Perioperative implication of sudden manifestation of carcinoid tumor masquerading as insulinoma

Sir,

A 44 years old, American Society of Anaesthesiologists Grade III-IV female with complaints of recurrent attacks of forgetfulness, altered behavior, giddiness, headache, sweating for the last 3 years and recent onset seizures was diagnosed to have insulinoma and referred to our hospital. The patient gave no history of atopy, drug allergy, diarrhea or bronchospasm. Serial blood glucose monitoring revealed hypoglycemia with early morning levels as low as 20 mg%. Patient had 9 g% hemoglobin, other investigations were normal. Multiphase computed tomography abdomen and contrast enhanced magnetic resonance imaging demonstrated an upper and mid polar renal mass. Positron emission tomography (68 DOTANOC and octeotride) scan demonstrated neuroendocrine nature of the tumor and right radical nephrectomy was planned. Preoperatively, 10% dextrose infusion was continued along with serial monitoring of blood glucose.

In the OR following routine monitoring, an 18G epidural catheter was inserted in the T9-T10 interspace. General anesthesia (propofol, fentanyl, atracurium, endotracheal intubation) administered, central venous pressure and invasive arterial blood pressure monitored. Capillary blood glucose was measured every 30 min (maintained at 100-150 mg%). Analgesia was maintained with morphine (6 mg intravenous [IV]) and epidural infusion (0.125% bupivacaine, 2 mcg/ml fentanyl). Intraoperative hemodynamics were stable. At the end of surgery (blood loss 800-1000 ml, MABL-600 ml) the patient developed tachycardia (120 beats/min) and low hematocrit (22%). Transfusion of 1 unit packed red blood cell (PRBC) was started. Thereafter flushing, that blanched on touch and edema was observed in the face, neck and chest together with brownish discoloration of urine. The tachycardia (150 beats/min) persisted, without hypotension (130-150/85-90 mmHg). SpO_2 was 99% and $EtCO_2$ was 35-40 mmHg. Chest auscultation revealed neither wheezing nor crepitation. Suspecting a mismatched blood transfusion, PRBC was stopped. Patient had good respiratory efforts (respiratory rate of 20-25/min) therefore neuromuscular blockade was reversed. Check laryngoscopy ruled out laryngeal edema and trachea was extubated. Postextubation patient was restless but obeyed commands and tachycardia persisted. Prophylactic hydrocortisone and H_1 blocker (promethazine)

were administered. The differential diagnoses were mismatched blood transfusion and anaphylactic reaction. Blood and urine samples were sent for transfusion reaction screen. Patient was shifted to intensive care unit. The symptoms resolved 2 h after extubation.

Patient's subsequent hospital stay was uneventful with normal blood glucose levels, she was discharged home after 10 days. Mismatched transfusion reaction screen was negative. Histopathology of the tumor revealed neuroendocrine tumor grade 1 stage IV with tumor cells immunopositive for chromogranin, synaptophysin with focal positivity for insulin and somatostatin suggestive of a carcinoid tumor.[1]

Primary renal carcinoid is a rare tumor with <90 cases reported worldwide.[2] The exact pathogenesis of renal carcinoid tumors is not known because neuroendocrine cells are not found in normal renal parenchyma, pelvis or ureter though they may be present in the bladder or prostate. In addition, misdiagnosis and atypical presentations are common.[2,3] The typical presentation of carcinoid syndrome (flushing, diarrhea, abdominal pain, valvular heart disease, telangiectasia, wheezing, pellagra like skin lesions due to excessive secretion of histamine and serotonin) have only been observed in 13.6-25% patients with renal carcinoid.[1-3]

Atypical presentations include Cushing's syndrome (glucocorticoid excess); Verner Morrison syndrome (excessive release of vasoactive intestinal polypeptide, causing watery diarrhea, dehydration and hypokalemia).[2] Though gastrointestinal and bronchial carcinoids have presented with hyperinsulinemia, our patient is probably the first reported case of primary renal carcinoid tumor presenting with hyperinsulinemic hypoglycemia.[4]

An acute carcinoid crisis manifests as flushing with fluctuations in blood pressure, cardiac arrhythmias, bronchoconstriction, and mental status changes. The flushing, tachycardia and edema, together with the recently started PRBC mimicked a mismatched transfusion reaction, necessitating withholding the transfusion. This may have serious consequences in patients with coronary artery disease or hemodynamic instability.

In case a carcinoid crisis is suspected, IV boluses of 50-200 μg IV octreotide are effective in rapidly reversing severe bronchospasm and hypotension.

Patients with high serotonin levels are prone to delayed recovery from anesthesia.[5] Restlessness in this patient during the immediate postoperative period was probably due to high central nervous system levels of this mediator.

We present this case to highlight that a renal carcinoid tumor can masquerade as an insulinoma and present as an unanticipated carcinoid crisis that can mimic a mismatched blood transfusion reaction.

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Conflicts of interest
There are no conflicts of interest.

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