Construction of a multicenter database of endoscopic surgery for supporting the Information-powered surgery

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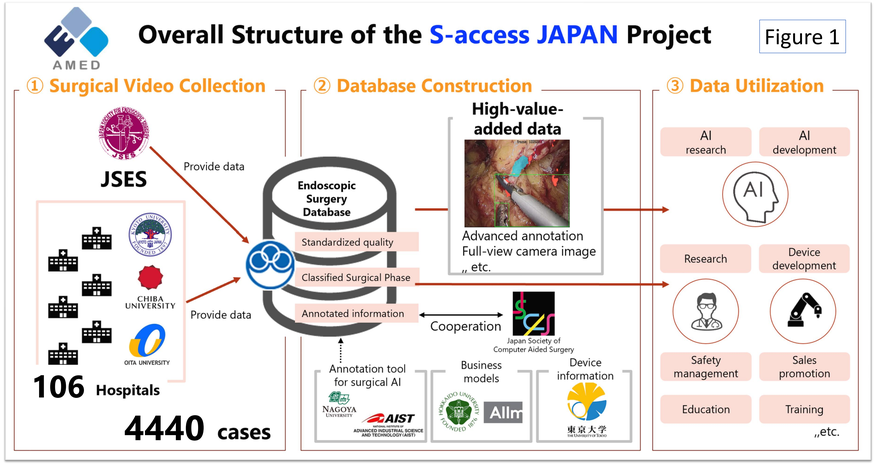
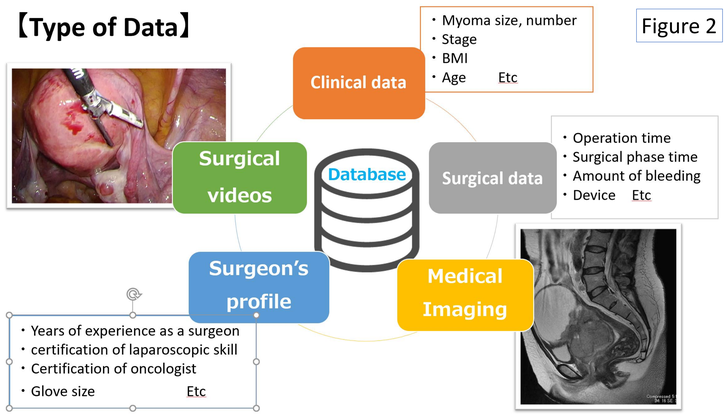
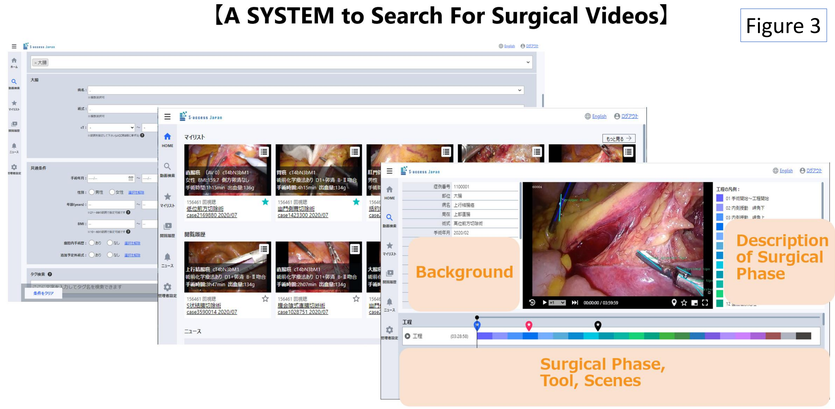


Table 1: Type and Number of procedures

Colorectal	Rectum	Laparoscopy	300	1320
		Robot	100	
		TaTME	100	
	Sigmoid	Laparoscopy	620	
	Right sided sigmoid		200	
Esophageal	Laparoscopic Esophagectomy		40	40
Gastric	LDG		480	680
	LTG		100	
	RDG		100	
Hepato-Biliary-Pancreatic	Gallbladder		620	1100
	Liver		360	
	Pancreus		120	
Gynecology	Hysterectomy	Laparoscopy	550	800
		Robot	200	
	Laparoscopic Myomectomy		20	
	LSC, RSC		20	
	Laparoscopic Cystectomy		10	
Prostate	RARP		500	500
Total				4440

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Introduction: we have constructed a surgical database. By collecting surgical videos and building a database that combines surgeon information and clinical data, we can accelerate the development of fields such as surgical education, data analysis research, and the development of new medical devices. This is because it will enable surgeons to learn surgical techniques efficiently.

Methods: We are building a large-scale video database of endoscopic surgeries by collecting surgical and urological surgical information from about 90 facilities across Japan, funded by the Japan Agency for Medical Research and Development (AMED) starting in 2019. This project is called “S-access JAPAN”. And from 2020, we have started a project to build a database in gynecology called “Gyne-storage”. With it, a surgical video database of 20 different surgeries including gastrointestinal surgeries such as colorectal resection, gastrectomy, hepatectomy, pancreatectomy, and cholecystectomy, gynecological surgeries such as total hysterectomy and myomectomy, and urological surgeries of prostatectomy was constructed (Figure1). It includes not only laparoscopic surgery but also robotic surgery. In addition, not only “surgical videos” but also “surgical data” such as operation time and blood loss, “clinical data” such as the size of the myoma, “surgeon profiles” such as years of experience and whether the surgeon is technically certified, and “medical image data” such as preoperative MRI were collected (Figure2). In order to make the database more value-added, we annotated information such as the surgical process and surgical devices in each operation.

Results: We ultimately collected surgical data on 4440 cases in seven fields. Table 1 shows the detailed surgical procedures for each of them. And based on those data, we developed a system called “Surg stream” that allows users to view surgical videos (Figure3). The system allows users to search for data by surgical procedure, clinical stage, complications, and so on. The system also displays surgical phase and the devices used in each surgery. This system is a powerful platform for surgical education, data analysis research and medical device development.

Conclusions: This database can be shared with various sectors such as universities, research institutes, academic societies, research groups, and medical device development companies (Figure 1). We have built an infrastructure for creating products for the world as an all-Japan team. We are seeking researchers to use this database.

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Shin Takenaka
Officers / stocks ■ Yes (Surg storage Co., Ltd.)
Lecture fees, etc. ■ Yes (Medtronic Co., Ltd.)
Research expenses ■ Yes (Jmees, Inc.)