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A novel endoscopic technique and device for bimanual rectosigmoidal ESD

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Conflict of interest statement

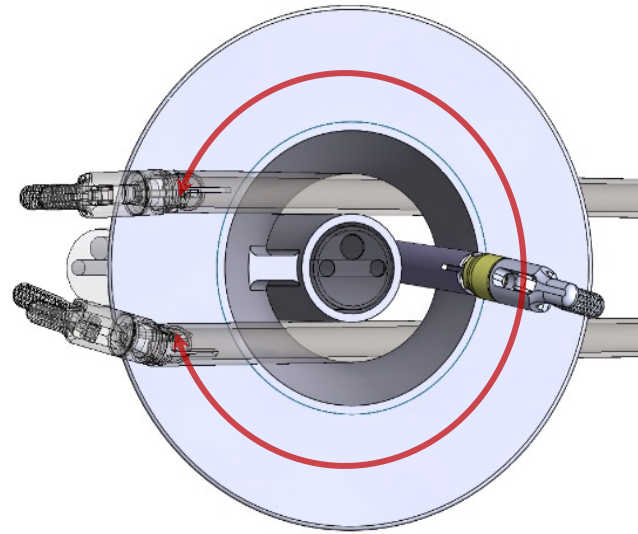
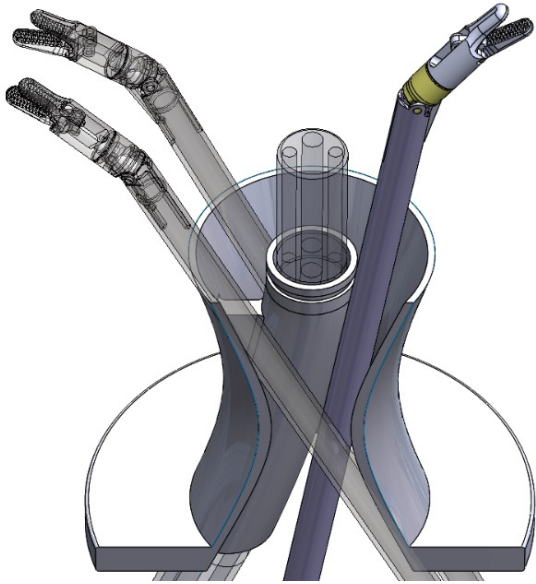
I herewith declare anything that may potentially be viewed as a conflict of interest during the past three years such as paid or unpaid consultancies, business interests or sources of honoraria payments:

Competing interests: None

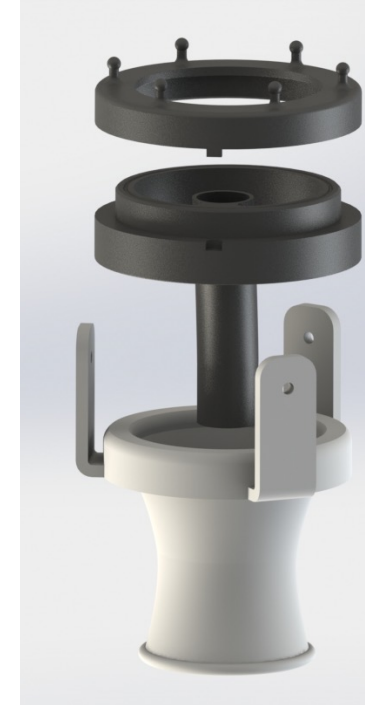
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1. Devices for bimanual rectosigmoidal ESD - current prototypes



