

Usefulness of single photon emission computed tomography (SPECT)/computed tomography and radioguided surgery in a patient with recurrent pheochromocytoma

Sir,

Pheochromocytoma and neuroblastoma are the most common tumors originating from the adrenergic nervous system. Localization of pheochromocytoma is based mostly on computed tomography (CT), magnetic resonance imaging (MRI), and radio iodinated meta-iodobenzyl-guanidine (MIBG). MIBG scintigraphy contributes mainly to the delineation of extra-adrenal disease and metastatic spread.^[1] We present an 11-year-old child with refractory hypertension diagnosed of having pheochromocytoma who underwent bilateral adrenalectomy. During follow-up, 4 years after the surgery, urinary nor-metanephrine level rose to 365 $\mu\text{g}/24\text{ h}$ (normal value: 0-354 $\mu\text{g}/24\text{ h}$). An I-123 MIBG scintigraphy showed focal uptake of radiotracer in the abdomen that increased in the delayed image (24 h). Single photon emission computed tomography/Computed tomography (SPECT/CT) localized the focal uptake in a node, measuring 14 mm \times 8 mm in size, located between the superior mesenteric artery and the

uncinate process of the pancreas, above the aorta [Figure 1] suggesting disease recurrence.

Due to the difficulty in the surgical approach secondary to previous surgery, gamma probe guided excision as described previously^[2-5] was planned collectively by the Pediatric Surgery and Nuclear Medicine Departments. The day before the surgery, 144 MBq of I-123 MIBG was administered intravenously. Planar and SPECT images were acquired to check the actual size of the nodule. Next day radio-guided excision of the lesion was done by a right subcostal incision over the previous surgical scar. A fixed mass over the artery were removed. The gamma probe confirmed that the lesion was totally removed. The count rates on the gamma probe was 470 cps in *in-vivo* node, 503 cps in *ex-vivo* node, 170 cps over liver and 70 cps in the surgical bed after excision [Figure 2]. The excised mass revealed paraganglioma on histopathological examination.

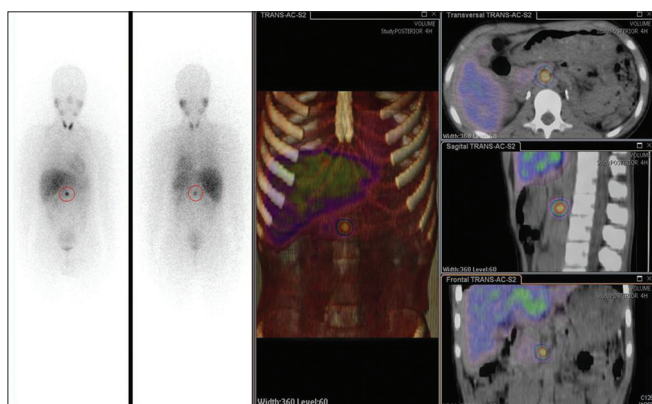


Figure 1: Planar and SPECT/computed tomography images which demonstrates the focal uptake was a node located between superior mesenteric artery and the uncinate process of the pancreas, above the aorta

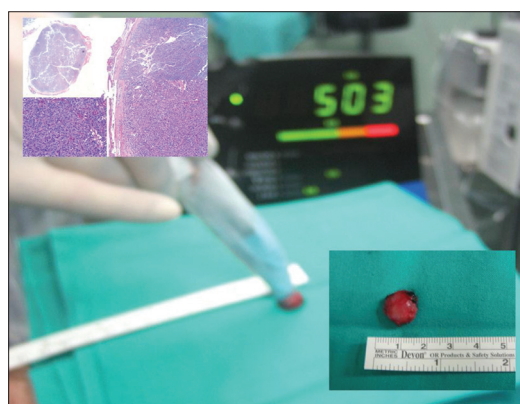


Figure 2: The mass excised showed 503 counts "ex vivo" and background in the surgical bed after excision was 70 cps. The histopathological analysis proved paraganglioma

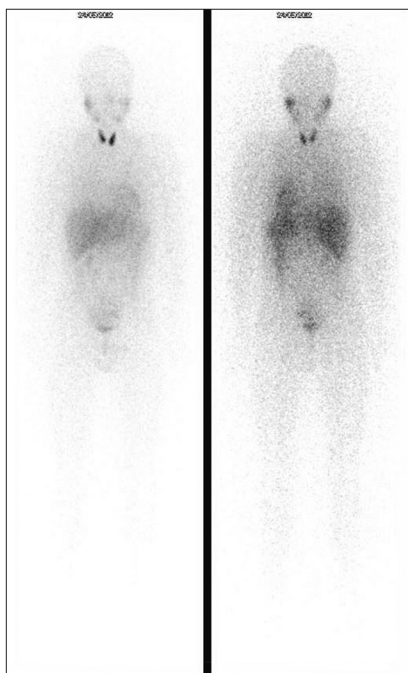


Figure 3: Postsurgical ¹²³I-meta-iodobenzyl-guanidine scintigraphy demonstrated the absence of any pathological uptake

Post-surgical period was uneventful. Urinary metanephrine levels were normal. Repeat ¹²³I-MIBG scintigraphy 6 months later did not show any pathological uptake [Figure 3].

To the best of our knowledge, this is the first case with surgical treatment was done based on the radio guided location using a gamma probe. This demonstrates that how a multidisciplinary approach helps in the patient's management making the surgery easier and diminishing morbidity.

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