Department of Nuclear Medicine

Whole body PET-CT Report

Name : Mr.S.P.Karunaratne Age/Sex :71Y/M Ref. No : RC00012902

Referred By:Prof.Jayantha Balawardhana PET CT No:197/24 Date: 13.03.2024

Whole body F-18 Fluorodeoxyglucose (FDG) PET CT imaging was performed from the vertex to mid-thigh 60 minutes following intravenous administration of 5.50 mCi of F18 FDG using GE Optima 560 dedicated 8 slice/sec PET-CT system without breath holding instruction. Intravenous contrast enhanced CT scan was performed for anatomical localization and attenuation correction. The images were reviewed in axial, coronal and sagittal projections. A semi quantitative analysis of FDG uptake was performed by calculating SUV max value corrected for dose administered and patient body weight. The blood sugar level was 102 mg/dl at the time of injection of tracer.

Indication: Known patient with moderately differentiated adenocarcinoma in the proximal transverse colon (PT_3 PN_{2a} PM_x) undergone right hemicolectomy on 20.01.2024. P/H/O microwave ablation of a small hepatoma in segment 7 of right lobe of liver on 27.11.2022 and 07.05.2023. PET CT scan being done for staging. Images were reviewed with last CT scan of the abdomen and pelvis done on 14.12.2023.

FINDINGS

Head and Neck

No FDG avid or non FDG avid focal parenchymal lesions are identified in the cerebral or cerebellar hemispheres or in the brain stem, which maintain it's normal CT morphology, attenuation characteristics and normal distribution of metabolic activity. The ventricular system, basal cisterns and cortical sulci are within normal limits. There are no areas of infarctions, intra axial or extra axial mass lesions. No metabolic abnormality is detected in the skull vault or base.

There is no significant mucoperiosteal thickening, fluid levels or retention cysts in the paranasal sinuses which are clear bilaterally.

Mild degree of increase FGD avidity uptake is observed in bilateral lingual and palatine tonsils which are physiological.

The pharynx, larynx and para pharyngeal spaces maintain it's normal CT morphology and otherwise normal distribution of metabolic activity.

The orbits, globes, optic nerves and extra ocular muscles maintain it's normal CT morphology and normal distribution of metabolic activity.

No prominent, enlarged or FDG avid lymphnodes are present in the neck or supraclavicular region.

No FDG avid or non FDG avid focal lesions are present in the bilateral parotid or submandibular glands or in the thyroid gland which maintain it's normal size, shape, attenuation pattern and normal distribution of metabolic activity.

Chest:

Few prominent and enlarged non FDG avid lymphnodes with preservation of it's normal fatty hila are present in the axillae bilaterally and are most likely to be due to reactive hyperplasia. The largest lymphnode is in the right side measuring 1.43cm in diameter and relatively larger lymphnode in the left axilla measures 1.20cm in diameter.

No prominent or enlarged or FDG avid lymphnodes are present in the subpectoral, internal mammary or mediastinal groups or in the hila. Great vessels of the mediastinum are within normal limits and mediastinal blood pool shows SUV max of 2.27.

There is a small non FDG avid parenchymal nodule in the posterior segment of the upper lobe of right lung antero-laterally, measuring 4mm in diameter (image 104). No similar nodules, other suspicious or FDG avid focal parenchymal nodules are identified in rest of the right lung or in the left lung.

Few area of pleuro-pulmonary scarring are observed in apical segments of the lungs bilaterally. Gravity dependent changes are present in the posterior segments of the lungs bilaterally, particularly marked in lower lobes. Rest of the lungs are clear bilaterally.

There is no pleural or pericardial effusion.

Abdomen and Pelvis

Ablated hepatoma in the segment 7 of right lobe of the liver is identified as a non FDG avid low attenuated area with relatively smooth margins measuring 3.23x2.93cm in size. No calcific foci are identified within. There are two moderate degree of FDG avid low attenuated areas in the

subcapsular region of segment 5 (images 161 to 164) and 7 (images 148 to 153) of right lobe measuring 10.2x11.0 and 13.0x7.4mm in sizes with SUV max of 4.58 and 6.74 respectively. Similar lesion is identified in segment 2 of left lobe too measuring 8.7x7.7mm in size with SUV max of 4.78 (images 147 to 150).

Areas of scarring are observed in segment 7 of right lobe of the liver, postero-superiorly and laterally, in relation to the site of ablation.

