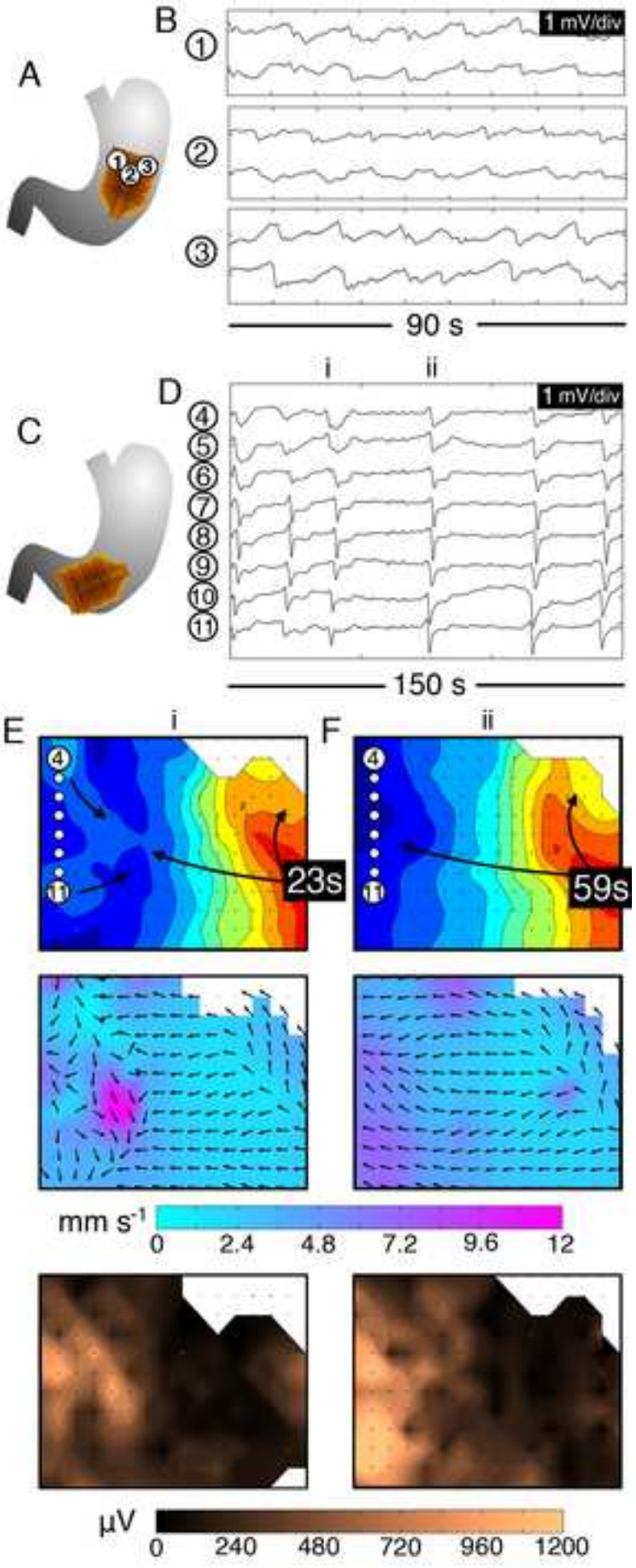
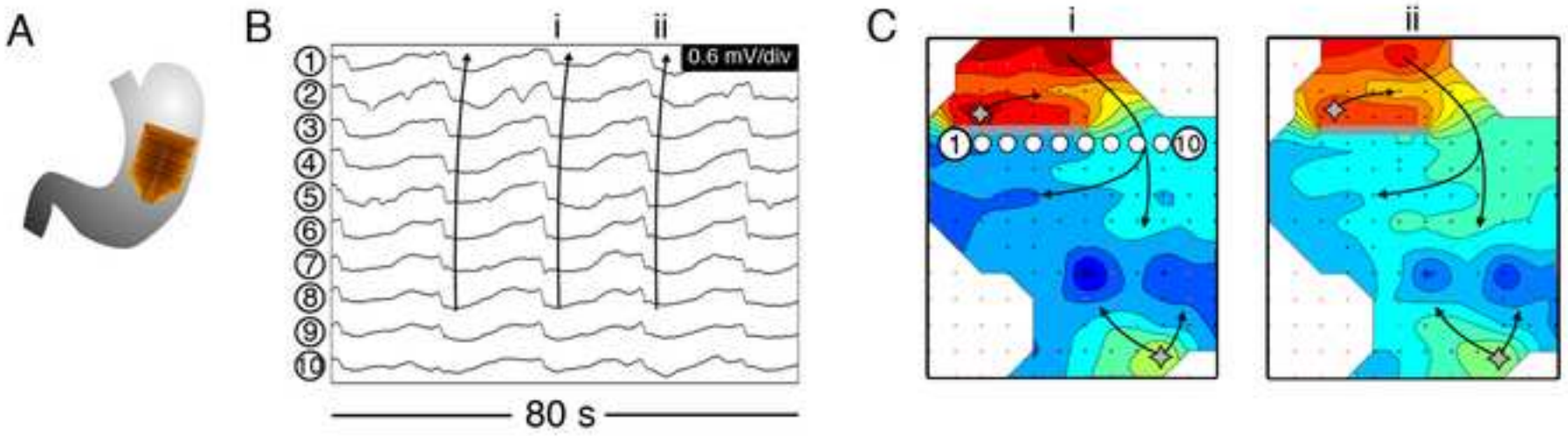
Supplementary Figure 1



