Brain metastasis from neuroendocrine tumor of the gallbladder: a rare entity

Dear Editor,

Neuroendocrine tumors (NETs) are derived from enterochromaffin or Kulchitsky cells, which are widely distributed in the body.[1,2] Consequently, NETs can be found in any location of the body, although the sites most commonly affected are the gastrointestinal and bronchopulmonary tracts, representing approximately 67% and 25% of cases, respectively.[3] The incidence of NETs has increased over the past 30 years but survival has also improved.[2] According to United States epidemiological data, gallbladder (GB) NETs are rare, representing only 0.2% of all NETs.[4] Metastasis to the liver may occur from NETs of the foregut, midgut as well as hindgut but metastasis to the brain is extremely rare.

Here we present a 47-year-old Indian female with history of NET of GB post 6 cycles of chemotherapy, radical cholecystectomy, excision of tumor and local radiotherapy who was found to have gradually rising serum chromogranin A (SCg A) levels on follow up.[increase in SCg A level from 21.53 ng/ml to 385.51 ng/ml in a span of 8 months (normal <100)]. She underwent contrast enhanced computed tomography (CECT) of chest and abdomen. CECT chest was normal and CECT abdomen reported no mass lesion in GB/liver. Patient was further investigated with a whole body 18-fluorodeoxyglucose (18 FDG) positron emission tomography (PET)/CT. PETCT showed an unsuspected FDG avid 6.7 × 4.5 cm cystic lesion in left parieto occipital region of brain [Figure 1]. The lesion had a large enhancing solid component and showed mass effect with effacement of ipsilateral occipital horn of lateral ventricle, minimal midline shift of 3 mm toward right [Figure 2]. Rest of 18FDG whole body survey showed no other metastatic sites [Figure 3]. She received focussed radiotherapy to brain and showed clinical improvement.

GB NETs may develop from neuro endocrine cells induced by intestinal metaplasia of the body and fundus as well as from preexisting endocrine cells in the neck of the GB.[4-6] The age at presentation of GB NETs ranges from 38 to 81 years, and there is a markedly higher incidence in women.[7] Carcinoid syndrome is very rare (<1%), and most GB carcinoids are diagnosed incidentally during a histological examination of GB specimens at autopsy, after cholecystectomy for acute or chronic cholecystitis, or after surgery for another suspected biliary pathology.[5] The majority of GB polyps are nonneoplastic and most commonly include cholesterol polyps (60%) or inflammatory ones (10%). Adenomyomas represent the second most common type of GB polyps (25%). This type of lesion is associated with an increased incidence of GB cancer, and the GB should be removed surgically.

For NET tumor a more aggressive radical surgery, including radical cholecystectomy and regional lymphadenectomy combined with a hepatic resection in order to obtain adequate free margins, is needed.[1] Adjuvant therapies such as chemo and or radiotherapy may not be required for typical low grade carcinoids as they are generally insensitive to traditional radiotherapy and chemotherapy. Common sites of metastases of NET are liver, bones[8] but isolated brain metastasis is very rare. For many years, SCg A and urinary 5-HIAA (5 hydroxy indole acetic acid) having specificity of nearly 100% but a low sensitivity, have been considered as the gold standard for detecting carcinoids and conducting follow-up.[9] This case highlights that there may be a need of early and routine imaging modality like whole body 18-FDG PETCT especially in patients with rising SCgA levels to detect metastatic sites and optimize the therapy.

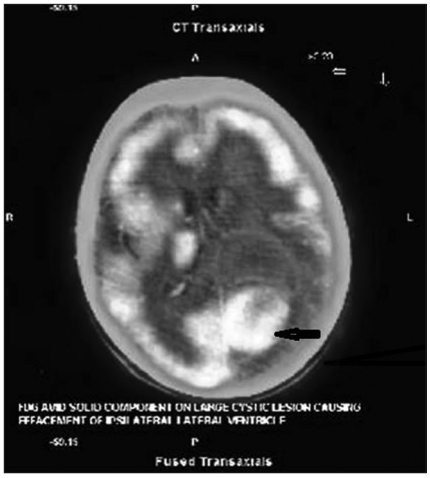

Figure 1: 18 FDG PET/CT reported FDG uptake in enhancing solid component of large cystic lesion involving left parietooccipital region

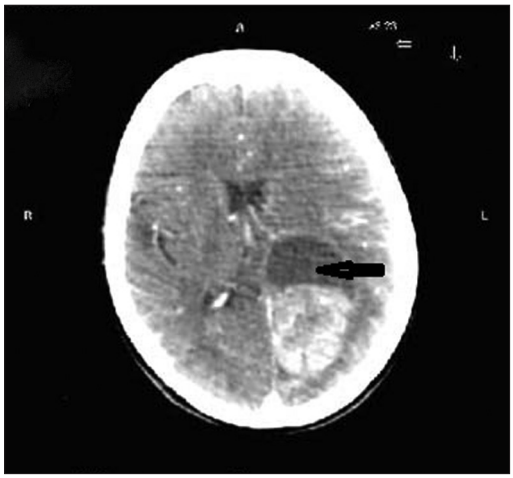

Figure 2: 6.7 × 4.5 cm large cystic lesion seen in left parietooccipital region. The lesion had large enhancing solid component. Mass effect with effacement of ipsilateral occipital horn of lateral ventricle and minimal midline shift of 3 mm toward right

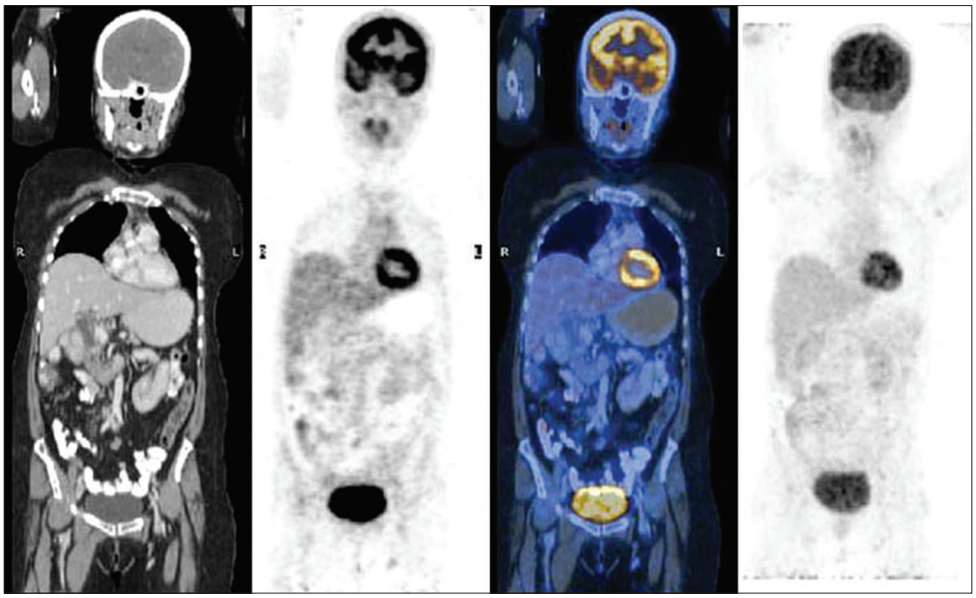

Figure 3: Whole body 18 FDG PET/CT (coronals) showing normal physiological FDG uptake. There is no abnormal FDG uptake in any lymph nodal or extranodal distant metastases

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