



# Nuclear Medicine Week 2025

"BEYOND BOUNDARIES: THE FUSION OF DIAGNOSIS, THERAPY, AND PRECISION INTERVENTION"

26<sup>th</sup> October 2025 - 1<sup>st</sup> November 2025



## Nuclear Medicine Week India 2025

Indian Nuclear Medicine Week, observed during the week of Dr. Homi J. Bhabha's birthday (October 30), pays tribute to the visionary founder of India's atomic energy initiative. This week underscores the progress and impact of nuclear medicine in healthcare, focusing on its essential role in diagnosis, treatment, and research throughout the country.

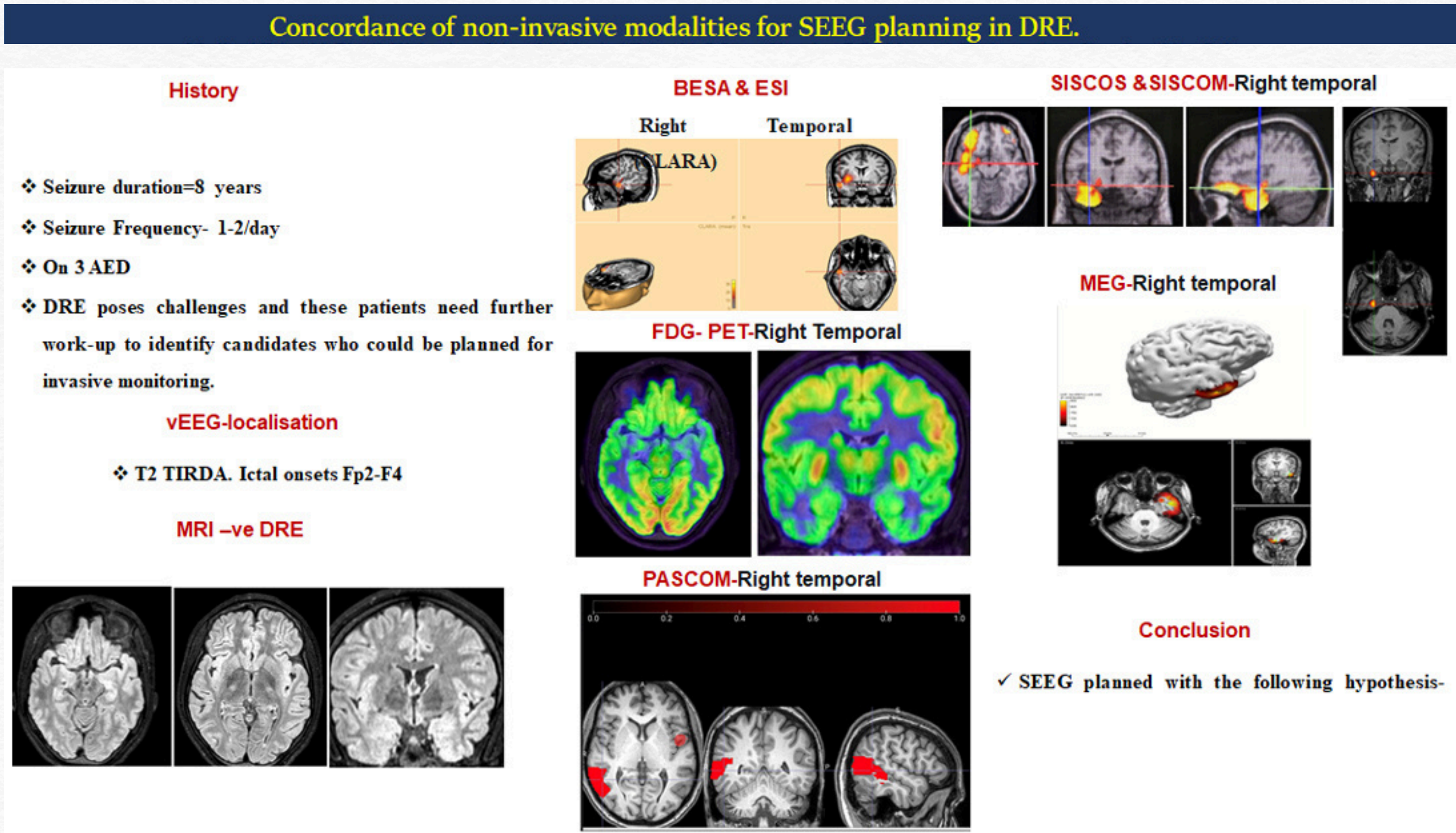
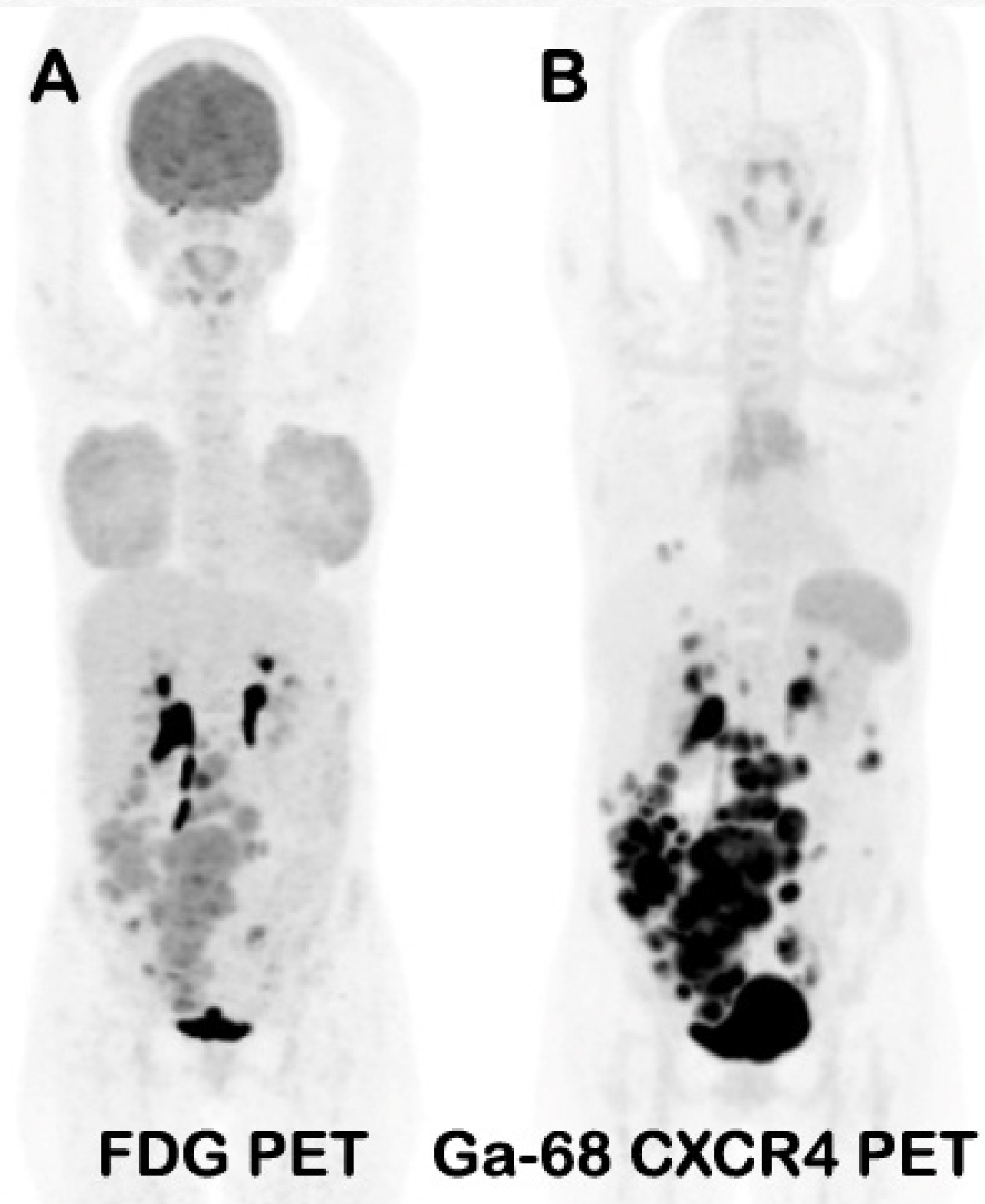


