

PET/MRI in patients with endometriosis -The role of Medical Imaging Technologist-

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Endometriosis

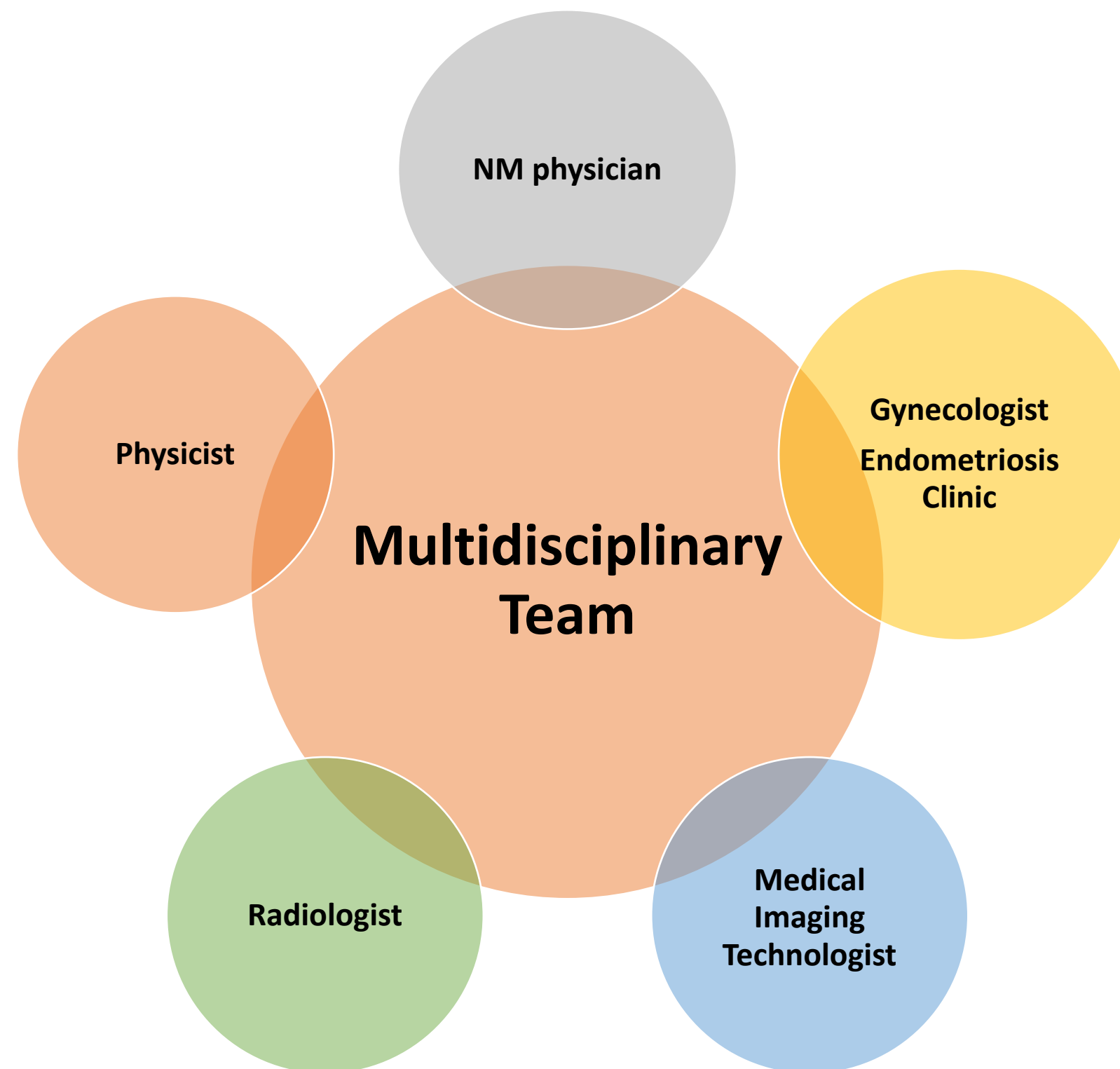
- *Definition:* estrogen-dependent disease defined by the presence of endometrial tissue outside the uterine cavity
- *Prevalence:* 10% of women in childbearing age
- *Phenotypes:* superficial peritoneal, ovarian and deep
- Causes inflammation, which leads to pelvic pain and/or hypofertility
- In deep endometriosis surgery is necessary
- Preoperative evaluation (standard of care):
 - detailed gynecological examination
 - transvaginal ultrasound and/or MRI with a sensitivity and specificity of 94% and 77% respectively (*Nisenblat et al. Imaging modalities for the non invasive diagnosis of endometriosis. Cochrane Database Syst Rev, 2016 Feb 26;2:CD009591.*)



