

# Use of Selective Internal Radiation Therapy in Liver Metastases for a patient with Paediatric Wild Type, SDH Deficient GIST

*Dr Nasim Ali<sup>1</sup>, Dr Pavlos Piskilidis<sup>1</sup>, Dr Jonathan Evans<sup>2</sup>, Dr Ramesh Bulusu<sup>3</sup>, Mr Stephen Fenwick<sup>2</sup>, Mr Muhammad Shafiq Javed<sup>2</sup>,*

*1. The Clatterbridge Cancer Centre Foundation Trust, Merseyside, UK, 2. Liverpool University Hospitals NHS Foundation Trust, 3. Addenbrooke's University Hospitals, Cambridge, UK*

## Introduction:

GISTs (Gastrointestinal Stromal Tumours) are mesenchymal neoplasias affecting the gastrointestinal tract and account for approximately 1% to 3% of all malignant GI tumours. GISTs are mainly affected middle aged patients and they are very rare in childhood/adolescence.

## Case summary:

### • Original Presentation (2008):

This is a case report of a 17-year old female patient diagnosed with early stage GIST in 2008 for which underwent partial gastrectomy with Roux-en-Y anastomosis. The original histology revealed a 65mm lobulated neoplasm on the greater curve of the stomach, with predominantly epithelioid morphology (c-KIT and PDGFR negative) consistent with a Wild Type Paediatric GIST.

### • Post resection surveillance (2008 - 2016):

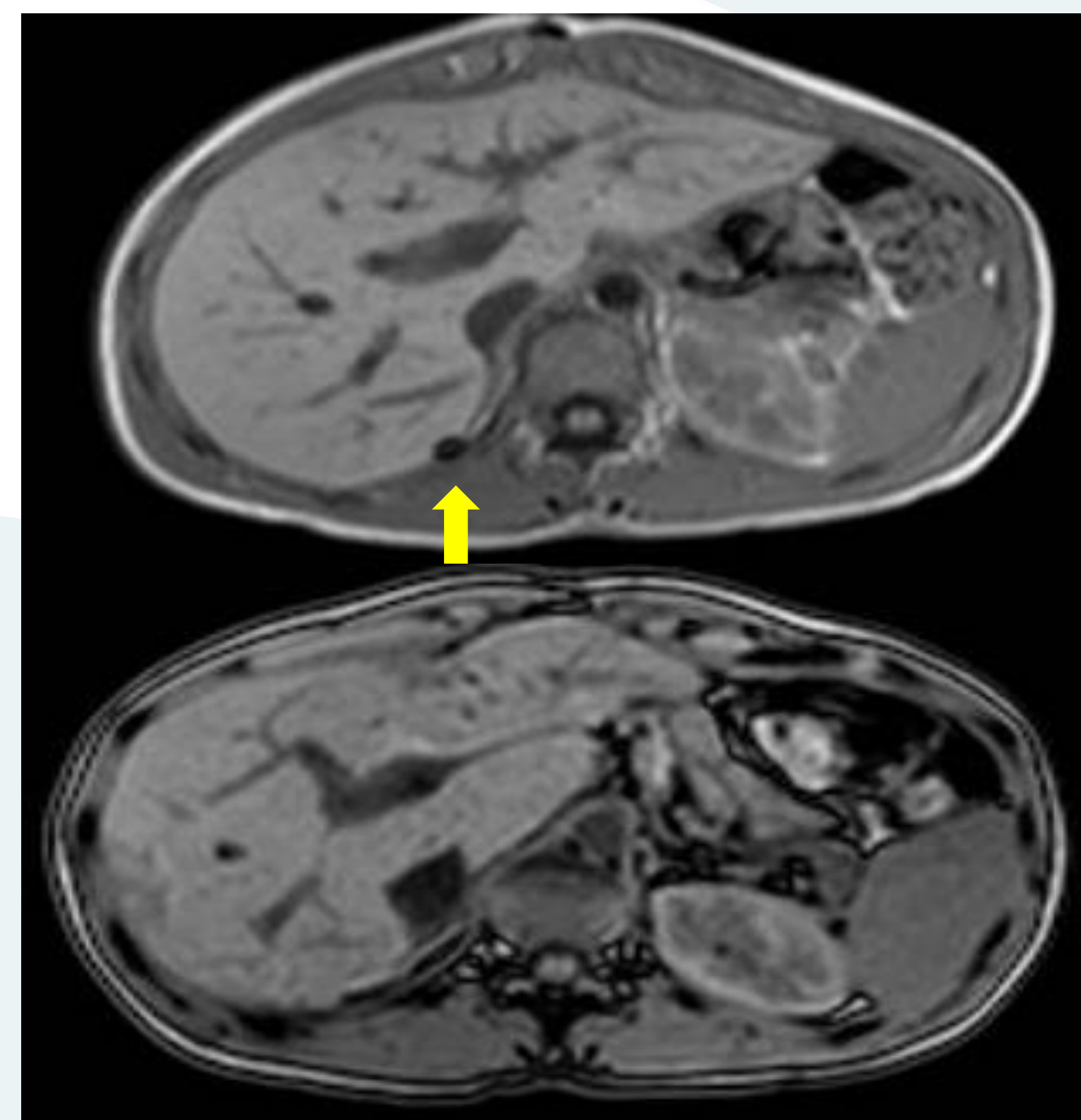
Endoscopic surveillance with initially 3-monthly OGDs.

