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A RARE COMPLICATION OF OBESITY IN ADOLESCENT GIRL: OBESITY HYPOVENTILATION SYNDROME (PICKWICKIAN SYNDROME) WITH PRES (POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME)

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ABSTRACT
Obesity among adolescent is a public health crisis worldwide .The rising trends of obesity among adolescent girls are noted as well in India. Obesity hypoventilation syndrome (OHS) is defined as triad of obesity, day time hypoventilation, sleep-disordered breathing in absence of an alternative neuromuscular, mechanical or metabolic explanation for hypoventilation. One of the symptom among patient is hypertension. It is associated with a reduced quality of life, and increased healthcare costs. We report a 12 years girl with obesity with complaints of breathlessness, anasarca with hypertension followed by convulsion. Patient required prolonged ventilation. Serial blood gas analysis, radiological and diagnostic tests were suggestive of obesity induced hypoventilation with PRES. Symptomatic treatment with anticonvulsants, antihypertensives, positive airway pressure, oxygen therapy & tracheostomy helped to reduce hospital stay with improved quality of life.

KEYWORD: Obesity, Hypoventilation, PRES.

CASE

A 12 year old girl admitted with complaints of generalized body swelling for 4 days with sudden onset breathlessness for 1 day. On 4th day of hospitalization she had productive cough, high grade fever with 4 episodes of generalized tonic clonic seizures (GTCS). She was shifted to PICU and was kept on non invasive ventilation (NIV) but she was not maintaining saturation so kept on mechanical ventilation. As it was not possible to wean off ventilation, tracheostomy was done on 10th day of ventilation. She was shifted to our institute and was continued with mechanical ventilation support as was not maintaining saturation on other supports.

On admission she was concious and oriented. Her vitals were stable on antihypertensive drugs. Her weight was 50 kg Height- 146cm BMI- 23.47(overweight - 23- 25) Waist to hip ratio 0.88 (obese - > 0.8). On systemic examination: Respiratory system examination revealed decreased air entry on left side, no adventitious sound heard. Rest systems were normal.

Hemogram suggestive of anemia (HB – 6.9gm%), Arterial blood gas suggestive of respiratory acidosis. Chest x ray finding suggestive of right sided pneumonia. CECT Thorax showed bilateral severe consolidation. Bronchoalveolar lavage was done in which growth of Klebsiella pneumoniae was present so patient was treated with higher antibiotics. Patient was continued mechanical ventilation with daily CPAP and T piece trials. She was treated with hematinics, antihypertensives, antiepileptics . MRI Brain was done when she had one more episode of GTCS during hospitalization, findings suggestive of posterior reversible encephalopathy syndrome (PRES). EEG was abormal. Progressively she started maintaining spo2 in awake state & with minimal O2 during night. Other lab investigations: Serial ABGs suggestive of respiratory acidosis (CO2 retention). Hormonal studies were nomal. 2 D Echo findings of pericardial effusion with severe PAH. Sleep apnoea study_revealed obstructive sleep apnoea and hypopnoea syndrome.

