

# MICROWAVE ABLATION AS PRIMARY THERAPY FOR PRETEXT II HEPATOBLASTOMA

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## Background

**Hepatoblastoma (HB)** is the most common primary liver malignancy in children. Standard of care in resectable disease includes a combination of chemotherapy (CTH) and surgical resection or transplantation. In some cases, comorbidities preclude standard therapy.

**Microwave ablation (MWA)** is form of thermal ablation, commonly used as primary therapy in adult liver tumors. MWA uses electromagnetic waves to produce tissue necrosis providing excellent results in tumors up to 5 cm in size.

## Case

A 14-month-old girl born at 36 and 5/7 weeks with trisomy 18, VSD, PDA, dysplastic/bicuspid aortic valve, pulmonary hypertension, OSA, and CPAM was found to have an elevated alpha-fetoprotein (AFP) of 85 ng/mL during workup for transaminitis attributed to Bosentan therapy.

MRI demonstrated an indeterminate 0.8 cm lesion in segment VII. The lesion was followed with MRI five months later which showed the segment VII lesion had grown to 3.1 cm (**Figure 1**) and a new 1.0 cm segment VIII lesion had appeared. Concomitant AFP was 434.6 ng/mL, subsequently peaking at 677 ng/mL (**Table 1**).

Time (in months) from initial AFP abnormality	0	6	7	7.25	7.75	8	11	14	17
AFP (ng/mL)	85	434.6	660.2	677	25	10	5	5	5

Table 1. MWA took place approximately 7.5 months from initial AFP abnormality.

## Pre-Ablation

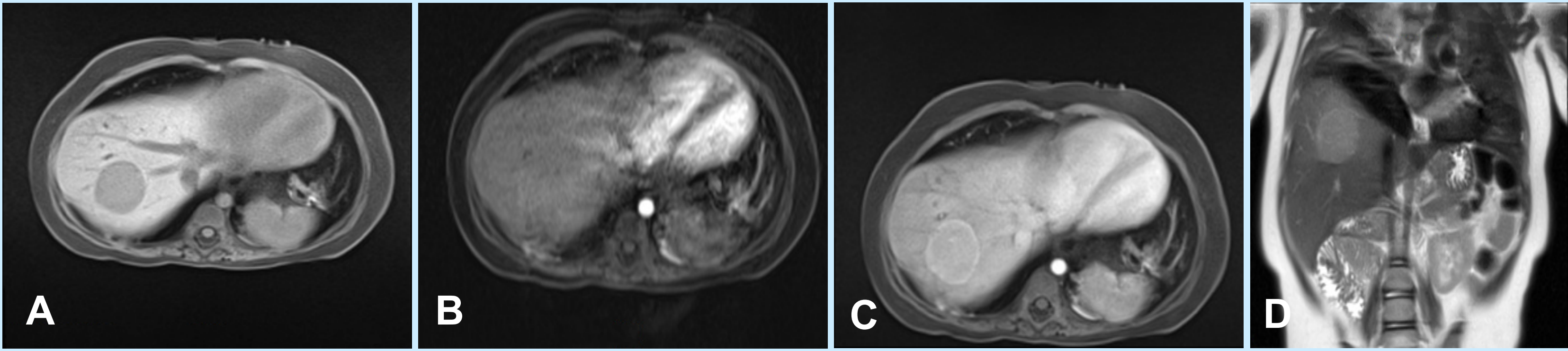


Figure 1. MRI demonstrating the segment VII HB with (A) T1 pre contrast hypointensity, (B) T1 arterial phase contrast isointensity, (C) and T1 venous phase contrast hyperintensity. (D) Coronal T2 images demonstrate typical hyperintense appearance of HB compared to background liver.

