Optical molecular imaging in head and neck tumors

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Propositions

1. Multispectral optoacoustic tomography offers enormous potential to serve as a diagnostic tool for head and neck tumors through label-free visualization of intrinsic tissue chromophores at organ-level. (this thesis)

2. Applying deep learning methods to multispectral optoacoustic tomography improves correctness of image reconstruction and overall image quality. (this thesis)

3. Molecular imaging using multispectral optoacoustic tomography requires the development of dedicated optoacoustic contrast agents instead of current clinically used near-infrared organic dyes. (this thesis)

4. Fluorescence molecular imaging can identify tumor-positive resection margins during head and neck surgery, such that it can be expected to become standard clinical care and allow for intraoperative decision-making. (this thesis)

5. While the potential of fluorescence imaging has become evident, implementation into standard of care requires consistent conduct of studies, data analysis and data interpretation. (this thesis)

6. Implementation of fluorescence molecular imaging may visualize unexpected (pre-)malignant lesions. (this thesis)

7. Intraoperative pathology-assisted surgery allows for controlled image-acquisition settings and standardization of procedures, and therefore may have higher translational potential compared to *in vivo* imaging. (this thesis)

8. The so-called 'optical operating room', equipped with optical imaging devices that enable intraoperative tissue analysis, may facilitate real-time collaboration between surgeons and pathologists. (this thesis)

9. If I have seen further, it is by standing on the shoulders of giants. (Isaac Newton)

10. Wie in het dal blijft, ziet nooit de ander kant van de berg. (Jose de Cauwer)