Image Courtesy - Department of Nuclear Medicine, All India Institute of Medical Sciences, New Delhi

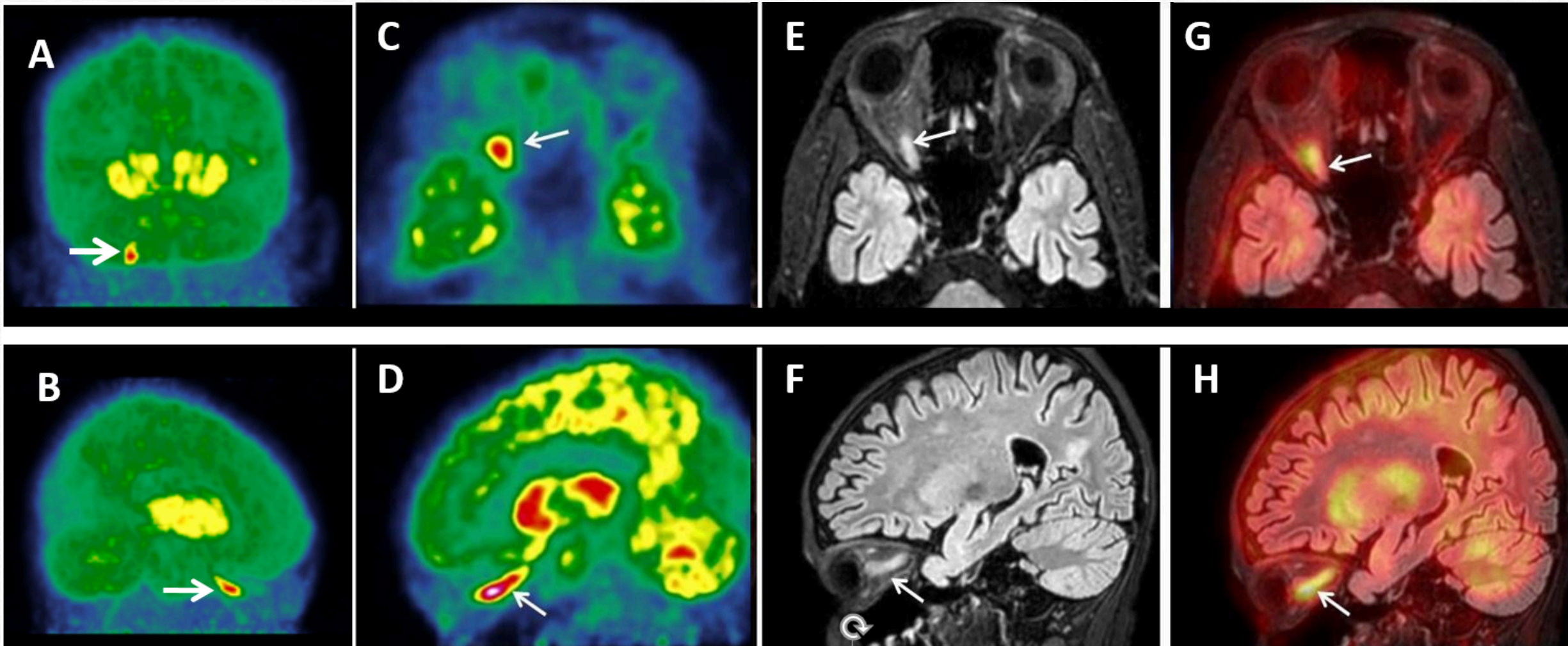


26 year old lady with right adrenal cortical carcinoma, post adrenalectomy, presented with abdominal pain and mass in the abdomen.