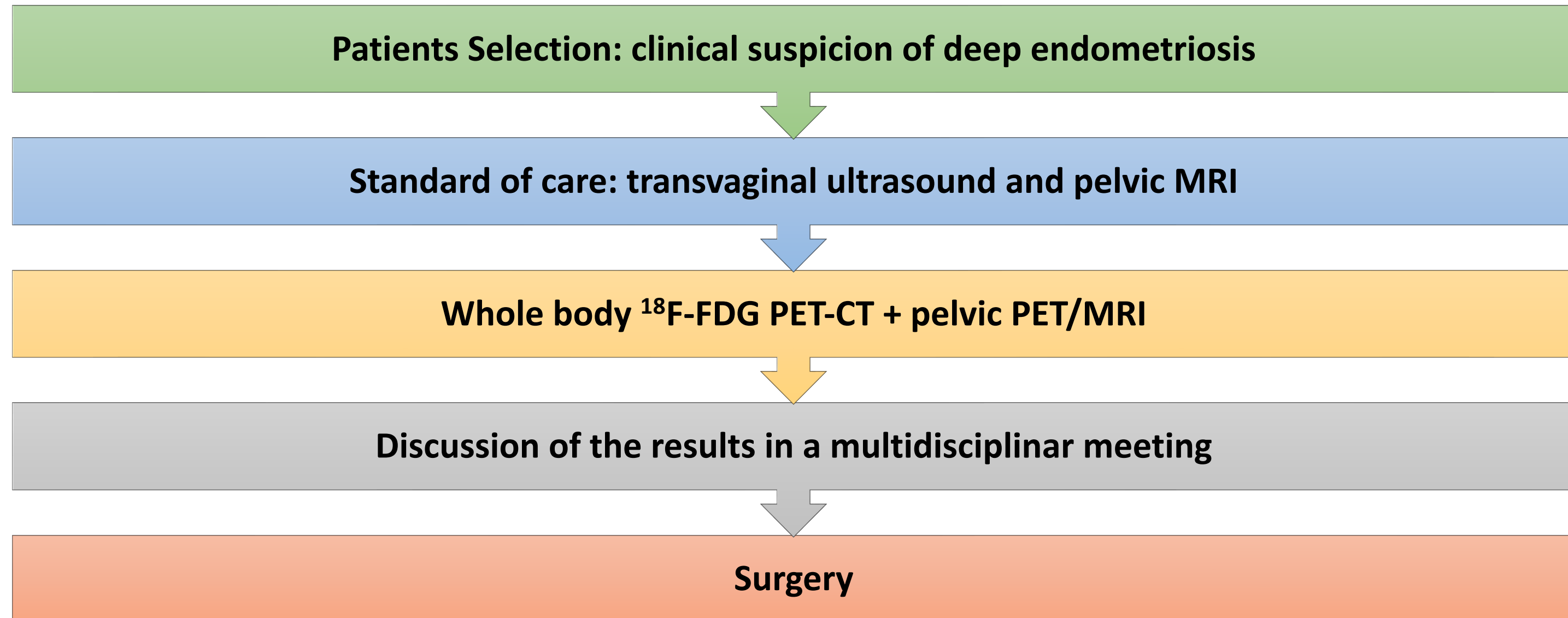
Endometriosis

- A more targeted diagnosis in case of deep endometriosis is needed
- No evidence of the usefulness of ^{18}F -FDG PET/CT (*Fastrez M. et al. Evaluation of ^{18}F FDG PET-CT in the diagnosis of endometriosis: a prospective study. Reprod Sci. 2011 Jun; 18(6):540-4).*)
- What is the contribution of ^{18}F -FDG PET/MRI for preoperative targeting of deep endometriosis lesions?
- Can the patient preparation prior to FDG PET/MRI imaging be helpful?





Synopsis PET/MRI study endometriosis



Patients' preparation

- PET/MRI appointment to be scheduled within 48-72 hours after beginning of menstruation
- Rectal enema 4 hours before molecular imaging
- 6 hours fasting
- Hydration
- Intravenous administration of ^{18}F -FDG;
- Intravenous administration of an anti-peristaltic drug (Buscopan[®]) at the time of PET/MRI
- Whole-body PET/CT acquisition 60 minutes after tracer injection
- PET/MRI after PET/CT



Medical Imaging Technologist Role

- Working in a multidisciplinary team
- Well trained for following clinical trial requirements
- Follows PET/CT and PET/MRI procedures
- Follows safety procedures to protect staff and patients from unnecessary radiation exposure
- Follows MRI safety procedures
- Adaptability and flexibility in working with a busy schedule - brief timeframe (48-72h)
- Available for interacting with the patient, explaining the molecular imaging procedures, answering the questions, ensuring their confort



