

## Undiagnosed hypothyroidism with delayed recovery: A case report

Sir,

We report a case of delayed recovery from general anesthesia, which was later on diagnosed as a case of hypothyroidism.

A 60-year female patient was posted for elective open cholecystectomy with heart rate 47/min, blood pressure 140/80 mmHg, and normal electrocardiograph. Patient had no other comorbidities and was not on any drugs. Her echocardiography revealed stage I left ventricular diastolic dysfunction with normal systolic functions. Medicine referral was done for bradycardia. On operating table (OT), her heart rate (HR) increased to 58/min after injecting atropine 0.6 mg intravenously (IV). Anesthesia was induced with intravenous morphine, thiopentone, and vecuronium with endotracheal intubation and maintained with isoflurane, nitrous oxide, and oxygen uneventfully. At the end, patient recovered well with adequate spontaneous respiration and neuromuscular blockade was reversed with injection neostigmine and glycopyrrolate. However, following extubation, patient became drowsy and apneic. Trachea was reintubated and intermittent positive pressure ventilation was restarted. Fresh reports revealed normal electrolytes and blood gas analysis. Patient was re-evaluated clinically and was

observed to have very thick and rough skin (probably missed in preanesthetic evaluation), low body temperature, and bradycardia without thyroid swelling.

Suspecting hypothyroidism, blood sample was sent for TSH estimation after 2.5 h of reintubation; and as injectable thyroxine was not available, two tablets of Thyroxin 100 µg each were given through Ryle's tube empirically on emergency basis. Patient recovered well after 4 h of elective postoperative ventilation. She became conscious with adequate spontaneous ventilation. Trachea was extubated. After surgery, corticosteroid replacement therapy was started as 100 mg three times a day and continued as oral therapy, since hypothyroidism is commonly associated with adrenal insufficiency.

Her diagnosis was later confirmed as hypothyroidism after receiving reports of TSH level (TSH: 111 µIU/L). She was put on tablet Eltroxin 100 µg daily thereafter.

Hypothyroidism may be present in subclinical form. The anesthetic requirement of hypothyroid patients has not been analyzed so far in any study; but clinically, they are found to be more sensitive to anesthetic drugs and sedatives affecting anesthetic management.<sup>[1,2]</sup> Clinical signs of hypothyroidism may range from cold intolerance to constipation, depression, lethargy, muscle weakness, slow movement, dry skin, slow gastric emptying, sleep apnea, depression of ventilatory response to hypoxia, and hypercarbia.<sup>[3]</sup> The normal range of TSH is 0.3–4.5 mU/L. Primary hypothyroidism is diagnosed

through detection of a low free T4 and a high TSH level. A rising TSH level is the most sensitive indicator of failing thyroid function.<sup>[4]</sup>

Hypothyroidism causes increased responsiveness to central nervous system depressants and neuromuscular blocking agents. Increased sensitivity may be secondary to reduced cardiac output and blood volume, abnormal baroreceptor function, slowing of drug metabolism, and excretion. Decreased neuromuscular excitability, decreased ventilatory response to hypoxia, and hypercarbia are enhanced by anesthetic agents.<sup>[1,4]</sup> Due to depression of vascular and respiratory reflexes, hypotension, cardiac arrest and delayed recovery of spontaneous ventilation is common in hypothyroid patients.<sup>[5]</sup> Such patients should be rendered euthyroid before the surgery. Regional anesthesia should be preferred, if the surgery cannot be delayed.<sup>[5]</sup>

To conclude, a patient of persistent bradycardia may have other than cardiac cause. In cases of emergency, signs of hypothyroidism may be managed empirically with enteral thyroid hormone replacement state, if parenteral form of thyroxine is not available.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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