## Ablation

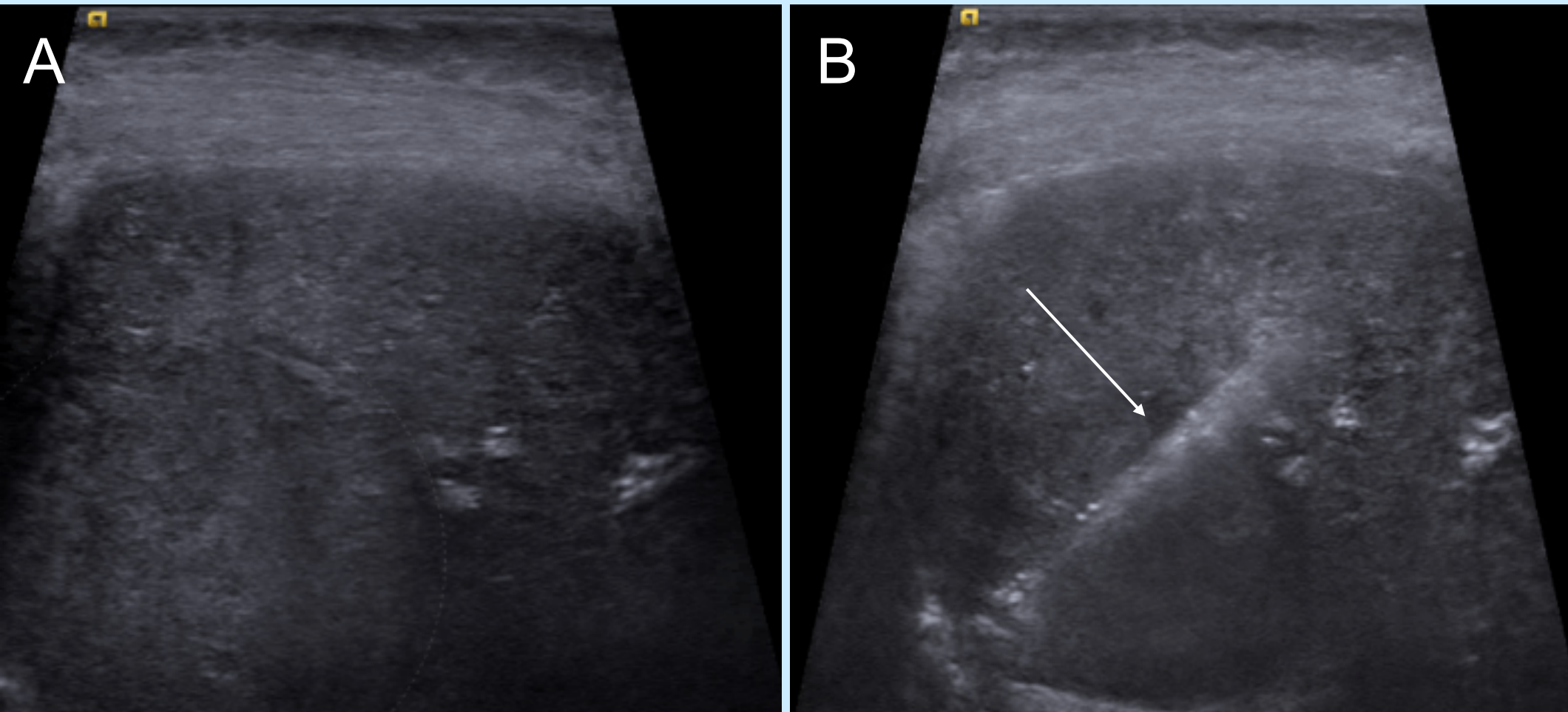


Figure 2. Ultrasound images of the liver demonstrating (A) the predominantly isoechoic segment VII lesion accentuated by the dotted line for ease of visualization and (B) the hyperechoic MWA antenna (Arrow) penetrating the lesions just prior to therapy.

## Post-Ablation

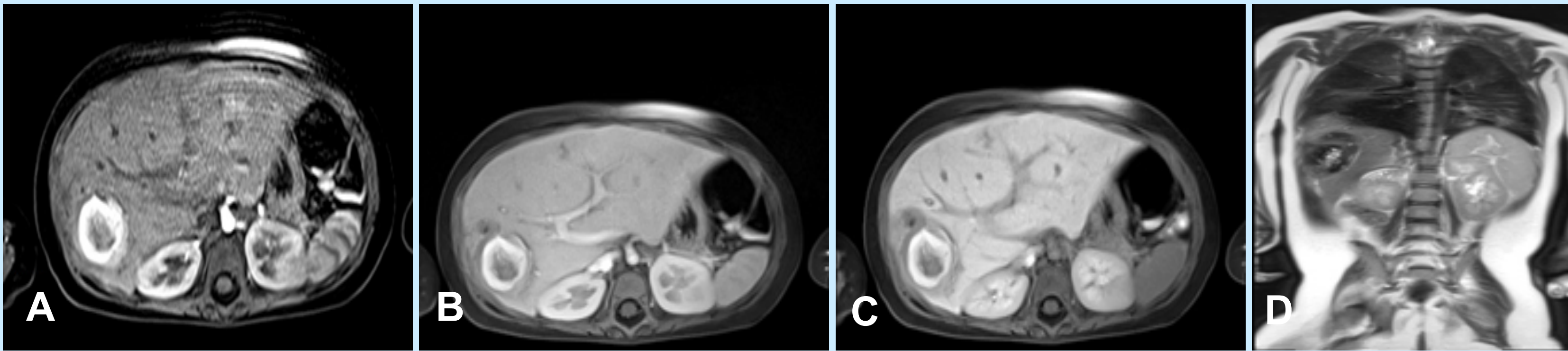


Figure 3. MRI post-therapy demonstrating an ablation cavity in segment VII with no enhancement on (A) T1 arterial (B) T1 venous or (C) T1 delayed contrast phases. The hyperintense T1 signal and hypointense (D) T2 signal is most consistent with inflammatory changes and tumor necrosis.

Ultrasound-guided percutaneous biopsy of the segment VII lesion confirmed HB. The segment VIII lesions was not biopsied. CT of the chest revealed no metastases.

A multidisciplinary conference was convened. Despite localized disease amenable to surgical resection, the patient's **elevated mean pulmonary arterial pressures (46 mmHg)** and **extensive comorbidities were thought to carry a significant a peri-operative risk of mortality**.

CTH alone was offered as was MWA with CTH. In light of the patient's overall prognosis and potential side-effects of CTH, the family opted for ablation alone.

The patient subsequently underwent technically successful percutaneous MWA (**Figure 2**) with both lesions in a single ablation zone and was treated with a 14-day course of prophylactic antibiotics. Mild, expected post-intervention ileus and fever resolved within 7 days.

An MRI two months following ablation demonstrated complete tumor response (**Figure 3**). AFP decreased from a pre-intervention peak of 660 ng/mL to 10 ng/mL. Four months following MWA ablation, the AFP was 5 ng/mL and remained at this level.

## Conclusion

Percutaneous MWA was efficacious in this patient with PRETEXT II HB. MWA is another option to be considered for treatment of HB in patients with localized tumors and comorbidities that preclude standard therapy.