No similar lesions, other FDG avid or non FDG avid focal lesions are identified in rest of the liver which is not enlarged, maintains it's smooth regular contour and shows diffuse coarsening of the parenchymal attenuation pattern and heterogeneous distribution of parenchymal metabolic activity. (SUV max of 3.30). Intrahepatic and extra hepatic ducts are within normal limits. Portal venous and hepatic venous radicles are within normal limits. Main portal vein is prominent and no filling defects are present within. Gall bladder is absent and evidence of cholecysteatomy is noted.

Spleen is not enlarged, maintains it's smooth regular contour, normal uniform parenchymal attenuation pattern and normal distribution of metabolic activity. No FDG avid or non FDG avid focal lesions are present within. Few prominent vessels are identified at the splenic hilum.

No FDG avid or non FDG avid lesions are present in the pancreas, kidneys, adrenals or seminal vesicles, which maintain it's normal CT morphology, attenuation characteristics and normal distribution of metabolic activity.

The prostate gland is enlarged but maintains it's smooth regular contour, normal parenchymal attenuation pattern and normal distribution of metabolic activity. No FDG avid or non FDG avid focal lesions are present within it.

There are no prominent or enlarged or FDG avid lymphnodes in the para aortic, para caval, iliac or mesenteric groups.

There are no abnormal mass lesions or fluid collections in the abdomen or pelvis. No free peritoneal fluid is present.

There is no abnormal mural thickening at the anastomotic site. No FDG avid areas are identified at or adjacent to the anastomotic site.

Normal distribution of the tracer in the residual small intestine and colon are observed. Moderate fecal loading of the residual transverse and descending colon and observed.

Presence of mesenteric fat containing small paraumbilical hernia is again observed,

Few prominent and enlarged non FDG avid lymphnodes with preservation of it's normal fatty hila are present in the inguinal groups bilaterally most likely representing reactive hyperplasia. Largest lymphnode is in the left inguinal group measuring 1.17cm in diameter and relatively larger lymphnode in the right inguinal group measures 1.06cm in diameter.

Musculoskeletal & Miscellaneous

Degenerative changes in the spine are observed.

No sclerotic or lytic lesions or FDG avid osseous lesions are identified in the scanned region.

IMPRESSION

The appearances are more in favour of hepatic metastases from known transverse colonic carcinoma.

The small non FDG avid parenchymal nodule in the posterior segment of the upper lobe of right lung antero-laterally, is an indeterminate nodule. A follow up with CT scan may be of value.

No hypermetabolic metastatic lesions are identified in rest of the scanned region.

The appearances of the liver raise the possibility of hepatic parenchymal disease. Ablated hepatoma remains stable.

Dr. S. H. Munasinghe
Consultant Radiologist

Confidential Report

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DIHYDROPYRIMIDINE DEHYDROGENASE (DPYD) GENE MUTATION ANALYSIS

Personal Details

Name	**:S P Karunaratne**	**Sample ID**	**:DPYD1215**
Gender/Age	**:Male / 70 Years**	**Sample Collected**	**:2024-02-22 10:45:00**
NIC/Passport	**:**	**Reported**	**:2024-02-24 16:49:22**
Remarks	**:**	**Referred By**	**:Prof Jayantha Balawardane**

Specimen Information

Specimen Type : Peripheral Blood

Test Result

DESCRIPTION	RESULT
. DPYD Gene Mutations	.
c. 2846A>T variant	**Not Detected**
c.1129-5923C>G (haplotype B3) variant	**Not Detected**
c.1679T>G (*13) variant	**Not Detected**
c.1905+1G>A (*2A) variant	**Not Detected**

Comments :

Methodology

Direct variant analysis by Sanger sequencing

The assay detects c.1905+1 G>A, c.1679 T>G, c.2846 A>T & 1129-5923C>G mutations in DPYD gene, which are the pharmacologically relevant variants of this gene. This test does not detect other variations in the DPYD gene or in the other genes which may impair 5-fluorouracil (5-FU) or capecitabine metabolism.

The following table displays the DPYD variants detected by this assay, the corresponding star allele, and the effect on DPYD enzyme activity. Other rare or novel variations, besides those listed here, may also impact 5-FU-related side effects and tumor response.

DPYD allele	cDNA nucleotide change	Effect on DPD enzyme activity	Predicted consequence in patients receiving 5-FU
*2A	1905+1G>A	No activity	Greatly increased toxicity risk
*13	1679T>G	No activity	Greatly increased toxicity risk
rs67376798	2846A>T	Decreased activity	Increased toxicity risk
rs75017182	1129-5923C>G	Decreased activity	Increased toxicity risk

Limitations

Rare single nucleotide variants under the primers can cause preferential amplification of one allele. Consequently, the analysis could be done on data from only one allele, which may cause a false-negative result or an incorrect allele frequency (homozygous instead of heterozygous).

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