

VIDEO LEGENDS

Video S1. Intestinal peristalsis during normothermic machine perfusion.

During 6-hour normothermic machine perfusion, the intestine demonstrated what appeared to be normal forward, synchronized intestinal motility.

Video S2. Intestinal effluent production. During 6-hour normothermic machine perfusion, production of apparently normal luminal effluent was observed that was progressively moved aboral and collected via ileal cannulation.

TABLES

Table S1. Histology scoring for assessment of injury in intestine allografts.

Small bowel: feature	Definition
<i>Architecture</i>	
Villus blunting/atrophy	Villous to crypt ratio <3:2
Crypt regeneration	Increased crypt mitotic activity
Crypt dilatation/injury	Atrophic, attenuated or markedly injured by inflammation
Gruenhagen's space	Lifting off of the superficial epithelium from the villi
Surface erosion/denuded villi	Complete loss of epithelium with lamina propria damage and associated response (eg, inflammatory or hemorrhage)
Ulceration	Loss of epithelium with significant damage of the lamina propria leading to the formation of granulation tissue
Necrosis	Devitalized epithelium or muscle (eg, paleness, loss of nuclei, loss of cellular integrity)
Lamina propria inflammation	Expansion of the lamina propria by inflammation
Edema	Excess fluid accumulation within the lamina propria or submucosa
Paucity of intraepithelial lymphocytes	Decreased number of intraepithelial lymphocytes (<16/100 enterocytes) within the villi
<i>Epithelial cytology</i>	
Vacuolization	Microvesicular cytoplasmic inclusions
Loss of microvillus brush border	Superficial epithelium lacks the terminal bar and brush border
Attenuation (from columnar)	A loss of mucin leads to increased nuclear to cytoplasmic ratio
Re-epithelialization (surface)	Within an area of injury immature epithelium appears
Lymphocytic infiltration	Intraepithelial lymphocytes within the crypts
Neutrophilic infiltration	Intraepithelial neutrophils within the crypts

Qualitative scoring: 0 (normal), 1 (focal and mild), 2 (diffuse and mild), 3 (diffuse and moderate), and 4 (diffuse and severe).

Table S2. Pigs transplanted with NMP-stored intestinal allografts.

		Intraoperative	Postoperative										
		1 hour reperfusion	24-hour values					48-hour values					
Pig	NMP generation	Serosal appearance	HR, bpm	Lactate, mmol/L	Attitude, QAR/BAR	Feces production, yes/no	Appetite, yes/no	HR, bpm	Lactate, mmol/L	Attitude, QAR/BAR	Feces production, yes/no	Appetite, yes/no	Outcome postmortem
P248	Gen2	Jejunum: normal Ileum:	80	0.6	QAR	No	Yes	100	1.2	BAR	Yes	Yes	Healthy intestine
P253	Gen3	Jejunum and ileum: normal	132	0.5	BAR	No	Yes	140	0.6	BAR	No	Yes	Healthy intestine
P267	Gen3	Jejunum and ileum: normal	90	0.8	BAR	No	No	100	1.5	BAR	No	No	CMA and CMV thrombosis and mesenteric rent causing jejunal entrapment
P287	Gen3	Jejunum: normal Ileum: darker pink	140	1.0	QAR	No	No	160	1.1	BAR	Yes	No	CMA and CMV thrombosis, ischemic intestine
P291	Gen3	Jejunum and ileum: normal	90	0.8	BAR	Yes	Yes	100	0.6	BAR	Yes	Yes	Healthy intestine

Significant intraoperative and postoperative results, diagnostic values, and outcomes from Gen2 (n = 1) and Gen3 (n = 4) recipient pigs. Intraoperatively, after 1 hour of graft reperfusion, the serosal appearance of the jejunum and ileum was assessed, and any section that appeared unhealthy was resected. Physical examination results and diagnostic values are reported 24 and 48 hours postoperatively in addition to recipient outcome at 48 hours.

BAR, bright, alert, and responsive; bpm, beats per minute; CMA, cranial mesenteric artery; CMV, cranial mesenteric vein; Gen2, generation 2 perfusion protocol; Gen3, generation 3 perfusion protocol; HR, heart rate; NMP, normothermic machine perfusion; QAR, quiet, alert, and responsive.