

Case Report: Early Detection of Prostate Adenocarcinoma using Serial Trucheck Intelli Liquid Biopsies

A 76-year-old male with no prior history of cancer underwent serial Trucheck Intelli liquid biopsies as part of a routine cancer screening program. Initial tests conducted in October 2021 and November 2022 returned negative results, indicating the absence of detectable circulating tumor cells (CTCs). A subsequent Trucheck Intelli test performed in February 2024 also yielded a negative result. This was followed by another test in September 2024, which unexpectedly detected the presence of CTCs. Analysis revealed that these CTCs were positive for EpCAM (Epithelial Cell Adhesion Molecule) and CK (Cytokeratin), suggesting risk of malignancy and reflex analysis of the September 2024 sample demonstrated positivity for AMACR (alpha-methylacyl-CoA racemase), indicating a possibility of prostate adenocarcinoma. This finding prompted a thorough clinical evaluation.

Subsequent investigations included a serum PSA test, which revealed an elevated level of 7 ng/mL. Imaging studies, specifically an mpMRI (Multiparametric MRI) scan, identified two suspicious lesions: a 20 mm mass in the right apical peripheral zone (PZ) and a 9 mm mass in the right basal gland near the capsule. A subsequent prostate biopsy confirmed the presence of multifocal prostate adenocarcinoma with a Gleason score of 4+3 (70% pattern 4), confirming the diagnosis of prostate adenocarcinoma.

Trucheck Intelli timeline:

- **October 2021:** Negative result.
- **November 2022:** Negative result.
- **February 2024:** Negative result.
- **September 2024:** Detected circulating tumor cells (CTCs) that were EpCAM+ and CK+. Reflex analysis revealed AMACR+ cells, indicating a possibility of prostate adenocarcinoma.

Clinical Follow-up Following Detection of CTCs in September 2024 Trucheck Intelli Test:

- **Serum PSA:** Elevated at 7 ng/mL.
- **MRI:** Revealed two lesions: 20 mm mass in the right apical peripheral zone (PZ) and a 9 mm mass in the right basal gland near the capsule.
- **Prostate Biopsy:** Confirmed multifocal prostate adenocarcinoma with a Gleason score of 4+3 (70% pattern 4).

Conclusion: This case demonstrates the potential clinical utility of the Trucheck Intelli liquid biopsy in the early detection of cancer. The initial negative results were followed by a positive result in September 2024, which prompted further investigation and ultimately led to the definitive diagnosis. This case highlights the importance of serial liquid biopsies in monitoring for the emergence of circulating tumor cells as an indicator of potential malignancy.