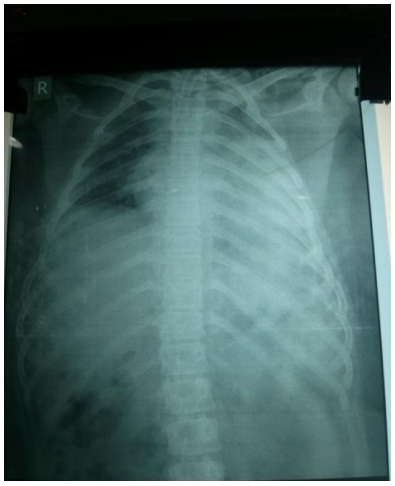

Fig. 1

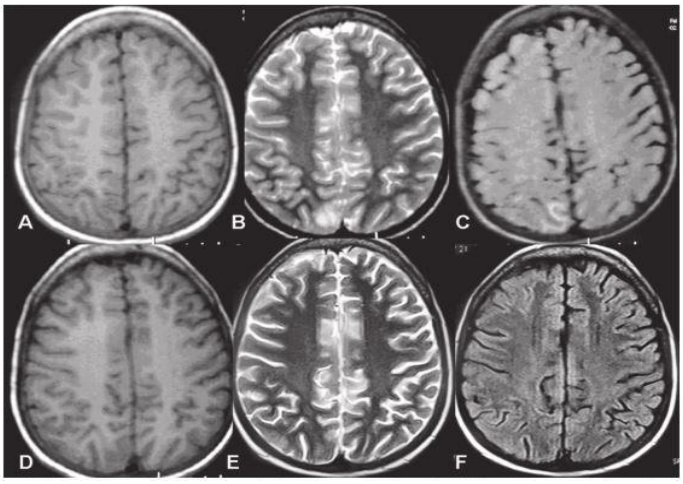

Fig. 2

On basis of clinical history with examination and lab diagnosis with other investigations diagnosed as a case of obesity hypoventilation syndrome with posterior reversible encephalopathy syndrome. She was discharged after 2 months of hospitalization on oxygen support(required while sleep) and antiepileptics, antihypertensives, hematinics were continued.

Tracheostomy closure was done after a month of discharge.

DISCUSSION

OHS is defined as combination of obesity, hypoxemia during sleep, and hypercapnia during the day, resulting from hypoventilation in absence of an alternative neuromuscular, mechanical or metabolic explanation for hypoventilation.[2][3] It is classified under two subtypes:

1. OHS in the context of obstructive sleep apnea
2. OHS primarily due to sleep hypoventilation syndrome

Overall, 90% of all people with OHS fall into the first category, and 10% in the second.[2]

It is usually diagnosed based on high body mass index, arterial blood gas showing high pco2and based on signs and symptoms with confirmatory tests like sleep apnoea study, Electroencephalography, electrocardiography, pulse oximetry.[1][2] To distinguish between OHS and various other lung diseases that can cause similar symptoms, imaging of the lungs (chest x ray or CT scan). Echo- and electrocardiography may also show strain on the right side of the heart caused by OHS, and spirometry may show a restrictive pattern related to obesity.[2]

TREATMENT OF OHS

The most important treatment is weight loss by diet, exercise, medication or sometimes bariatric surgery, It is not always successful.[1][2] If the symptoms are significant, nighttime positive airway pressure(PAP) treatment is tried. PAP, initially in the form of continuous positive airway pressure (CPAP), is a useful treatment, particularly when obstructive sleep apnea co-exists.[2] CPAP alone is effective in more than 50% of people with OHS. Bi-level positive pressure: Delivers higher pressure during inspiration and a lower pressure during expiration. Oxygen therapy as per requirement. Patient requires admission to intensive care unit and mechanical ventilation when presents with severe abnormalities such as markedly deranged blood acidity (pH<7.25) or depressed level of consciousness due to very high carbon dioxide levels. As a last resort, tracheostomy may be necessary; to bypass obesity-related airway obstruction in the neck. This may be combined with mechanical ventilation with an assisted breathing device through the opening.

PRES is a disorder of cerebrovascular autoregulation with multiple underlying etiologies. It is associated with increase in BP. In its most severe form presents with seizure, coma or death. Cause are immunosuppressive therapy, renal failure, severe high blood pressure, lupus**.**[4][5][6] Typical symptoms are headache, nausea, vomiting, altered mental status, seizures, stupor, and visual disturbances. Diagnosis based on clinical, supportive findings on magnetic resonance imaging of the brain**.** Treatment is treat the cause.[6]

PROGNOSIS

- Obesity hypoventilation syndrome is associated with a reduced quality of life, and people with the condition incur increased healthcare costs, largely due to hospital admissions including observation and treatment in intensive care units and often occurrence of several other disabling medical conditions, such as asthma (in 18–24%) and type 2 diabetes (in 30–32%), heart failure.

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