Pediatrics - Topic 11 - Obesity in children

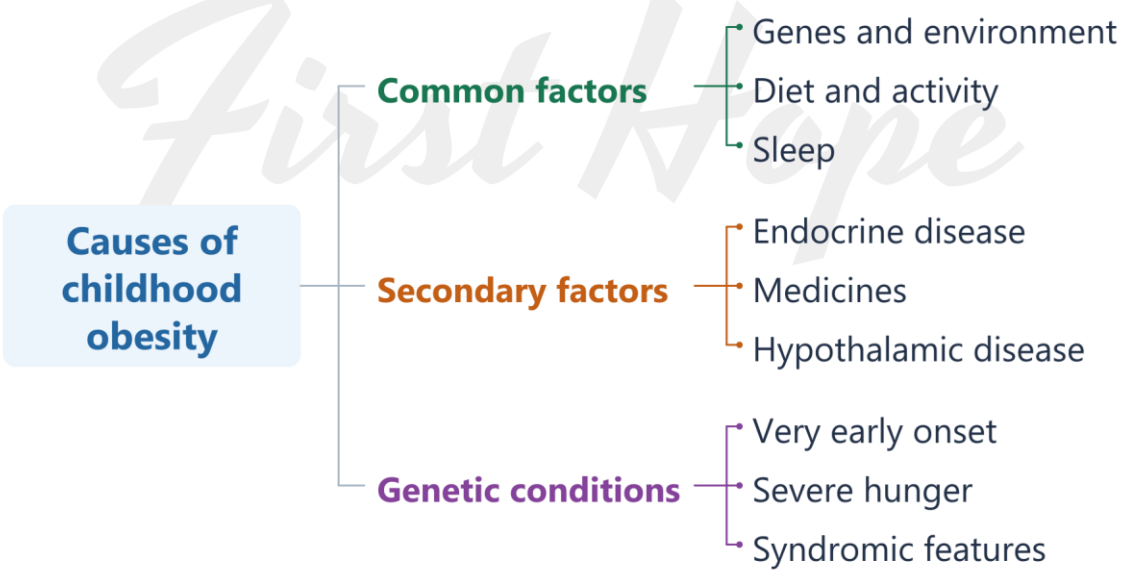
Childhood Obesity

- Childhood obesity is excess body fat that can impair health, and it must be assessed with age-appropriate growth standards.

BMI Measurement and Interpretation

- BMI is calculated as **weight in kilograms divided by height in metres squared**.
- For Indian children aged 5–18 years, IAP BMI charts use age- and sex-specific curves linked to adult-equivalent BMI values of 23 for overweight and 27 for obesity.
- Do not apply the adult values of 23 or 27 directly as fixed cutoffs to a young child.
- For children younger than 5 years, WHO weight-for-length or height standards identify overweight above +2 z scores and obesity above +3 z scores.
- BMI is a screening measure and must be interpreted with growth, body composition and the clinical picture.

Etiological Categories



1. Common Multifactorial Obesity

- Genetic susceptibility interacts with food availability, activity, sleep, family habits and the wider environment.
- Energy-dense foods, sugary drinks, sedentary time and limited opportunities for safe activity can contribute.
- The child should not be blamed for a condition influenced by biological and social factors.

2. Secondary Causes

- Rapid weight gain with poor height velocity suggests an endocrine or other secondary cause that needs assessment.

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- Severe obesity beginning very early, especially with extreme hunger or developmental features, may indicate a genetic disorder.
- Hypothalamic disease, glucocorticoids and some psychiatric or antiseizure medicines can cause weight gain.
- Routine broad endocrine testing is not required for every child who has obesity and normal linear growth without suggestive symptoms.

Clinical Assessment

History and Dietary Recall

- Ask when weight gain began, how quickly it progressed and what the previous growth charts show.
- Review family history of obesity, diabetes, hypertension, dyslipidemia and premature cardiovascular disease.
- Obtain a dietary recall that includes drinks, portion sizes, snacks, eating out and meals taken in front of a screen.
- Ask about daily activity, transport to school, sedentary time and the amount and quality of sleep.
- Explore snoring, daytime sleepiness, thirst, polyuria, headaches, abdominal pain and joint or hip pain.
- Ask privately when appropriate about bullying, mood, binge eating, restrictive eating and body-image distress.

