A 3 years old boy with a history of surgery for orchidopexy was admitted to our hospital with fever and abdominal pain. Clinical examination and laboratory investigations revealed urinary tract infection with renal involvement. Ultrasonography demonstrated a solitary left kidney and raised the suspicion of a fusion anomaly. Voiding cystography disclosed grade III vesicoureteral reflux and technetium-99m dimercaptosuccinic acid scintigraphy revealed right to left crossed renal ectopia with fusion (L-shaped kidney). The patient is undergoing standard follow-up for the early detection of possible renal complications. In conclusion, L-shaped kidney is a rare entity and the 99mTc-DMSA scintigraphy played an important role of timely diagnosis.