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강연제목: 근적외선유도하 수술 중 감마선 가이드를 이용한 복강경 시스템

개발/development of gamma image guided intraoperative laparoscopic system
for near-infrared guided surgery

Abstract: Minimally invasive surgery (MIS) with near-infrared (NIR) fluorescence has an advantage in terms of quality of patient care. However, the image with NIR fluorescence cannot provide deep tissue imaging because of its low photon energy. Radiographic image can be a solution to overcome the penetration depth issue of NIR fluorescence. An image with annihilation gamma rays for position emission tomography (PET) has high sensitivity, spatial resolution, and penetration depth suitable to the guide image for NIR fluorescence imaging. For this reason, a multimodal imaging system was developed and evaluated. With the combination of a laparoscopic module and an external flat detector, the 511 keV gamma events can be collected with coincidence detection. The laparoscopic module can also collect optical photons and the color (visible) and NIR fluorescence images can be obtained. With a prototype multimodal imaging system, the performance of optical and gamma images was analyzed.

Brief Biosketch

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2016~2018 한국연구재단 방사선기술개발사업 실무담당자 (수술용 endo-PET/근적외선헬광/가시광선 융합영상시스템)

2018.10 대한핵의학괴 추계학술대회 구연

2019.11 World Molecular Imaging Society (WMIC) oral presentation