MIP of F-18 FDG PET-CT and Ga-68 CXCR4 PET-CT demonstrating differential tracer uptake patterns. FDG PET-CT (A) revealed mild hypermetabolism in most abdominal metastatic deposits in the abdomen and pelvis while Ga-68 CXCR4 PET-CT (B) reveals CXCR4 expression in all abdominal lesions and pulmonary nodules.

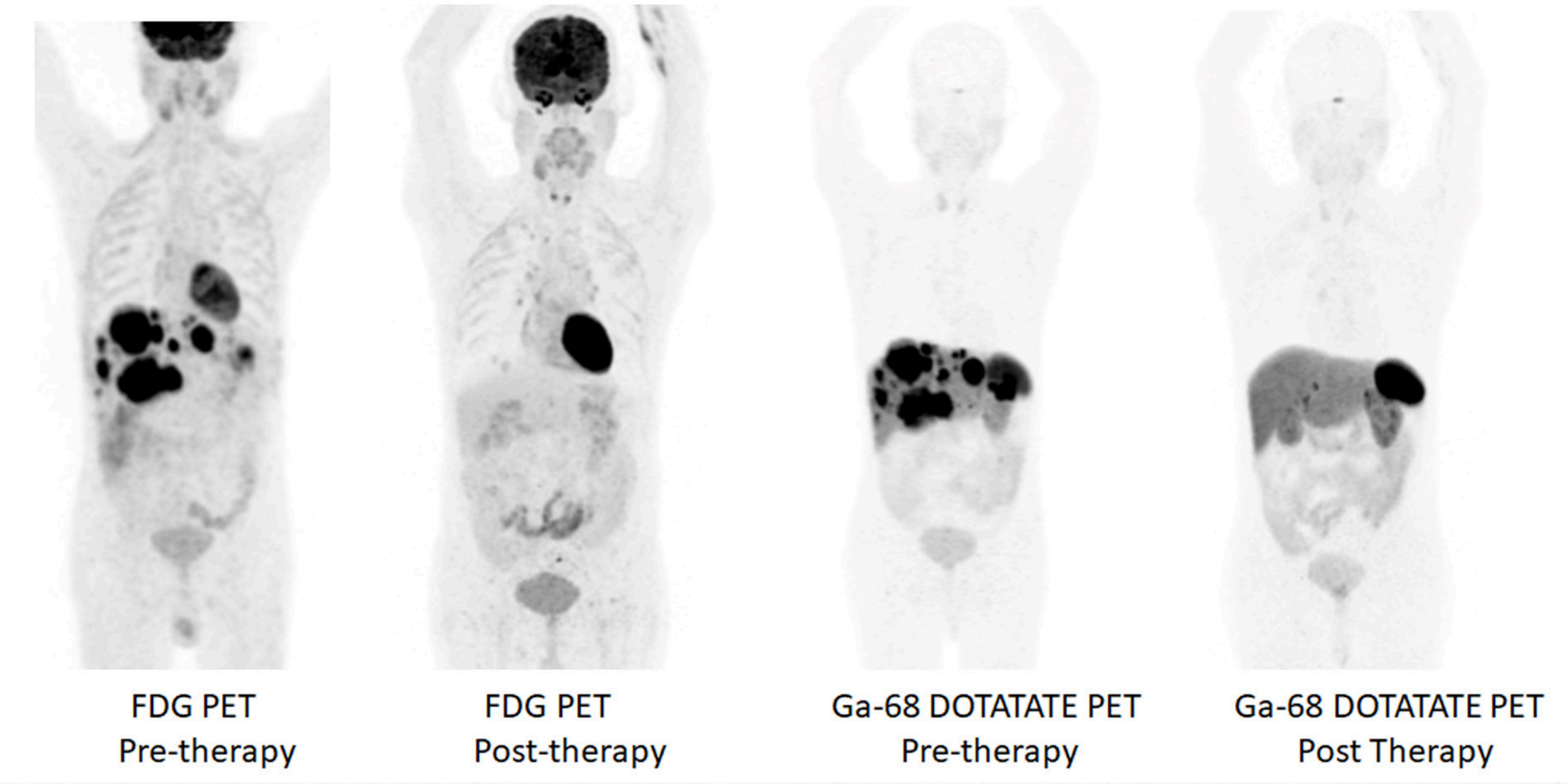
Metastatic ACCs have limited options for systemic treatment. This case highlights potential **theranostic** application with agents targeting CXCR-4.

