

## Abstracts

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### P16.27. DIFFERENTIATING BRAIN RADIONECROSIS FROM TUMOR RECURRENCE: A ROLE FOR CONTRAST ENHANCED ULTRASOUND (CEUS)? CASE REPORT

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**BACKGROUND:** Differentiating radionecrosis from local tumor recurrence is a major concern in the management of patients harbouring a cerebral tumor and treated with radiotherapy. In these cases, contrast-enhanced MRI usually shows ambiguous enhancement, while advanced imaging techniques (MRI spectroscopy, DWI, DTI, perfusion and PET) are still far from being validated as a reliable alternative to biopsy and histological assessment. **CASE REPORT:** We report the case of a patient who underwent cyberknife radiosurgery (21Gy) for a left rolandic brain metastasis from a lung carcinoma. Four months after radiotherapy, she started experiencing a progressive worsening

of her upper right limb's strength, with a neuroradiological evidence at serial MRIs of a progressive enhancing rolandic lesion. The patient underwent surgical removal of the lesion at our Neurosurgical Division: neurophysiological monitoring, standard B-mode UltraSonography and Contrast-Enhanced UltraSonography (CEUS) were performed intraoperatively to assist in tumor resection. Very interestingly, CEUS did not show any enhancement of the pathologic tissue, differently from what is expected for brain metastases, as reported in previous studies. Histopathological examination showed nervous tissue with post-treatment radiation effects (radionecrosis) with a few metastatic cells. **DISCUSSION:** Contrast-Enhanced UltraSound is progressively becoming a widespread tool in neurosurgery. Previous studies have described the contrastographic pattern of different cerebral lesions, including metastases. Surprisingly, despite a strong uptake of contrast agent at MRI, we observed that radionecrotic tissue did not show any enhancement at CEUS. For the first time we report the appearance of radionecrosis at CEUS; the lack of contrast enhancement could represent an important hallmark in differential diagnosis with neoplastic tissue. Moreover, in this report, the use of CEUS was confined to the intraoperative stage; however, new approaches to transcranial ultrasonography could extend the value of this technique to the bedside decision-making process. **CONCLUSION:** Of course, further investigation is required beyond this case report; nonetheless the findings here reported suggest that CEUS could become a promising tool in helping differentiating radionecrosis from tumor recurrence.