

# F-18 FDG PET/CT Scan Helps in Correct Localization of Primary Esophageal Cancer in a Case of SCCA Metastasis to the Skull Previously Suspected from Primary Lung Cancer

To the Editor,

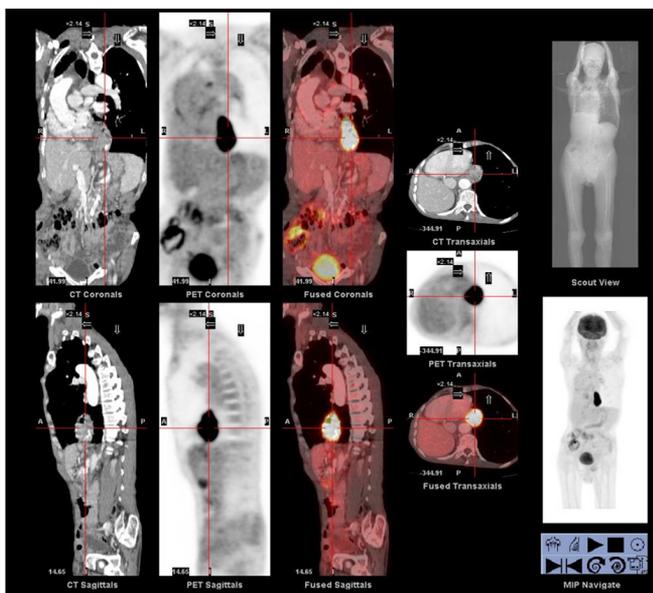
Metastases are the most common calvarial neoplasm in adult, the majority of which are primarily from cancers of breast, lung, prostate and thyroid.<sup>1-3</sup> Solitary skull metastasis in esophageal cancer is extremely rare<sup>2,4,5</sup>, particularly in patients without localized esophageal symptoms.<sup>6</sup> F-18 FDG PET/CT scan is an efficient non-invasive tool in detecting cancer of unknown primary (CUP).<sup>7-10</sup> Seve, *et al* reported that 41% of the primary tumors which were not apparent after conventional work up could be detected by F-18 FDG PET/CT, giving overall sensitivity, specificity and accuracy of 91.9%, 81.9%, and 80.5%, respectively. From their review, the results obtained from F-18 FDG PET/CT also led to change in clinical management in approximately one-third of the patients, particularly from curative surgical treatment to systemic chemotherapy due to further detection of unrecognized metastases.<sup>11</sup> However, the use of F-18 FDG PET/CT in esophageal cancer is still limited.<sup>12</sup>

We demonstrate a 63-year-old male who presented with painful mass from squamous cell carcinoma (SCCA) at posterior skull region for 2 months. Previous diagnostic CT scan of brain and chest from another hospital showed

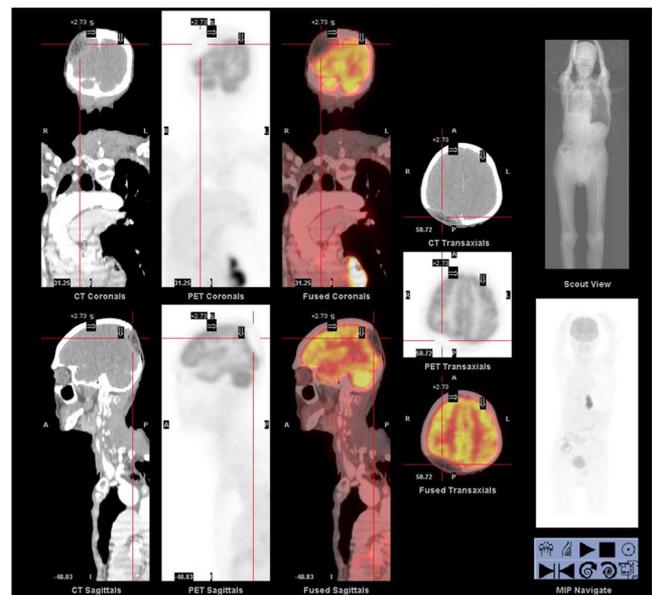
a soft tissue mass at right parietal region with adjacent bony destruction, thickening of distal esophagus and right lung atelectasis. He underwent craniectomy with tumor removal and the surgical pathology of skull and soft tissue from right parietal region reported metastatic SCCA, well-differentiated, which was positive for CK7, p63, CK8/18, but negative for CK20, TTF1 and mucicarmine, compatible with SCCA from lung. His ENT examination and serum PSA results were all negative. F-18 FDG PET/CT scan was requested to differentiate between primary esophageal versus lung cancer together with evaluation of metastasis. (Fig 1 A-C) This particular case showed the important role of F-18 FDG PET/CT scan in the work up of primary cancer in a case of metastatic cancer of unknown origin, especially when the results of initial work ups are discordant and accurate localization of the primary tumor is crucial for further management.