PET/MRI study protocol

- GE Signa PET/MRI 3T;
- No contrast injection;
- PET acquisition: 20 minutes;
- MRI sequences:
 - ✓ Morphological sequences sagittal T2, T1 and T1 Fat sat, axial and coronal T2 in relation to the uterus axis;
 - ✓ Functional sequences of diffusion in the same plane as the T2 axial;
 - ✓ Uro MRI in selected cases





Fig.1. Patient positioning in PET-MRI



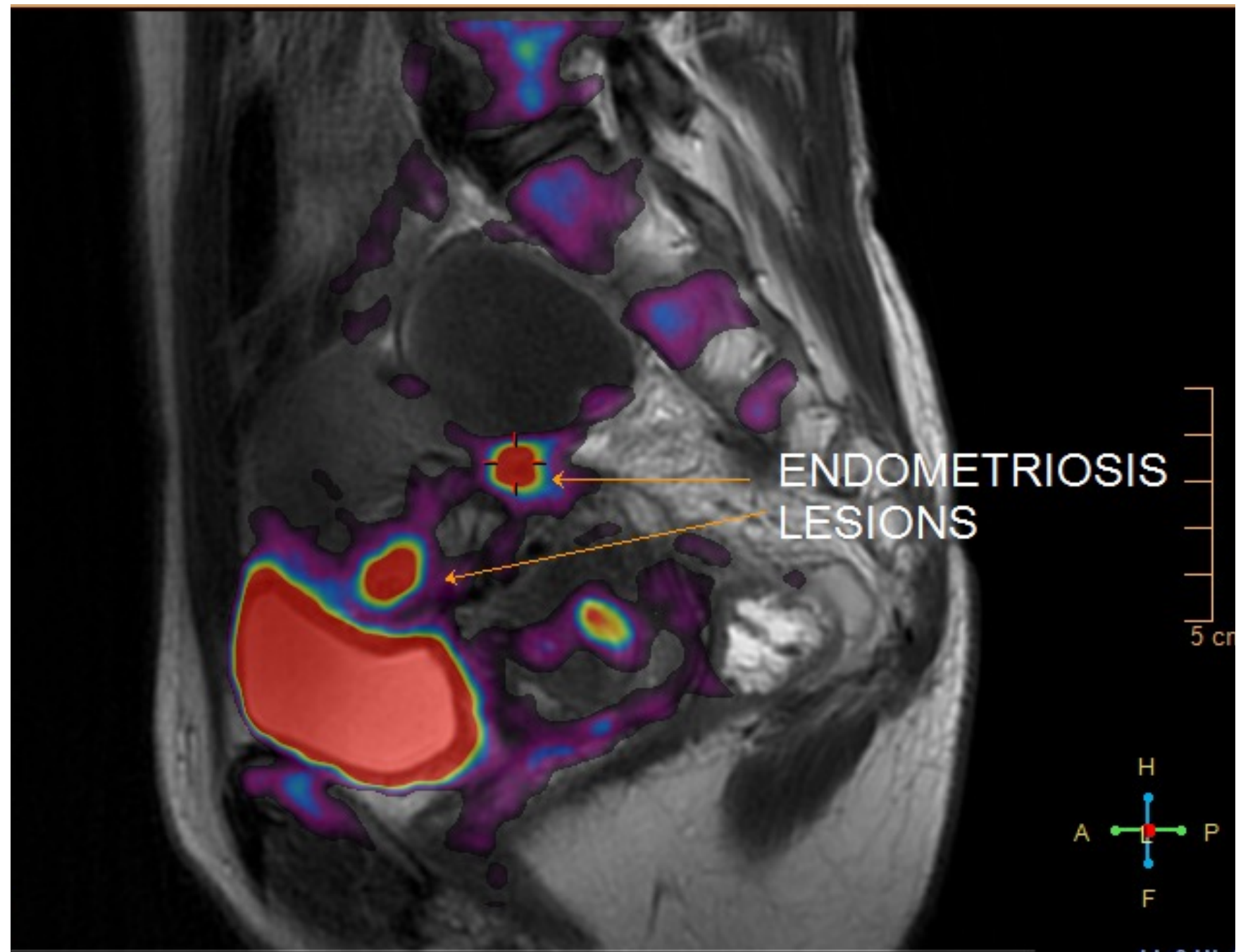


Fig.2. Sagittal T2-weighted imaging



Conclusions

Medical Imaging Technologists

- key role in a multidisciplinary team in an academic hospital
- professional skills for following clinical trial requirements
- their contribution to this study motivates to keep an outstanding performance regarding PET/CT and PET/MRI procedures

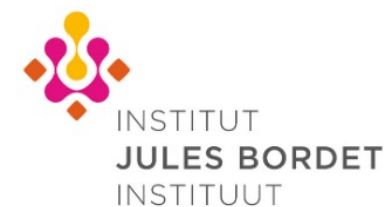


PET/MRI in patients with endometriosis

Study Team



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Thank you for your attention