Novel port with endoscope
and novel instrument



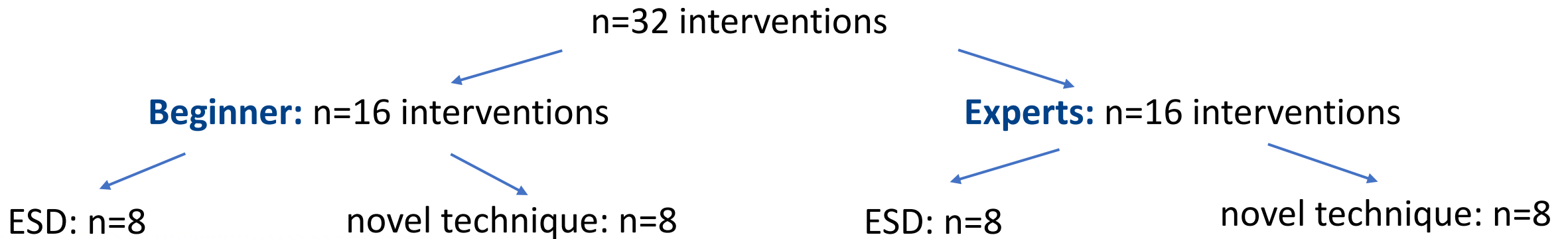
2. First ex-vivo study – methods and study aim

- **Background:** conventional ESD is difficult to perform and is associated with a higher risk of perforation; some traction methods already exist, but have limitations

➔ **Key to increasing effectiveness and safety: apply countertraction during resection**

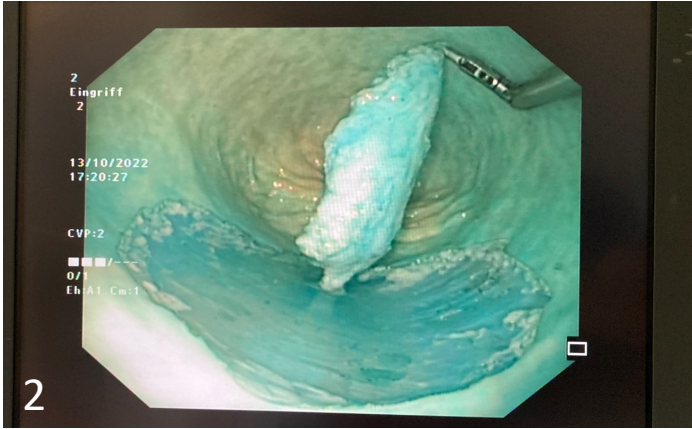
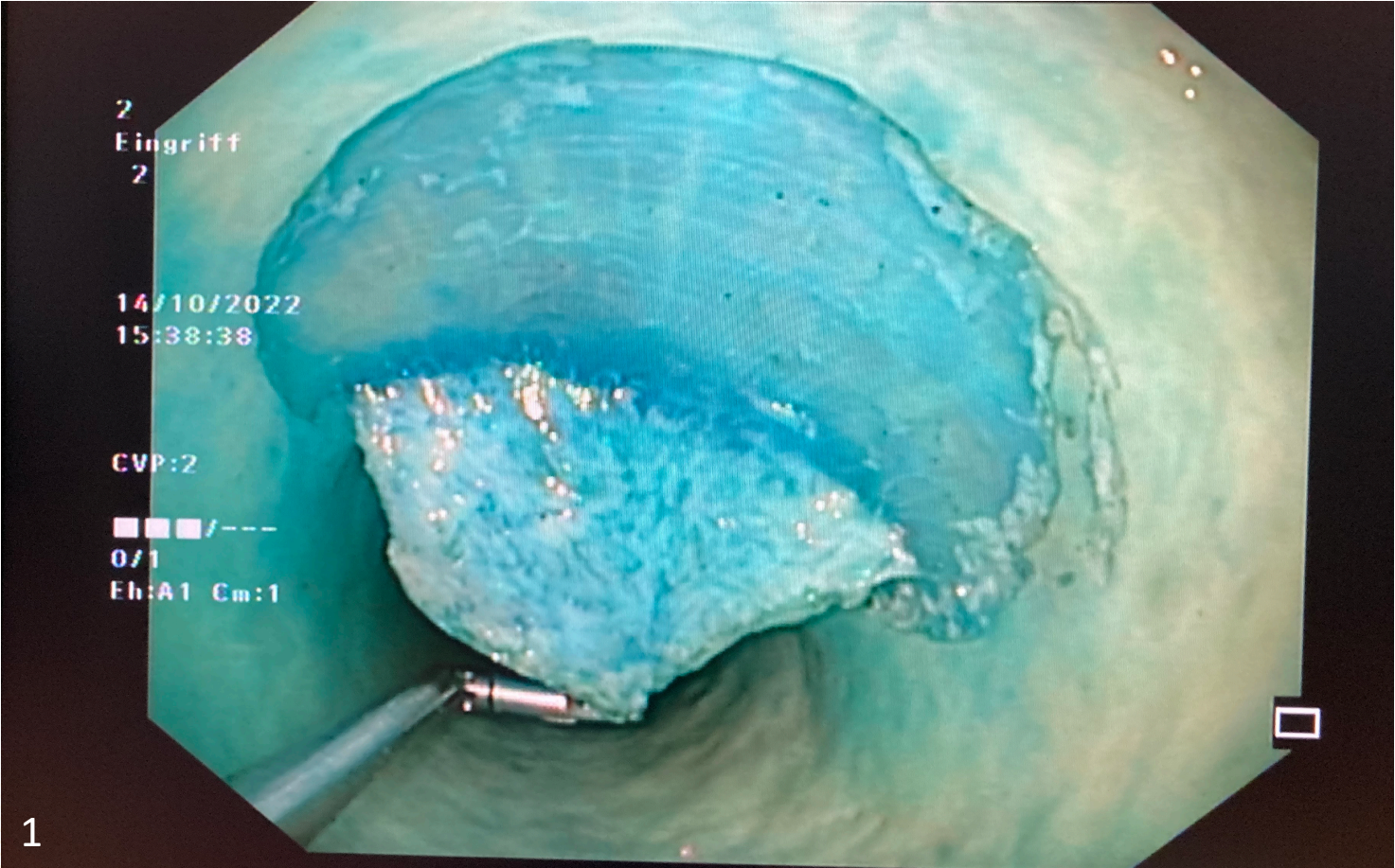
- **Methods** ➔ Ex-vivo experiments on porcine intestines

