	1 bowl
6:00 pm	Juice	1 glass
8:00 -8.30 pm	Chapati	2
	Dal	1 bowl
	Salad	½ plate
	Rice	½ bowl
10:00 pm	Milk	1 glass

Table 4: Home diet recall and nutrition intake

Energy - 1572 kcal

Protein - 53.4 gm

Carbohydrate - 208.6 cal

Fat - 43.7 gm

Nutritional Diagnosis: Patient was found to have high risk pregnancy due to co-morbidities as evidenced by her history of acute myeloid leukemia and dual renal transplant and IHCP.

Nutrition Intervention ^[1]

- Balanced diet including all five food groups was suggested to the patient
- A high calorie, high protein diet was recommended

Goals of Medical Nutrition Therapy: Nutrition plays a key role in recovery after a C-section and supporting overall health during the postpartum period.

Short Term Goals

- Eat small, balanced meals throughout the day
- Consume adequate protein to support tissue repair and recovery
- Eat high-fiber foods to promote regular bowel movements
- Add Omega -3 fatty acids for reducing inflammation and brain health
- Ensure adequate calcium and vitamin D intake

Long Term Goals

- Continue focusing on a well-balanced, nutrient-rich diet
- Gradually lose pregnancy weight in a healthy and sustainable way
- Focus on gut health by including probiotics and prebiotics
- Continue eating enough to support breastfeeding demands

- Prioritize foods for bone health
- Monitor and correct any nutrient deficiencies (such as iron or vitamin B12) through diet or supplementation
- Develop healthy eating habits that support long-term health

Nutritional requirements (Revised Recommended Dietary Allowances, 2024) ^[2]

Energy: 2250 kcal (IBW x 30 + 600 kcal *)

Protein: 72 gm /day (IBW + 17 gm *)

Fat: 62 gm (25% Total Calories)

Carbohydrate: 337 gm (60% Total Calories)

Diet prescribed during hospitalization

Time	Meal	Meal: Day 1 Clear Liquid Diet	Meal: Day 2 Liquid + Soft	Meal: Day 3 High protein Diet
7:00 am	Early Morning	Coconut Water	Tea + Biscuits	Tea + Biscuits
9:00 am	Breakfast	Lemon Water	Milk + Breakfast	Milk + Breakfast
11:00 am	Mid Morning	Vegetable Soup	Vegetable soup	Vegetable soup
1:00 pm	Lunch	Khichdi Soup	Khichdi Dal Curd	Salad Chapati – 4 Dal – 1 bowl Vegetable- 1 bowl Rice – 1 bowl Curd – 1 bowl
3:00 pm		Milk		
4:00 pm	Evening		Milk + Biscuits	Milk + Biscuits
5:00 pm		Dal Soup		
7:00 pm	Dinner	Daliya Soup	Milk + Daliya	Salad Chapati – 4 Dal – 1 bowl Vegetable- 1 bowl Rice – 1 bowl
9:00 pm	Post dinner	Milk		
Nutrient Intake				
Energy (kcal)		688 kcal	1444 kcal	2284 kcal
Protein (gm)		33 gm	59 gm	80 gm
Fat (gm)		1.4 gm	40 gm	58 gm
Carbohydrate (gm)		76 gm	206 gm	347 gm

Table 5: Hospital diet for 3 days

Monitoring and Evaluation

Three day's hospital diet recall

	Energy (kcal)	Protein (gm)	Carbohydrate (gm)	Fat (gm)
Day 1	688	33	76	1.4
Day 2	1444	59	206	40
Day 3	2284	80	347	58
Total	4416	172	629	100.4
Average	1472	57.3	209.6	33.4
% Intake of the requirements	65.4 %	79.5 %	62.1 %	53.8 %

Table 6: Average nutrient intake in comparison to requirements during hospitalization

As the patient was on progressive diet the gradual intake of the hospital diet showed the intake of high protein but only moderate calorie. Therefore, at the time of discharge the diet was explained and counselled to the patient and the attendant thoroughly.