Image courtesy: Department of Nuclear Medicine, ACTREC, TMC, Kharghar, Navi Mumbai



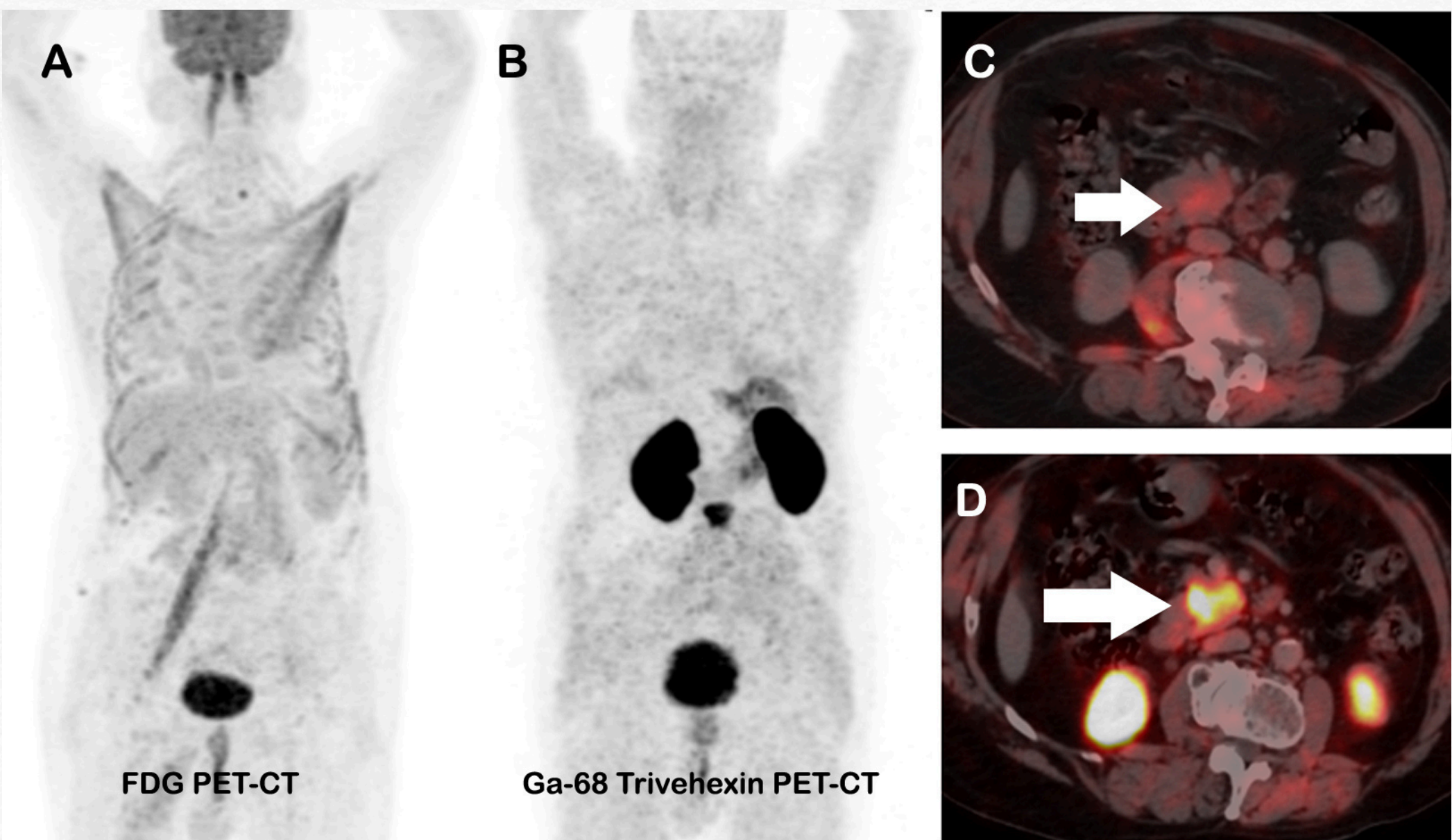
Eleven-year-old male, known case of acute lymphoblastic leukemia, post chemotherapy was referred for 18F- FDG PET-CT with complaint of diminished vision in right eye. Whole body FDG PET-CT showed increased FDG uptake in right orbit. Dedicated hands down FDG PET (MIP image A-B, transaxial PET image C & sagittal image D) showed linear increased FDG uptake, posterior to the right eye globe; suggestive of hypermetabolism in right optic nerve. MRI (E-F) and fused FDG PET-MRI (G-H) showed thickened right optic nerve showing increased FDG uptake, suggestive of infiltration of optic nerve by ALL. Patient was treated with intrathecal chemotherapy and radiation, with partial clinical response. We kept the child in a dim-lit room in post FDG injection uptake period, to minimize interference of physiological FDG uptake in extraocular muscles.