## ACKNOWLEDGMENT

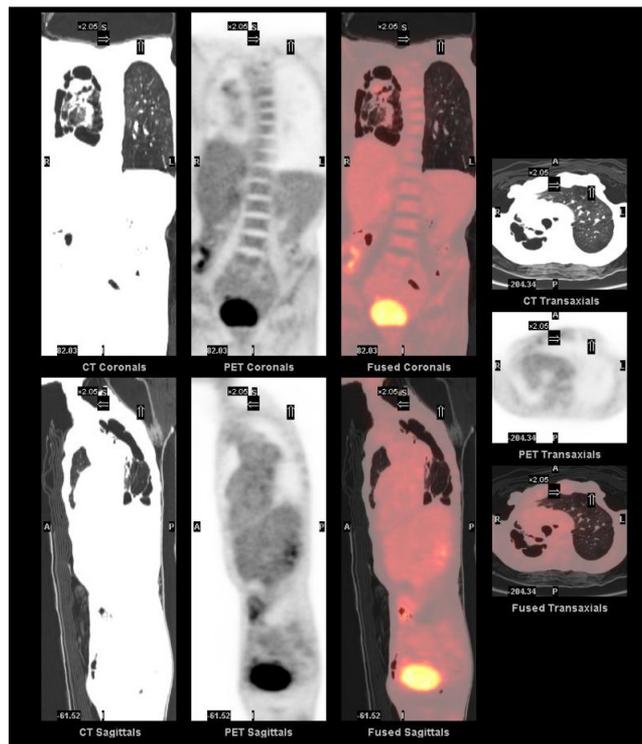
The author wishes to thank Miss Dollaporn Polyueum for her assistance in manuscript preparation.



1A



1B



1C

**Fig 1.** F-18 FDG PET/CT scan showed metabolically active lesion at esophagus extended from intrathoracic esophagus to E-G junction, suggestive of primary esophageal cancer (1a). There was no evidence of residual tumor at surgical bed at right parietal region (1b). Destructive right lung and multiple small calcified granulomatous lesions in both lungs were noted with no demonstrable hypermetabolic lung mass or nodule to suggest primary lung cancer (1c).

**Tanyaluck Thientunyakit, M.D.**

*Department of Radiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand.*

*E-mail: stanyalu@hotmail.com*

*Siriraj Med J 2017;69: 159-160*

*Received 29 June 2016 Revised 31 July 2016 Accepted 18 August 2016*

*doi:10.14456/smj.2017.32*

## REFERENCES

- Mitsuya K, Nakasu Y, Horiguchi S, Harada H, Nishimura T, Yuen S, Asakura K, Endo M. Metastatic skull tumors: MRI features and a new conventional classification. *J Neurooncol* 2011;104:239-45.
- Stark AM, Eichmann T, Mehdorn HM. Skull metastases: clinical features, differential diagnosis, and review of the literature. *Surg Neurol* 2003;60:219-25.
- Michael CB, Gokaslan ZL, DeMonte F, McCutcheon IE, Sawaya R, Lang FF. Surgical resection of calvarial metastases overlying dural sinuses. *Neurosurgery* 2001; 48:745-55.
- Kao CH, Shang CT, Lin YC, Li YF, Cheng YL. Esophageal carcinoma presented with a skull tumour. *Can J Surg* 2009;52:E215-E216.
- Ellis MJ, McDonald PJ. Acute epidural hematoma secondary to skull metastasis from esophageal carcinoma. *Can J Neurol Sci* 2007;34:491-3.
- Shewchuk SM, Meneses BO, Lerma LB, Shnider BI. Femoral and skull metastasis with hypercalcemia: occurrence with esophageal carcinoma without dysphagia. *Arch Intern Med* 1982;142(12):2207-9.
- Kwee T, Kwee R. Combined FDG-PET/CT for the detection of unknown primary tumors: systematic review and meta-analysis. *Eur Radiol* 2009;19:731-44.
- Moller A, Loft A, Berthelsen A, Pedersen K, Graff J, Christensen C, et al. 18F-FDG PET/CT as a Diagnostic Tool in Patients with Extracervical Carcinoma of Unknown Primary Site: A Literature Review. *Oncologist* 2011;16(4):445-51.
- Kwee T, Basu S, Cheng G, Alavi A. FDG PET/CT in carcinoma of unknown primary. *Eur J Nucl Med Mol Imaging* 2010;37:635-44.
- HU M, Zhao W, Zhang PL, Ju GF, Fu Z, Zhang GL, et al. Clinical applications of 18F-fluorodeoxyglucose positron emission tomography/computed tomography in carcinoma of unknown primary. *Chin Med J* 2011;124:1010-4.
- Seve P, Billotey C, Broussolle C, Dumontet C, Mackey JR. The Role of 2-Deoxy-2-[F-18]Fluoro-D-Glucose Positron Emission Tomography in Disseminated Carcinoma of Unknown Primary Site. *Cancer* 2007;109:292-9.
- Bruzzi J, Munden R, Truong M, Marom E, Sabloff B, Gladish G, et al. PET/CT of esophageal cancer: its role in clinical management. *Radiographics* 2007;27:1635-50.