Supplementary Figure 2



Supplementary Figure 1

Abnormal slow-wave initiation: mismatched frequencies in adjacent gastric regions (non-continuous recording); example from diabetic gastroparesis (ID#6). **A**. Position diagram relating to (B). **B**. A persistent disorganized pattern of aberrant initiation was recorded at the mid corpus (4.5 ± 0.3 SD c/min). Representative electrograms are shown from the three distinct regions indicated in (A). The gross spatial disorganization precluded activation mapping; however, data animation demonstrated scattered focal activities, multiple propagating waves, and colliding wavefronts (*SuppFigure1i.wmv).* **C**. Position diagram relating to (E-F); the recording array was then relocated distally in the same patient. **D**. Example electrograms from eight electrodes positioned as indicated in (E), demonstrating lower frequency activity (2.3 ± 0.1 SD c/min; P<0.0001 vs corpus). **E**. Isochronal maps for representative waves *(i)* and *(ii)*; intervals = 2 s. The distal activity was spatially dissociated from the disorganized proximal activity. Irregular focal activities occurred periodically in the distal field, colliding with the proximal wavefronts (*i*). At other times, the proximal activity successfully entrained the whole field (*ii*). The time stamps are referenced to the accompanying animation (*SuppFigure1ii.wmv*).

Supplementary Figure 2

Abnormal slow-wave conduction in a patient with idiopathic gastroparesis (ID#10) and severe ICC depletion (0.3 ± 0.6 SD bodies / field). **A**. Position diagram. **B**. Electrograms (from the positions indicated in C) demonstrate regular activity of normal frequency (3.4 ± 0.2 SD c/min). **C**. A consistently stable but highly deranged propagation pattern was observed for the recorded duration (maps *i-ii*, see also animation *SuppFigure2.wmv*), including conduction block (grey bar), circumferential propagation distal to the block, and retrograde propagation with colliding wavefronts.

Supplementary Table 1

Comparison of patient and experimental variables between the present study and a previous study of human subjects with normal stomachs, who were mapped and analyzed using similar methods [16], and in whom no abnormal slow-wave events were observed intra-operatively.

* *(www.smoothmap.org).*

Supplementary Table 2

Individual patient data from the study cohort. *n.d.: no data*.

Supplementary Table 1

	Cohort with Normal Stomachs [16]	**Gastroparesis Cohort (current study)**
No. Patients	12	12
Age (median, range)	50 yrs (21-60)	42 yrs (30-60)
Sex (M:F)	7:5	6:6
Time of Mapping	Immediately following incision	Immediately following incision
Duration of Mapping (mean ± SD)	11.5 ± 3.9 min / pt	13.4 ± 4.6 min / pt
Anaesthetic Regimen	Prophylactic antibiotics, benzodiazepine premedication, an epidural anesthetic, a short-acting intravenous opiate, muscle relaxant (atracurium or suxamethonium), propofol, isoflurane or sevoflurane.	Prophylactic antibiotics, benzodiazepine premedication, a short-acting intravenous opiate, muscle relaxants (suxamethonium or rocuronium), propofol, desflurane.
Off-line Filtering Methods	2 Hz low-pass Butterworth filter	Savitzky-Golay and moving median filters [19]
Analysis and Isochronal Mapping Methods	Manual analyses in SmoothMap v3.05*	FEVT, REGROUPS, and SIV methods (performed in GEMS v1.2 [18,20,21] with manual review)
Velocity and Amplitude Calculation Methods	Algorithms in SmoothMap v3.05*	Algorithms in GEMS v1.2 [18,19,23]

Supplementary Table 2

ID	Aetiology	Sex	Age	BMI	TSS	GET (4-hr Retention)	ICC Count (mean, SD)	Figures / Animations
1	Diabetic	M	32	28	13	27%	n.d.	*Figure 5; Figure5i-ii.wmv*
2	Diabetic	M	39	27	n/a	41%	n.d.	*Figure 6; Figure6i.wmv*
3	Diabetic	M	32	21	14.5	22%	1.7 ± 1.5	*Figure 1 Figure1.wmv*
4	Diabetic	M	30	21	17.5	74%	2.1 ± 1.3	*Figure 6; Figure6ii.wmv*
5	Diabetic	F	50	32	18	27%	3.3 ± 2.0	*Figure 4; Figure4i-iii.wmv*
6	Diabetic	M	42	n.d.	14	47%	2.5 ± 1.8	*Supp. Fig 1; SuppFig4i-ii.wmv*
7	Diabetic	F	38	n.d.	17.5	14%	3.9 ± 2.5	-
8	Diabetic	M	62	44	20	25%	2.0 ± 1.6	-
9	Idiopathic	F	58	16	14	19%	n.d.	*Figure 5*
10	Idiopathic	F	62	23	16	75%	0.3 ± 0.6	*Supp. Fig 2; SuppFig2.wmv*
11	Idiopathic	F	34	30	20	15%	2.5 ± 2.1	-
12	Idiopathic	F	58	27	15.5	19%	2.2 ± 1.7	-
Median:	-	-	**42**	**27**	**16**	**26%**	**2.2**	-

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