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Renal Cell Carcinoma Recognized Incidentally during Long-term Lithium Treatment

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Lithium is a first-line medication for bipolar disorder. Clinically, we should monitor the nephrotoxicity of lithium due to a narrow therapeutic index. Lithium can cause renal disorders, such as diabetes insipidus and interstitial nephritis, as well as renal microcysts and solid tumors which can develop during long-term lithium treatments.[1] This study reports a rare case of renal cell carcinoma incidentally diagnosed during treatment for acute lithium intoxication and kidney injury in a long-term lithium user. A 54-year-old female presented to the emergency department due to symptoms of drowsiness. She had had no oral intake of lithium for seven days because of the acute onset of weakness and mental status change. Her skin turgor was observed to be decreased upon arrival. She had been taking 900 mg of lithium carbonate daily for 15 years to manage her bipolar disorder. Her laboratory examination revealed serum creatinine and lithium levels of 171.68 μmol/L (normal, 44.25-115.04 μmol/L) and 3.72 mmol/L (normal, 0.5-1.0 mmol/L), respectively. We initially considered acute lithium intoxication. Brain computed tomography (CT) was normal. Her neurologic symptoms completely improved after hemodialysis. An abdomen CT revealed a mass larger than 7 cm in the mid pole of the right kidney (Fig. 1A). She underwent laparoscopic nephrectomy after her clinical symptoms and signs had completed improved. The renal mass was confirmed to be a clear cell carcinoma (Fig. 1B). Other than hypertension and chronic lithium use, this patient had no other risk factors for renal cell carcinoma such as smoking, chronic kidney disease, old age, male gender, or obesity. It is not clear whether the long-term lithium was a cause of the renal solid tumor. However, it does induce cell remodeling in renal tubules. This continuous remodeling of renal tubular cells may result in multiple cystic masses, as was found in this case.[2] Fig. 1C shows a gross finding of a right kidney with multicystic formations within a huge mass. There has been no consensus or guidelines about

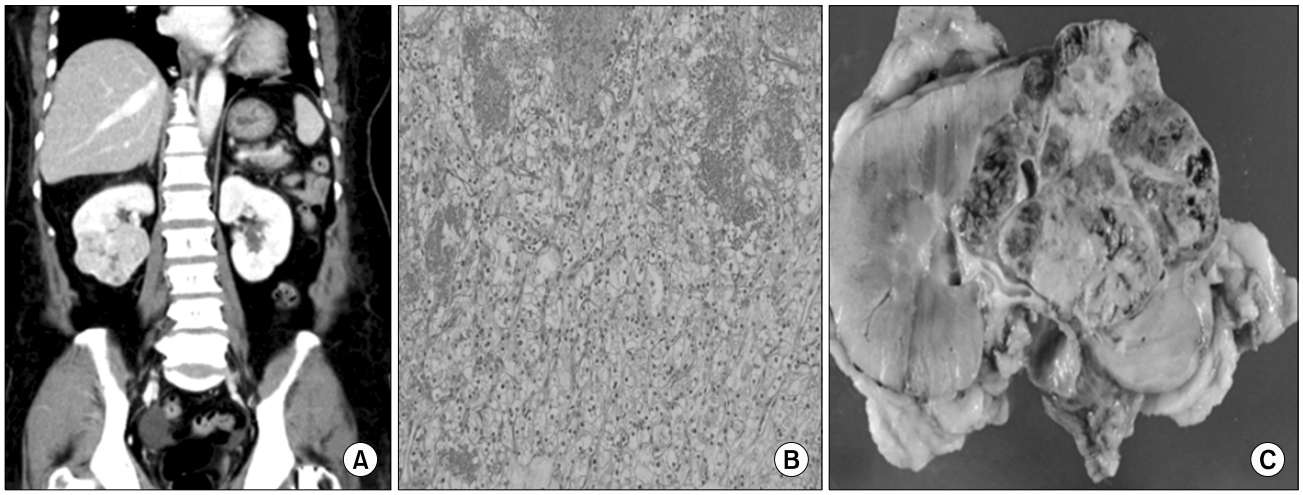

FIG. 1. A coronal view of an abdomen computed tomography with enhancement demonstrates a 7-cm renal mass with a lobulated contour and central necrosis in the mid pole of the right kidney (A). The tumor shows a solid, nesting, and tubular pattern of growth and the polygonal tumor cells have clear cytoplasm, H-E stain ×200 (B). The 70×60 mm mass in the mid pole of the right kidney also contained multiple cystic changes and necrotic tissues with hemorrhage (C).

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screening for renal solid tumors. However, as evidenced in this case, it may be desirable to perform regular screening tests for renal solid tumors in patients undergoing long-term lithium treatments

CONFLICT OF INTEREST STATEMENT

None declared.

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