

第230回 IBBセミナー

日時：2019年11月27日(火) 13:00～14:00

場所：東京医科歯科大学 生体材料工学研究所

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A Next Generation Medical Robot for Endoscopic Surgery



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Abstract

We believe that next generation of the surgical robot should be developed to provide a surgeon with convenient operation, to patient with minimum invasiveness. In order to meet these requirements, flexible endoscopic surgery robots have been developed that can perform a robotic surgery through a curved and narrow pathway by adding small robot arms to the flexible overtube. Due to the flexibility of the overtube, the robot can be usefully used to access to the lesion located at the deep area without making incision which is hardly achieved by conventional surgery robots. The robot arms is designed to have an enhanced force exertion as well as to provide dexterous motion for performing a surgical task in confined space. Several ex-vivo and in-vivo animal experiments had shown the effectiveness and feasibility of the flexible endoscopic surgery robot. The flexible robot technology will expand endoscopic application from conventional endoscopic procedure to robotic surgery.

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