➔ Lesion size: **4x4 cm**; located on **3, 6, 9 and 12 o'clock**; distances from ano: **5-25 cm**



- **Endpoints:**
 - ➔ procedure time
 - ➔ completeness of resection
 - ➔ comparison: perforations/ muscularis lesions
 - ➔ **new possibility to exert traction on the tissue: facilitate rectisigmoidal ESD**

3. Experimental setup



Endoscopic view: Grasper is holding the polyp (1 and 2)

Macroscopic view: polyp stretched on cork (3)

4. Results

| | EndoTEM (novel technique) | ESD | Significance |
|---|---------------------------|---|---------------|
| Procedure time experts (n=8) | 25 min (12–54 min) | 71 min (48-85 min) | p= <0.001*** |
| Procedure time beginner (n=8) | 53 min (18-110 min) | (38-145 min) | p= 0.023* |
| Total time experts (n=8) | 45 min (32–72 min) | 90 min (80– 105 min) | p = <0.001*** |
| Total time beginner (n=8) | 125 min (70-233min) | 147 min (84-221 min) | p= 0.244 |
| | | | |
| Perforations and muscularis lesions (both groups, n=32) | 1 case in all procedures | Perforations: 75% at least 1 perforation Muscularis lesions: 100% at least 1 muscularis lesion | p = <0.001*** |
| | | | |
| Resection speed experts (n=16) | 35,14 cm ² /h | 10,88 cm ² /h | p= <0.001*** |
| Resection speed beginner (n=16) | 19,63 cm ² /h | 9,56 cm ² /h | p= 0.023* |
| | | | |
| Complete en-bloc resection (n=32) | 100% | 100% | |

5. Conclusion

➔ **The novel device and technique allows significantly faster and safer resections of large rectal lesions in an ex-vivo setting**



Limitations:

- ex-vivo setting (no bleeding, position change of the patient possible)
- Design not yet finalized
- Additional person for manipulation of grasper necessary