Clinical Examination Components

1. Growth and Blood Pressure

- Measure weight and height reliably, calculate BMI and plot the appropriate BMI-for-age curve.
- Review height velocity and pubertal stage to look for a secondary growth disorder.
- Measure blood pressure with a cuff suited to arm size and interpret it using pediatric criteria.

2. Waist and Hip Measurements

Waist Circumference and Reference Site

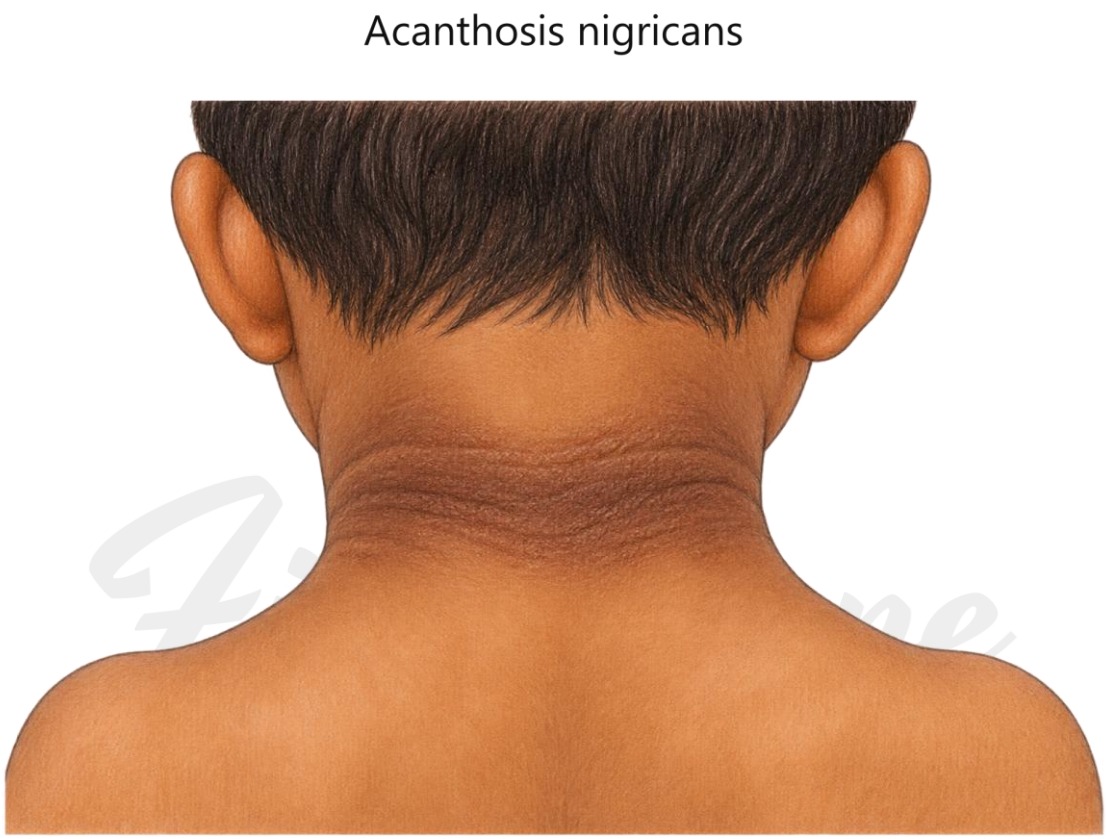
- Measure waist circumference using a consistent standardised anatomical site and compare it with an appropriate pediatric reference.
- One standard method places the horizontal tape midway between the lowest palpable rib and the iliac crest at the end of a normal expiration.
- Use the same measurement site as the chosen reference chart because different waist sites are not interchangeable.

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Hip Circumference, Ratio and Paediatric Interpretation

- Measure hip circumference around the widest buttock level when a waist-to-hip ratio is required.
- Calculate the ratio as waist circumference divided by hip circumference, using the same units.
- Adult waist or waist-to-hip thresholds must not be applied uncritically to children.

