Choline analogues: Magnetic Resonance Imaging (MRI) is detecting isolated local recurrences that prostate cancer (functional imaging). Has superior soft-tissue resolution and choline analogues has shown promise in tomography (PET) with radiolabeled Therapy: Radiation, Brachytherapy, and Hormonal (Radical Prostatectomy), External Beam Therapy.

Hybrid PET/MRI:
- The use of positron emission tomography (PET) with radiolabeled choline analogues has shown promise in detection of prostate cancer (GaP) recurrence after definitive local therapy.
- Magnetic Resonance Imaging (MRI) is increasingly used for GaP staging, and has superior soft-tissue resolution and options for multi-parametric and functional imaging.
- The simultaneous use of PET and MRI has been enabled by a new generation of hybrid PET/MRI scanners.

\(^{18}\)F-Fluorocholine (\(^{18}\)F-FCH) Choline analogues:
- Altered choline metabolism characteristic of prostate cancer; changes in choline uptake/retention
- \(^{18}\)F-Fluorinated choline longer half-life vs. \(^{18}\)C-Choline
- \(^{18}\)F-Fluorocholine shown to be superior to \(^{18}\)F-FDG in detection and staging in primary and recurrent setting.

\(^{18}\)F-Fluorocholine (\(^{18}\)F-FCH) Hybrid PET/MRI
- PET/MRI were acquired as follows: TW MRI and PET of the pelvis with body-array coil
- Followed by whole-body PET/MRI using 3-5 bed positions (from skull vertex to proximal femora) with simultaneous PET and MRI (Coronal 2-point Dixon 3D-VIBE, axial HASTE T2 and coronal T2 inversion recovery sequences)
- Followed by MR only (DCE and DWI) imaging of the pelvis.
- Estimated total PET/MRI time was 75 minutes.

OBJECTIVES
1. To examine the feasibility of \(^{18}\)F-FCH hybrid PET/MRI through a pilot study for evaluating men with suspected GaP recurrence being considered for local salvage therapies after initial radical prostatectomy (RP) or radical radiotherapy (RT).
2. To investigate the impact of \(^{18}\)F-FCH PET/MRI findings on clinical management.

 MATERIALS AND METHODS

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<tr>
<th>Post Prostatectomy</th>
<th>Post Radiotherapy</th>
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<tr>
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<tbody>
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Hybrid PET/MRI
- PET/MRI were acquired as follows:
  - \(^{18}\)F-FCH PET/MRI (Whole Body + Pelvis, MRI-Pelvis, Total 75min)

CONCLUSIONS
- \(^{18}\)F-FCH PET/MRI shows promise for men with suspected prostate cancer recurrence following RP or RT.
- PET/MRI findings had impact on clinical management.

REFERENCES