cell carcinoma and 2 benign diseases. SEMS deployment was successful in all 110 procedures. Of the 46 traversable tumours, 22 underwent ET and 24 FT for SEMS placement. 64 patients had non traversable tumours (with standard endoscope). HT was used in 21 and FT in 43 patients. Length of the stent deployed was not statistically different in both groups (HT 11.4 ± 0.5 cm, FT 11.0 ± 0.5 cm, P = 0.98). Good dysphagia alleviation was seen in both groups (dysphagia scores, HT cohort pre-stent 2.7 ± 0.16, post-stent 0.53 ± 0.87 P < 0.001; FT cohort pre-stent 2.53 ± 0.09, post-stent 0.44 ± 0.11 P < 0.001). Cumulative complications (reflux, pain, bleeding, food bolus obstruction) were similar for both techniques (HT 0.28 ± 0.1, FT 0.34 ± 0.1, P = 0.62). There was a tendency towards higher re-intervention for tumour overgrowth in the FT cohort (FT 7/43 patients, 129.4 ± 35.5 days; HT 2/21 patients, 215 ± 60 day, P = 0.33). Neither the stent length (P = 0.89) nor the technique used, had an influence on the need for re-stenting for tumour overgrowth (P = 0.68). Median survival was 141 days (IQR 46–180) in the HT group and 121 days (IQR 27.75–188.5) in the FT group. There were no instances of stent migration in the non-traversable group.

Conclusion Outcomes following SEMS insertion in both techniques were similar. Hybrid approach is an acceptable alternative to fluoroscopy only, in patients with non-traversable tumours, with the added advantage of more accurate positioning of the proximal end of the stent under direct endoscopic visualisation. Limitations of the study are its retrospective nature, lack of data on diameter of stents.

Disclosure of Interest None Declared.

PTU-016 | **WIRELESS CAPSULE ENDOSCOPE LOCALISATION BASED ON VISUAL ODOMETRY**

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Introduction The localisation of a wireless capsule endoscope (WCE) within the small-bowel is typically performed by wearable radiofrequency sensors triangulation. The accuracy of this approach is low.[1] Only a few approaches have been proposed for WCE localisation based on visual features. These include methods addressing the estimation of the rotation angle of the capsule[2,3] and temporal video segmentation methods.[4] We present a WCE localisation method, based only on visual information extracted from conventional WCE recording.

Methods Automatic detection of points of interest (POI) in WCE video frames, matching of the detected POI between consecutive frames, and determination of actual correspondences between subsets of these POI based on the random sample consensus (RANSAC) algorithm was performed. Maximally stable extremal regions (MSER) algorithm, instead of the speeded up feature extraction (SURF) algorithm, was used. Based on the scaling and the rotation of the content of the consecutive WCE frames, it is possible to estimate the displacement and the rotation of the capsule within the GI tract. For the ex-vivo experiment; a standard simulated intestinal environment was created. Markers were sewn (at set, pre-recorded distances) onto the luminal surface of porcine small-bowel through which a capsule (MiroCam®, IntroMedic Co Ltd, Seoul, Korea) was propelled.

Results Comparative experiments using both SURF and MSER features, which indicated the superiority of the former over the latter, we conducted. We worked on a corpus of 1070 WCE

frames (634 indicating forward motion, 436 indicating backward motion). The accuracy using SURF features was 81.5% (87.2% on forward motion, 73.2% on backward motion), while using MSER was 67.2% (79.8% on forward motion, and 48.9% backward motion). Noteworthy, the proposed algorithm often fails when using MSER (6.7% of frames while <0.1% when using SURF) and a transform is not estimated due to the lack of adequate correspondences between interest points.

Conclusion Visual odometry is a promising technique and – potentially – a feasible alternative to other localisation approaches in WCE.

REFERENCES
1 Than TD, et al. A review of localization systems for robotic endoscopic capsules. IEEE Transactions on Biomedical Engineering 2012;59:2387–99
2 Spyrou E, Iakovidis D. Homography-based orientation estimation for capsule endoscope tracking. in 2012 IEEE Int. Conf. on Imaging Systems and Techniques (IST), IEEE, 2012:101–105,
3 Mackiewicz M, et al. Wireless capsule endoscopy color video segmentation. IEEE Transactions on Medical Imaging 2008;27:1769–81
4 Spyrou E, Iakovidis DK. Video-based measurements for wireless capsule endoscope tracking. Measurement Science and Technology, Measurement Science and Technology, IOP Publishing, 2014;25:015002 (14pp)

Disclosure of Interest None Declared.

PTU-017 | **THE USE OF SMALL BOWEL CAPSULE ENDOSCOPY IN THE OCTOGENARIANS GROUP; THE EDINBURGH EXPERIENCE**

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Introduction Over the last 13 years, the clinical use of capsule endoscopy (CE) has revolutionised the investigation pathways for the small-bowel. Although non-invasive (as procedure), there are reports of capsule aspiration in certain patient-groups.[1] Moreover, CE video review is a time-consuming process and – on occasions – with limited diagnostic yield (DY). There is scarcity of data on the use of CE in octogenarians.[2–4] We aim to report our centre experience in using CE in octogenarians.

Methods Retrospective study; the SBCE data base of our unit was interrogated for patients >80 years of age who underwent CE. Categorical data are reported as mean ±SD. The Fischer's exact, the chi-square and the t (unpaired) tests were used to compare datasets. A two-tailed P value of <0.05 was considered statistically significant.

Results 1,477 patients underwent small-bowel CE between 2005 and 2013. 93 CE were performed in 84 (35M/59F) octogenarians; mean age 84 ± 2.9 years. PillCam®SB1/SB2 and Miro-Cam® were used in 61 and 32 CE examinations, respectively. Ten (11.9%) patients had more than 1 CE. One patient was unable to swallow the capsule, and in another the capsule was retained in the stomach. The CE report was unavailable in one case. Indications for small-bowel CE were IDA: 44, OGIB: 29, OBIG+IDA: 6, diarrhoea 4, small-bowel varices: 1. Forty-five (53.6%) patients subsequently died. The mean time from SBCE to death was 23 months (SD 20.9, range: 0.13–83 months).

The DY (all findings) of CE in our octogenarian cohort was 56.8%. Vascular lesions (any P class)/active bleeding were found in 33, inflammatory pathology in 9, and other in 4 CE. No neoplastic pathology was identified. The DY was independent to the indications for the procedure (P = 0.166), the small-bowel CE system used (P = 0.068), the patient final outcome i.e. deceased/alive (P = 0.051) and/or the time from CE to death (P = 0.053).