Computer-assisted registration techniques for endopancreatic surgery

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Overview

- Minimally invasive technique
- Resection inside the pancreatic duct
- Rigid endoscope (Karl Storz)
  - Decreased field of view
  - Lack of haptic feedback

Goal

- Computer-assisted resection guidance

Methods

- Navigation system
  - Optical tracked laparoscope and US
- Pancreas phantom
  - Surrounding risk structures
  - CT and US characteristics
- Evaluation of registration techniques
  - Surface
  - Internal
  - Hybrid

Results

- Trained medical professional

Approach	Fiducial Registration Error	Time
Surface	3.46 mm	01:51 min
Surface and intraparenchymal	2.46 mm	02:12 min
Intraparenchymal	2.24 mm	02:58 min

Median , n = 5

Conclusion

- Ultrasound registration suitable for resection of tumour (see more in A-174)

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