Patient-ID: UCSF-PDGM-0155

Age: 71.0 years

Sex: Male

Physician: AI

Exam: Brain MRI (Flair and T1c)

Technique : The MRI was performed on a 3.0 tesla scanner (Discovery 750, GE Healthcare, Waukesha, Wisconsin, USA) and a dedicated 8-channel head coil (Invivo, Gainesville, Florida, USA). The imaging protocol included 3D T2-weighted, T2/FLAIR-weighted, and post-contrast T1-weighted images. Two gadolinium-based contrast agents were used: gadobutrol (Gadovist, Bayer, LOC) at a dose of 0.1 mL/kg and gadoterate (Dotarem, Guerbet, Aulnay-sous-Bois, France) at a dose of 0.2 mL/kg.

Findings:

We detected a non-enhancing or necrotic mass, It measures approximately 6400.00 mm^3.

This area is mainly located in:

- PRE-CUNEUS_left (~29.0% of this finding, 1854.00 mm^3).
- PRE-CUNEUS_right (~22.5% of this finding, 1441.00 mm^3).
- CUNEUS_left (~4.5% of this finding, 290.00 mm^3).

We detected surrounding swelling (edema) area, It measures approximately 63164.00 mm^3.

This area is mainly located in:

- PRE-CUNEUS_right (~5.7% of this finding, 3585.00 mm^3).
- CINGULATE_GYRUS_left (~5.5% of this finding, 3464.00 mm^3).
- SUPERIOR_PARIETAL_WM_left (~5.3% of this finding, 3339.00 mm^3).

We detected an enhancing/active mass, It measures approximately 27812.00 mm^3.

This area is mainly located in:

- PRE-CUNEUS_left (~14.6% of this finding, 4067.00 mm^3).
- CINGULATE_GYRUS_left (~9.0% of this finding, 2499.00 mm^3).
- SUPERIOR_PARIETAL_WM_left (~8.0% of this finding, 2233.00 mm^3).

These findings together are suggestive of grade 4 glioma, glioblastoma.

Based on the provided information, the patient is a 71-year-old male diagnosed with a grade 4 glioma (glioblastoma) that is IDH-mutant with positive MGMT methylation status. The treatment plan for this patient will consist of a combination of surgery, radiotherapy, and chemotherapy.

Treatment Plan:

1. **Surgery:**

- **Type of Surgery:** Maximal safe resection of the tumor (if accessible), followed by histopathological evaluation.

- **Timing:** Surgery should be performed as soon as feasible after diagnosis to alleviate symptoms and obtain tumor tissue for further treatment decisions.

2. **Radiotherapy:**

- **Type:** Conformal or intensity-modulated radiotherapy (IMRT) to the tumor bed and any remaining tumor.

- **Dose:** Typically, 60 Gy in 30 fractions over 6 weeks.

- **Timing:** Initiate radiotherapy approximately 3-4 weeks post-surgery to allow for postoperative recovery.

3. **Chemotherapy:**

- **Medication:** Temozolomide (TMZ) because of the positive MGMT methylation status.

- **Dose:** Standard dosing would be 75 mg/m²/day for 42 days during radiotherapy, followed by maintenance temozolomide at a dose of 150-200 mg/m² for 5 days every 28 days for up to 6-12 cycles, based on the tolerance and any clinical trial protocol specifics.

- **Timing:** Start concurrent with radiotherapy (after surgery) and continue maintenance after completion of radiotherapy.

****Treatment Combination:****

- The surgery is performed first, followed by radiotherapy and chemotherapy.

- Chemotherapy (temozolomide) is given concurrently with radiotherapy, and then as maintenance therapy after the radiation treatment is completed.

This integrated approach utilizes the strengths of each modality to optimize patient outcomes. Regular monitoring through follow-up MRI scans and clinical evaluations will be essential to assess response and manage any emerging side effects.

Predicted mask vs ground truth mask