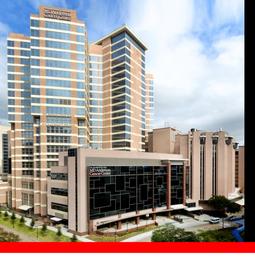

Utilization of circulating tumor DNA as a biomarker in patients with resectable colorectal liver metastasis: A case report on oncologic surveillance and detection of disease recurrence

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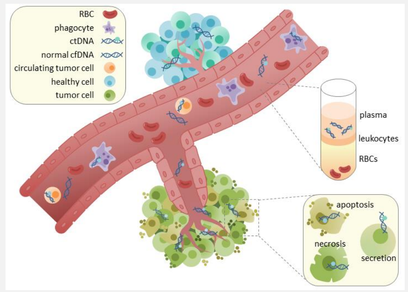
Objectives

- Discuss the benefits of circulating tumor DNA (ctDNA) as a biomarker in patients with colorectal liver metastasis (CLM)
- Discuss the potential use of ctDNA in risk stratifying patients with CLM in the early detection of disease recurrence
- Summarize current CLM surveillance guidelines and potential integration of ctDNA

Background

- Colorectal cancer (CRC) is the second most common cause of cancer death in US[1]
- The liver is the most common site of metastatic disease[2]
- Surgery and systemic chemotherapy is standard of care for CLM[3]
- Despite curative intent therapy, most patients suffer recurrence[2]
- ctDNA, the detection of circulating tumor-specific mutations in patient blood, is a novel and promising biomarker for CRC
- Detection of ctDNA following curative intent therapy is referred to minimal residual disease (MRD) and is associated with early recurrence and worse OS[4]



Source: ctDNA in circulation by Racheljunewong

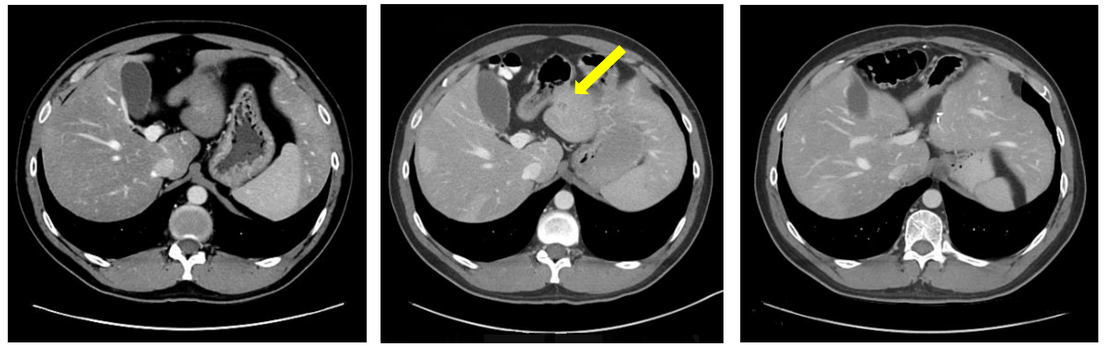
- Current surveillance guidelines do not include ctDNA detection

Case Description

- 39 yo M with initially stage IIIb left sided CRC in 2018
- He underwent left colectomy and 12 cycles of adjuvant FOLFOX (leucovorin, 5-fluorouracil, and oxaliplatin)
- Following completion of treatment, he remained without evidence of recurrence radiographically and without ctDNA detection
- ctDNA detection was correlated with disease recurrence (as detailed in next column)

Timeline

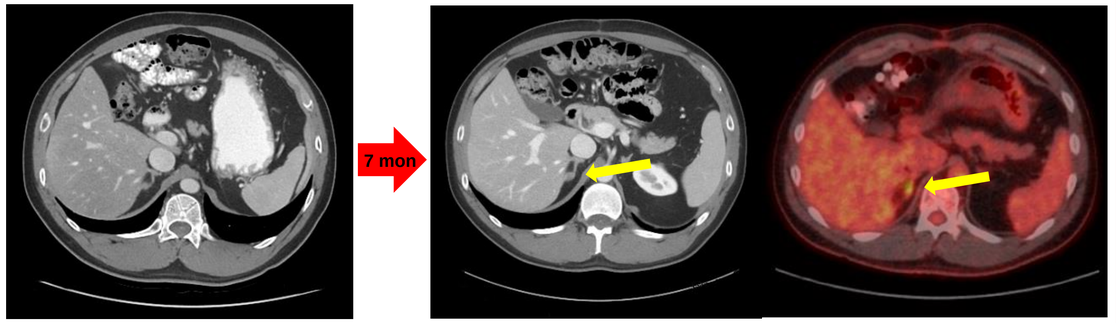
Post colectomy and adjuvant chemotherapy → **First radiologic recurrence located in segment 3 of left liver** → **Post partial hepatectomy and adjuvant chemotherapy**



August 2019: ctDNA negative | **March 2020: *ctDNA positive*** | **October 2020: ctDNA negative**

- In the series above, ctDNA detection correlated with evidence of metachronous disease recurrence on imaging
- The patient underwent curative-intent hepatectomy and adjuvant FOLFIRI (leucovorin, 5-fluorouracil, and irinotecan) with bevacizumab then remained without metastatic disease

No evidence of radiologic disease recurrence → **Second radiologic recurrence located in the adrenal gland**



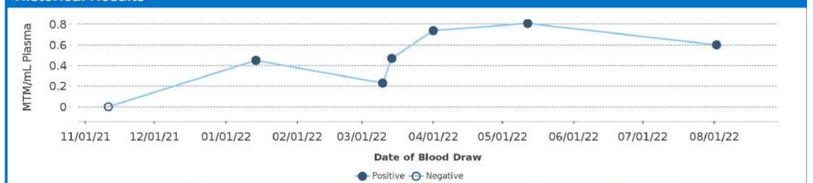
January 2022: *ctDNA positive* | **August 2022: *ctDNA positive***

- ctDNA was detected postoperatively ***without*** evidence of clinical disease for ***7 months***
- Recurrent disease was found 29 months post-hepatectomy in the left adrenal gland

Key Takeaways:

ctDNA detection correlated with disease recurrence and was detected significantly earlier than radiographic recurrence highlighting the clinical value of ctDNA sampling

Historical Results



Date	Reported MTM/mL
Aug 02, 2022	0.60
May 12, 2022	0.81
Apr 01, 2022	0.74
Mar 14, 2022	0.47
Mar 10, 2022	0.23
Jan 14, 2022	0.45
Nov 11, 2021	0.00

Discussion

- ctDNA detection correlated with disease recurrence and may be detected much sooner than clinical recurrence
- In prior studies, ctDNA detection after curative-intent hepatectomy had a 94% positive predictive value for recurrence within 12-months of surgery[5]
- Conversely, ctDNA negativity post-hepatectomy is associated with better outcomes

Utilization of ctDNA

- The addition of ctDNA to surveillance algorithms may offer opportunity to detect disease recurrence earlier than currently recommend bloodwork and imaging
- There may be a role of using ctDNA to personalize adjuvant chemotherapy[6]
- APPs have an important role in patient counseling and education regarding implications of ctDNA detection without evidence of disease recurrence on surveillance scan

Additional biomarker for tumor surveillance

Increase clinician's level of suspicion for disease recurrence

Summary

Refine treatment decision making

Detection of cancer and minimal residual disease

References

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