### • 1<sup>st</sup> Disease recurrence (2016):

Disease recurrence in stomach remnant with liver metastases in 2016 managed with resection and liver metastectomies. From the 13 resected lymph nodes, 1 contained metastatic disease and all the liver lesions (segments IVa, VI, VII, VIII) resected confirmed to be GIST metastases. Further mutational analysis (Sanger's Sequencing) on the resection sample did not reveal any mutations on the exons 9,11, 13 and 17 of the C-KIT gene and no mutations on the exons 12, 14 and 18 of the PDGFR gene (wild type gastric GIST) which was consistent with the original diagnosis of Paediatric Gastric GIST in 2008. Patient was not treated with Imatinib in view of these results. Additionally, tumour was confirmed to be SDH deficient at Addenbrookes Hospital.

### • 2<sup>nd</sup> Disease recurrence (2017):

Further disease recurrence in 2017 with bilateral multiple new liver metastases. As Imatinib therapy felt unlikely to be useful, patient was considered and treated successfully with Selective Internal Radiation Therapy with split dose of Theraspheres to both lobes of the liver.



**Image 1:**  
MR Liver  
APRIL 2017  
-Pre SIRT

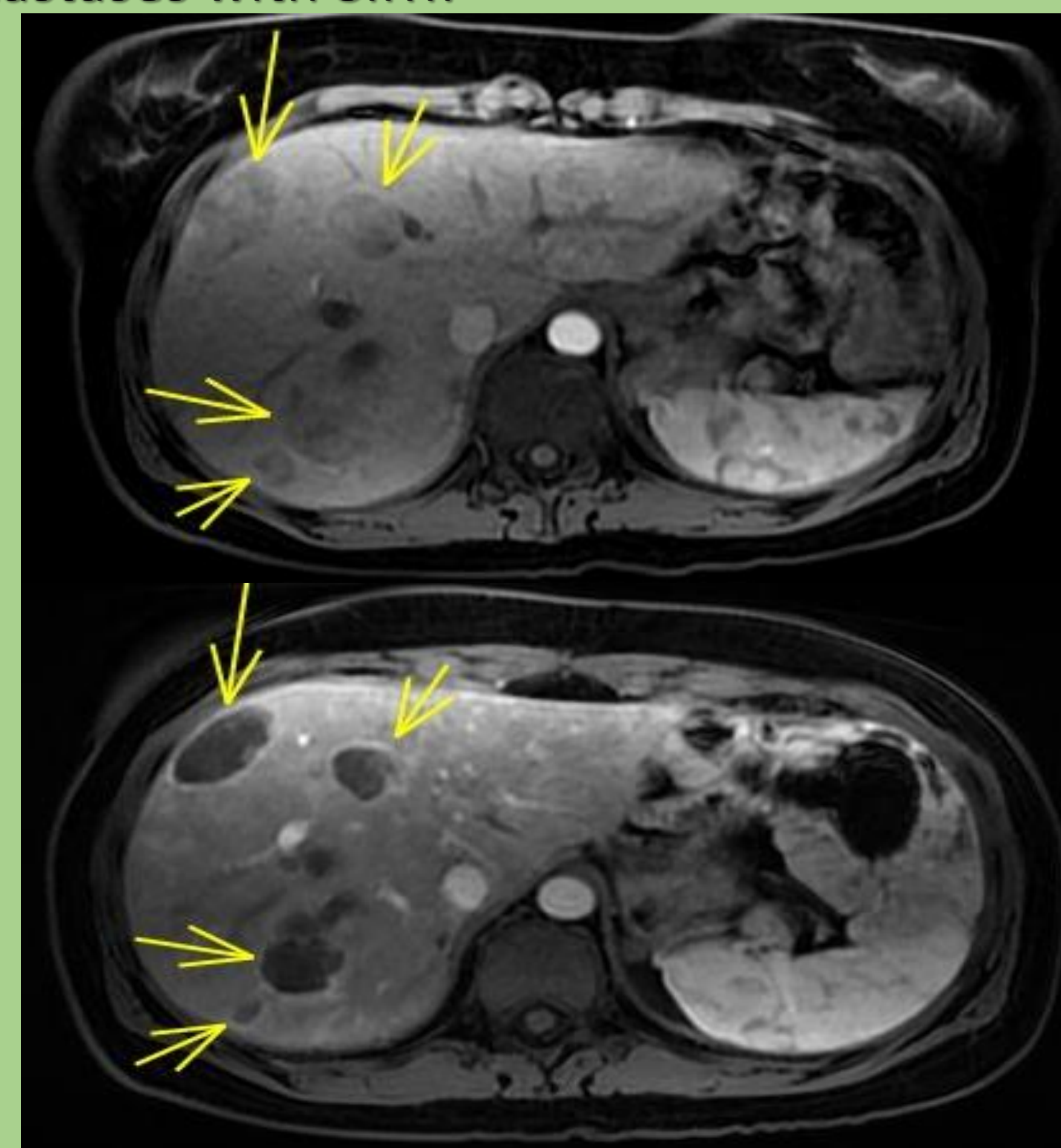
**Image 2:**  
MR Liver  
DEC 2018 –  
Post SIRT

### • Currently:

No evidence of disease recurrence over 2 years.

## Discussion:

This is one out of the 2 cases of a Paediatric GIST in which liver metastases have been successfully managed with the use of Selective Internal Radiation Therapy (SIRT). The second and most recent case in 2019 was the case of 25 year old female patient with multi-focal wild-type SDH deficient gastric GIST and multiple liver metastases who was originally treated with Imatinib (2016-2018). Imatinib was discontinued in 2018 due to GI toxicities and in view of stable appearances patient underwent gastric resection with successful eradication of the liver metastases with SIRT.



**Image 3:**  
Pre-SIRT  
Case 2

**Image 4:**  
Post-SIRT  
Case 2

To our knowledge, these are the only 2 cases reported in the UK. This approach could be therefore considered as an option for patients with a similar presentation.

## References:

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