



***SNS COLLEGE OF ALLIED HEALTH SCIENCES  
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***DEPARTMENT OF OPERATION THEATRE AND  
ANAESTHESIA TECHNOLOGY***

***1st YEAR***

***SUBJECT: PATHOLOGY***

***TOPIC: KWASHIORKAR***





Alternative name:

- Protein malnutrition, protein calorie malnutrition, malignant malnutrition

Definition:

- Kwashiorkar is a form of malnutrition that occurs when there is not enough protein in the diet

Signs and test:

- The physical examination may show an enlarged liver and general swelling

# Kwashiorkor

www.medinaz.com

Malnutrition

Sparse hair

"Flag sign" in the hair

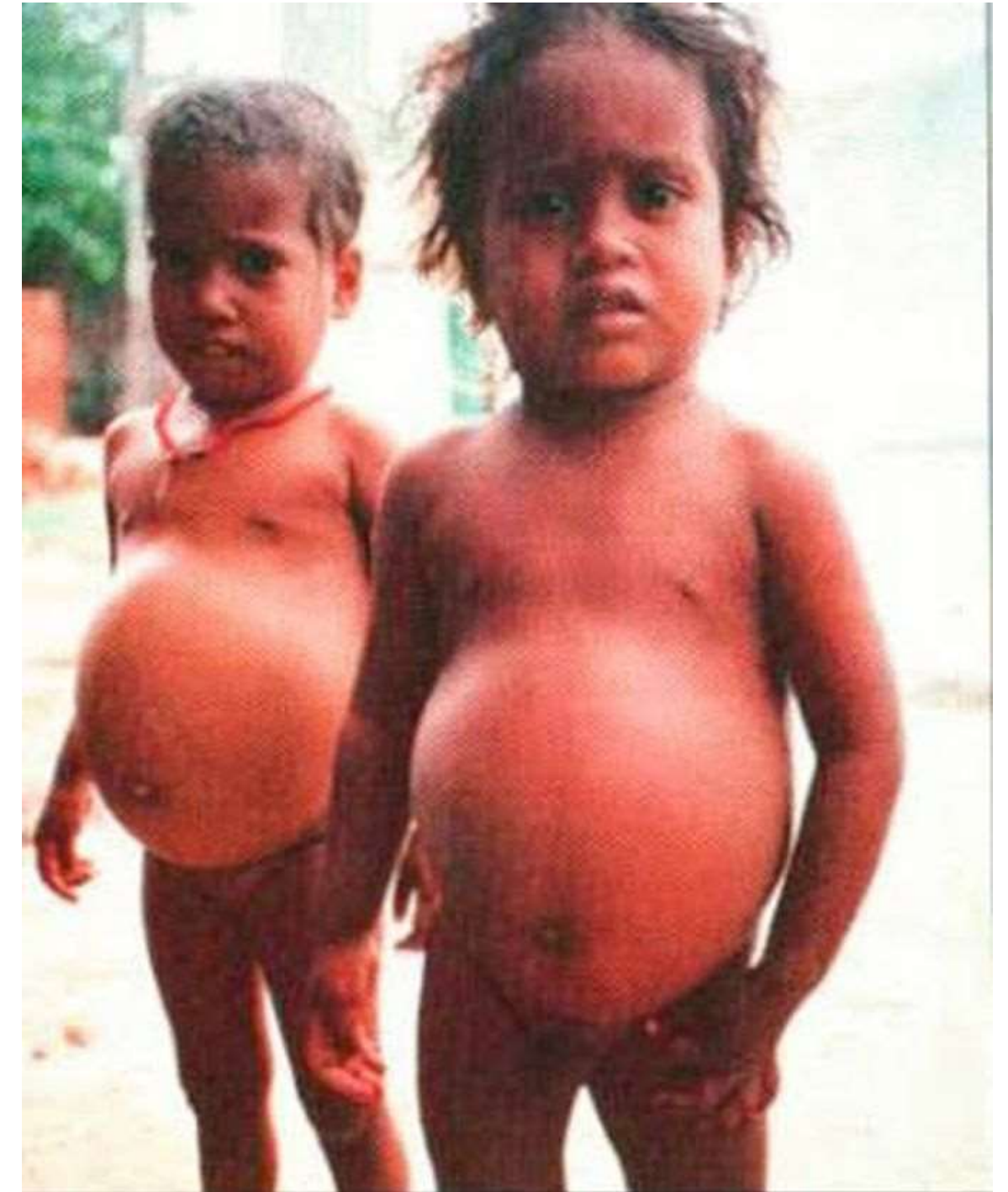
Anemia

Moon face

Fatty Liver

Swollen abdomen

Swelling of legs  
(Edema)





Tests may include:

- Arterial blood gas
- Blood,urea,nitrogen
- Complete blood count
- Creatinine clearance
- Serum creatinine
- Serum potassium
- Total protein levels
- Urinalysis



## What is kwashiorkar?

- Kwashiorkar is a type of malnutrition that is most common in areas of drought and famine
- Kwashiorkar is due to inadequate protein in the diet despite adequate calorie intake
- Once kwashiorkar develops, some of the effects such as short stature and intellectual disability cannot be corrected
- Children are affected by kwashiorkar more frequently than adults
- It typically starts after the child has been weaned and breast milk has been replaced with a diet low in protein.



## Symptoms:

- Abdominal swelling, distension or bloating
- Diarrhoea
- Enlarged liver
- Fatigue
- Frequent infections
- Generalized swelling
- Hair and nail changes, including brittle, reddish hair and ridged nails that are thin and soft
- Irritability
- Skin changes, including pigment loss, red or purple patches, peeling, cracking, skin sloughing and the development of sores
- Slowed growth leading to short stature
- Weight



## How is kwashiorkor treated?

- Common treatments for kwashiorkor include:
- Antibiotics to treat infections
- Gradual increase in dietary calories from carbohydrates, sugars and fats
- Gradual increase in dietary protein
- Intravenous fluids to correct fluid and electrolyte imbalance
- Lactate to assist in digestion of dairy products
- Vitamin and mineral supplements to treat deficiencies



What are the potential complications of kwashiorkar?

- Anemia
- COMA
- Frequent infection
- Physical disability
- Poor wound healing
- Shock
- Short stature
- Skin pigmentation changes
- Fatty liver



## Prevention:

- To prevent kwashiorkar make sure that the diet has enough carbohydrates, fat, protein
- Kwashiorkar can be prevented by including foods in your diet that are rich in proteins such as meat, fish, dairy products, eggs, soya and beans
- Treatment involves slow increase in calories from carbohydrates, sugars and fats followed by protein
- Vitamin and mineral supplements are enzymes to help digest dairy products are often needed.



*THANK YOU*