Image Courtesy - Department of Nuclear Medicine & PET-CT, Kamalnayan Bajaj Hospital, Chhatrapati Sambhajnagar, Aurangabad.



Grade III pancreatic NET (Mib index 22% ) with hepatic metastases. The patient received four cycles of 200 mCi of Lu177-PRRT in combination with capecitabine- temozolomide chemotherapy. At the end of four cycles of PRRT the patient had significant disease regression. This highlights the impact of theranostics in combination with chemotherapy in patients with high grade NETs.

Image courtesy: Department of Nuclear Medicine, ACTREC, TMC, Kharghar, Navi Mumbai

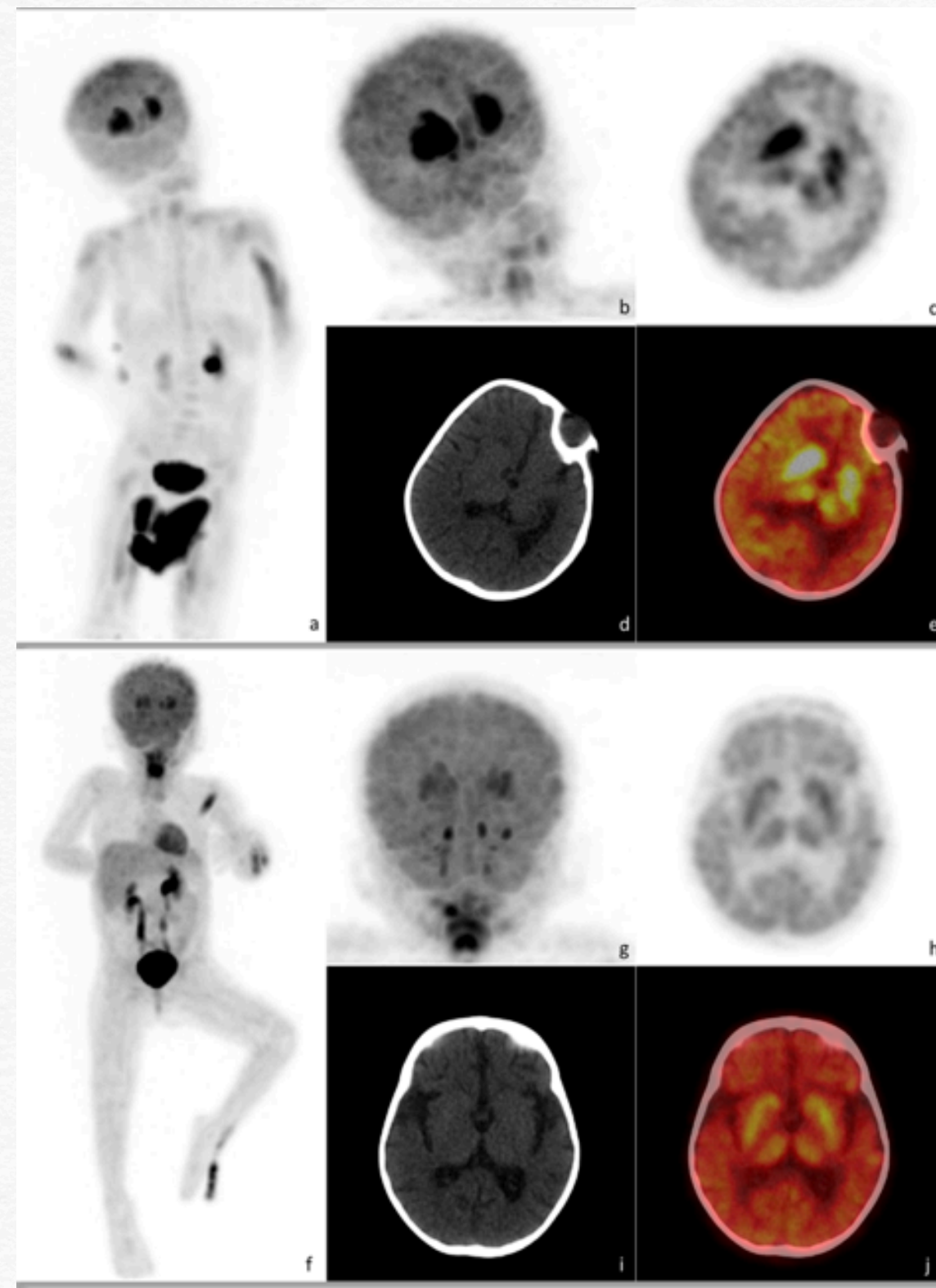


Known case of squamous cell anal canal carcinoma, on follow up showed pancreatic lesion in CECT, suspected for second primary.

FDG PET-CT (A, C) reveals minimal uptake in the pancreatic lesion with indeterminate finding.

However, as pancreatic carcinoma highly expresses  $\alpha\beta6$  Integrin receptors, **Ga-68 Trivehexin PET-CT** was performed which showed intense tracer uptake in the pancreatic lesion confirming pancreatic carcinoma (B, D).

Image Courtesy - Department of Nuclear Medicine, All India Institute of Medical Sciences, Bhubaneswar, India