Discharge diet

Food group exchanges in discharge diet

Food group	Exchange	Energy (Kcal)	Protein (gm)	Fat (gm)	Carbohydrate (gm)
Cereals	7	672.4	21.7	2.8	134.4
Pulses	2	194	14.2	0.8	31.4
Vegetables					
Root & tubers	2	194	6.7	1.2	39.6
GLV	1				
others	2				
Fruits	1	62	0.2	0.6	13.1
Milk	500 ml	280	16	15	23
Paneer	50gm	128	9.4	7.3	6.2
Dry Fruits	30gm	182	5.5	17.5	0.9
Munake	30gm	93.2	0.7	0.1	21.8
Fat	5 TSP	225	0	25	0
Sugar	6 TSP	120	0	0	30
Total		2230	74.4	70	300

Table 7: Food exchanges in discharge diet prescription

Detailed menu of discharge diet

Timing	Meal	Menu	Food item	options	Amount	Household Measures
7:00 am	Early Morning	Milk + Biscuits + Soaked Almond	Milk Biscuits Almond	- - -	200 ml 4 4	1 Glass
9:00 am	Breakfast	Upma + veg	Upma veg cooked	Poha/ Khichdi/ Daliya/oats/ Idli	200 gm 100 gm	1 bowl ½ bowl
11:00 am	Mid Meal	Fruits and Fruit Juices	Any fruit	Apple/ Orange/Kiwi/ Watermelon/papaya /	100 gm	1 bowl
1:00 pm	Lunch	Chapati 3 + Dal + Veg + curd	Chapati	Daliya/ Rice /Khichdi	3	90 gm
			Dal		100 gm	1 bowl
			veg		100 gm	1 bowl
			curd		100 gm	1 bowl
			Salad		100 gm	1 plate
4:00 pm	Evening Tea	Paneer cutlet	paneer bread/chapati/seasonal vegetable	paneer wrap/ paneer sandwich	50 gm	2
7:00 pm	Dinner	Chapati 2 + Dal + Veg	chapati	Daliya/ Rice /Khichdi	2	60 gm
			Dal		100 gm	1 bowl
			Veg		100 gm	1 bowl
			Salad		100 gm	1 bowl
9:00 pm	Bed Time	Milk + Munnakka	Milk	-	200 ml	1 glass

			Munake	-	30 gm	
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Table 8: Detailed Menu of Discharge Diet

Counseling points

Patient was thoroughly counseled for the intake of balanced nutritious diet (as the lactation period requires more energy and protein intake than pregnancy) ^[3]

- Eat a well balanced diet which include all 5 essential food groups such as whole grain, whole pulses, fats, fruits and vegetables
- Include small ,frequent and a variety of meals in your daily diet
- Eat seasonally and locally available fruits and vegetables
- Drink plenty of healthy fluids such as coconut water, buttermilk, vegetable soups, sattv water (suggested after assessing all the parameters)
- Include calcium and vitamin D rich foods such as - Milk and its products, all pulses, nuts etc.
- Focus on iron and folic acid rich foods in the daily diet - green leafy vegetables, millets such as ragi, bajra,etc., Also include Vitamin C rich foods for better absorption of iron in the body
- Galactogogues were counseled as these foods increase the milk production naturally in the body such as cumin seeds, ajwain, fennel seeds, edible gum (gond), ginger, etc.
- The patient was also advised to ensure exclusive breastfeeding till 6 months and than introduction of weaning foods was also advised
- Counseled for other food concerns like past condition of the patient (low salt food, low protein whenever renal parameters were disturbed)

Discussion

The physiological condition of pregnancy and lactation is a highly nutritionally demanding period as it requires additional nutritious food and healthcare. It is a state of health where food requirements are fulfilled to meet the nutritional requirements of the mother and growing foetus for healthy pregnancy outcomes. The case study represents a history of

multiple health conditions which could be a risk pregnancy as she had cancer, kidney disease and even renal transplant.

AML is a hematological malignancy that poses challenges in battling with long term immune functions and disturbed gut health due to high dosage of medications. History of Renal Transplant increases the risk of more infections in the body and also is a risk factor for hypertension, preeclampsia, gestational diabetes which can severely affect the growth of the fetus.

All these health parameters which could affect the baby were closely and carefully monitored during the entire pregnancy and also pre-operatively. As all the parameters were normal and the pregnancy period went successful for the patient, the nutritional management was focused on giving a balanced nutritious diet to the patient. A high calorie, high protein diet was prescribed which also included healthy fat and intake of seasonally locally available fruits and vegetables to enhance the micronutrients availability as well.

Conclusion

The case study concluded that even with a complex medical history through proper medications and dietary management the pregnancy period went safe throughout. The blood parameters and patients health was significantly improved with the diet advised, however, the case reinforces the importance of long term follow up with personalized diet planning to prevent further complications.

Acknowledgement

The Authors are grateful to Mahatma Gandhi University of Medical Sciences and Technology for providing the opportunity to do present case study.

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