Challenging Clinical Case Capsule on Obesity

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Initial Presentation

A 35-year-old woman, Mrs. R, presented to the outpatient clinic with a chief complaint of progressive weight gain 20 kg over the past 5 years. She reported feeling fatigued, experiencing joint pain, and noticing excessive daytime sleepiness, which significantly impacted her ability to engage in physical activity, concentrate at work, and manage household responsibilities effectively. Despite multiple attempts at dieting and exercise, she struggled to lose weight. Her medical history was significant for gestational diabetes during her second pregnancy 10 years back, and hypothyroidism 20 years, managed with levothyroxine, both of which likely contributed to her current obesity and metabolic challenges by promoting insulin resistance and altering metabolic rate. Family history revealed obesity and type 2 diabetes in both parents. She worked a sedentary desk job and consumed high-calorie meals due to time constraints.

Examination Findings

On examination, her body mass index (BMI) was 39.2 kg/m², placing her in the 'Obese Class III' category as per the Indian Obesity Guidelines. And stage 2 obesity, this category indicates significant health risks including metabolic and cardiovascular conditions. She exhibited noticeable central adiposity. Vital signs revealed elevated blood pressure at 142/90 mmHg. Cardiovascular and respiratory systems were normal. Her abdomen showed no hepatomegaly or tenderness, although significant abdominal fat was present. Skin examination revealed acanthosis nigricans over the neck and axilla, indicating insulin resistance. Mild bilateral knee crepitus was noted without effusion.

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Investigations

Laboratory results showed a fasting glucose of 126 mg/dL and HbA1c of 6.4%, consistent with prediabetes. Lipid profile revealed dyslipidemia with elevated LDL (145 mg/dL), low HDL (38 mg/dL), and triglycerides at 220 mg/dL. Liver function tests showed mildly elevated ALT levels (56 IU/L), suggesting non-alcoholic fatty liver disease (NAFLD), now called metabolic dysfunction-associated steatotic liver disease (MASLD). Abdominal ultrasound confirmed fatty liver without hepatomegaly. A sleep study diagnosed moderate obstructive sleep apnea (OSA) with an apnea-hypopnea index (AHI) of 18 events/hour.

Management Strategies

Lifestyle Modifications: Lifestyle modifications formed the cornerstone of her management. She was referred to a nutritionist for a personalized, calorie-restricted meal plan emphasizing high-protein, low-glycemic index foods. A gradual exercise program was initiated as per initial exercise tolerance, targeting 150 minutes of moderate-intensity aerobic activity weekly, complemented by resistance training twice a week. She also enrolled in a cognitive-behavioral therapy program to address emotional triggers and eating patterns.

Medical Therapy: Medical therapy was tailored to her needs. Metformin 1 gm was started to address insulin resistance and prediabetes. A GLP-1 receptor agonist (titrated upto Semaglutide 7 mg/day) was prescribed to promote weight loss and glycemic improvement. Dyslipidemia was managed with atorvastatin 20 mg.

Other Interventions: For her moderate OSA, continuous positive airway pressure (CPAP) therapy was introduced, expected to improve daytime alertness, energy levels, and adherence to lifestyle interventions by reducing fatigue.

Follow-up: Follow-up included regular monitoring of weight, waist circumference, glucose levels, and liver enzymes every 3 months. Psychological support was provided to ensure adherence to the treatment plan.

Clinical Pearls

- **Identify Secondary Contributors:** Obesity can mask secondary contributors such as hypothyroidism or polycystic ovary syndrome (PCOS). In this case, hypothyroidism was ruled out as it was well-managed, but insulin resistance and OSA were significant contributors.
- **OSA-Obesity Cycle:** Moderate OSA contributed to daytime fatigue and poor exercise tolerance. CPAP therapy can improve energy levels, aiding in lifestyle adherence and weight reduction.
- **Role of GLP-1 Agonists:** GLP-1 receptor agonists are game-changers in obesity management. They not only promote significant weight loss but also improve cardiometabolic parameters and are well-tolerated when titrated properly.

Conclusion

This case highlights the multifactorial nature of obesity and the importance of a comprehensive, multidisciplinary approach. Such strategies can lead to significant long-term outcomes, including sustained weight loss, improved metabolic health, and enhanced quality of life. Addressing underlying conditions such as OSA, leveraging pharmacotherapy, and emphasizing lifestyle changes can yield significant improvements in health outcomes. Regular follow-up is crucial for sustained success, as is tailoring interventions to individual patient needs.

Suggested Reading

1. Misra A, Chowbey P, Makkar BM, Vikram NK, Wasir JS, Chadha D, et al. Consensus statement for diagnosis of obesity, abdominal obesity and the metabolic syndrome for Asian Indians and recommendations for physical activity, medical and surgical management. J Assoc Physicians India. 2009;57:163-70.
2. Bray GA, Kim KK, Wilding JPH; World Obesity Federation. Obesity: a chronic relapsing progressive disease process. A position statement of the World Obesity Federation. Obes Rev. 2017;18(7):715-23.