3. External Markers



Acanthosis nigricans causes thickened, velvety pigmentation and may accompany insulin resistance

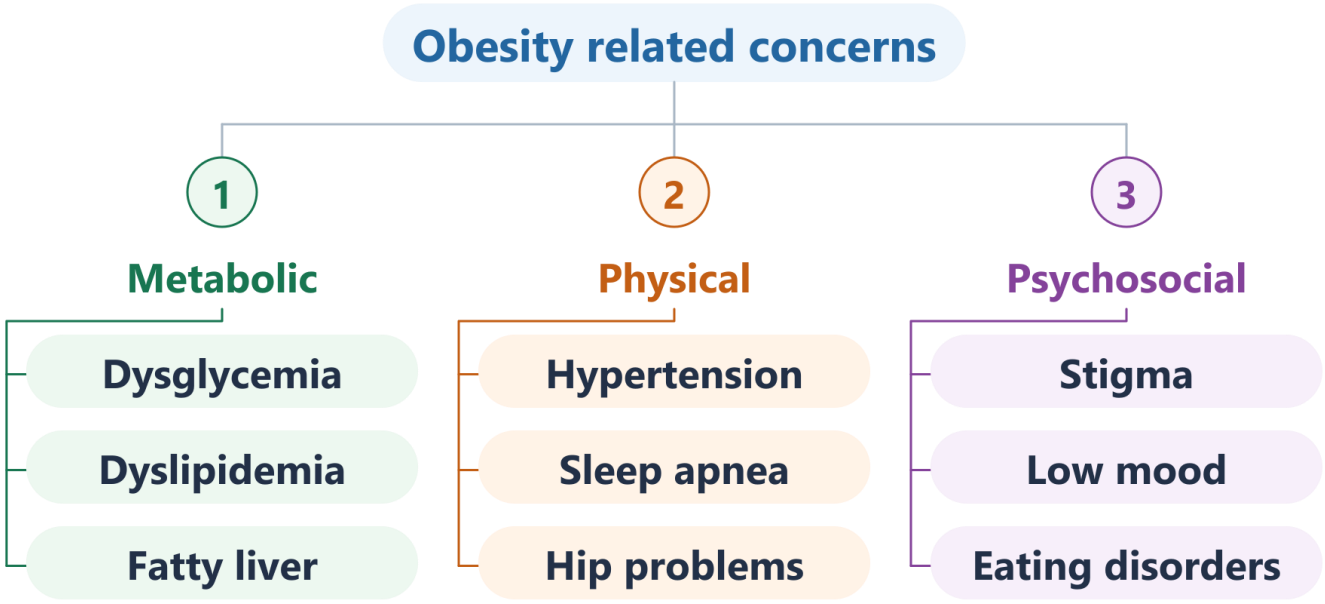
- Look for acanthosis nigricans, which can indicate insulin resistance but does not diagnose diabetes by itself.
- Assess striae, fat distribution, dysmorphic features and signs of glucocorticoid excess when present.
- Distinguish fatty breast enlargement from palpable glandular gynecomastia in boys and from true breast development when assessing puberty.
- Examine gait and hip movement when pain or a limp raises concern for slipped capital femoral epiphysis.

Complication Screening

- Depending on age, severity and risk, assess glucose regulation, lipid profile and liver enzymes for metabolic complications.
- Investigate suspected sleep apnea and assess for hypertension, fatty liver disease and orthopedic problems.

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- Consider polycystic ovary syndrome in an adolescent with appropriate persistent features, while avoiding diagnosis from normal early pubertal variation alone.
- Assess psychological wellbeing and eating disorders because treatment must protect mental as well as physical health.



Management and Prevention

Family Centred Behavioural Care

Shared Goals and Dietary Habits

- Discuss health and function using respectful language and ask permission before talking about weight.
- Agree on specific achievable goals with the child and family instead of prescribing a punitive diet.
- Replace sugary drinks with water, improve food variety and reduce frequent energy-dense snacks.
- Encourage regular meals, age-appropriate portions and attention to hunger and fullness.

Activity, Sleep and Gradual Growth Goals

Physical Activity and Safe Progression

- Build enjoyable physical activity into daily routines and reduce prolonged sedentary time.
- School-age children and adolescents should generally work toward an average of at least 60 minutes of moderate-to-vigorous physical activity daily, adapted to ability and health.
- Include vigorous activity and activities that strengthen muscle and bone on at least three days each week when medically suitable.

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