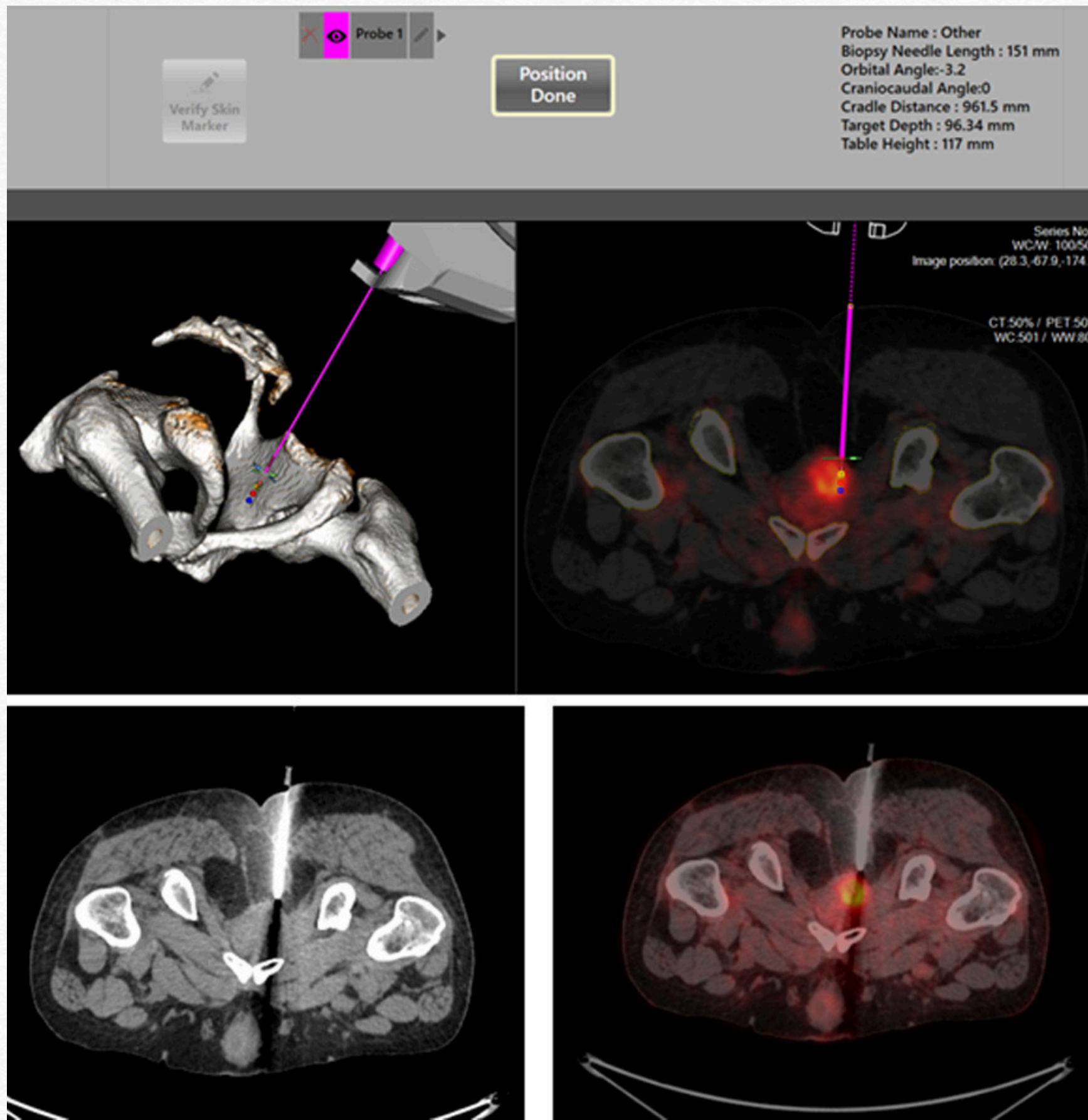
### Characteristic basal ganglia hypermetabolism on "F-FDG PET/CT at initial diagnosis and its role in treatment response evaluation of anti-NMDA receptor positive autoimmune encephalitis

18-month old baby with a history of seizures, developmental regression, choreoathetoid movements and NMDA receptor antibody positive, was referred for "F-FDG PET-CT for evaluation of autoimmune encephalitis. The PET-CT images revealed characteristic hypermetabolism in bilateral "basal ganglia" (SUVmax 6.34). The right frontal region shows mild hypermetabolism. "Anteroposterior gradient" is seen with occipital lobes showing relative hypometabolism. The whole-body survey of FDG-PET/CT was negative for any primary tumor ruling out paraneoplastic etiology. MRI brain was reported normal. Following the scan, the patient was treated with prednisolone, IV immunoglobulins and Rituximab.

Post one month of treatment, there was significant clinical improvement. She was referred for "F-FDG-PET/CT for treatment response evaluation. The images revealed a significant decrease in metabolic activity (SUVmax 3.62) in basal ganglia suggesting a favourable response to administered treatment.

### The demonstration of decrease in FDG activity in basal ganglia after receiving treatment indicates potential role of "F-FDG PET/CT in treatment evaluation for autoimmune encephalitis.

Image Courtesy - Department of Nuclear Medicine, Radiation Medicine Centre, Bhabha Atomic Research Centre, Mumbai.



Patient with squamous cell carcinoma of anal canal, post APR, CAPEOX regime and local radiotherapy underwent FDG PET-CT showing ill-defined thick walled cystic necrotic lesion in right ischio-anal fossa suspected of abscess vs recurrence. **Robotic PET-CT guided biopsy** was performed as metabolic activity was present only the small area of the lesion which on HPR showed recurrent disease.

Image Courtesy - Department of Nuclear Medicine, All India Institute of Medical Sciences, Bhubaneswar, India