

# Donor Characteristics, Recipient Outcomes, and Histologic Findings of Kidney Allografts with Diffuse Donor-Derived Glomerular Fibrin Thrombi

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## BACKGROUND

- Given the shortage of kidneys available for transplantation, major effort is being made to lower discard rates of deceased donor kidneys.
- Limited data is available regarding whether it is safe to use donor kidneys with diffuse glomerular fibrin thrombi (GFT).

## AIM

- To examine the clinicopathologic characteristics of allografts with diffuse donor-derived GFT.

## METHODS

- All time-zero kidney transplant biopsies between 01/2011 to 07/2017 with diffuse (>50%) GFT were included.
- For each patient, all subsequent kidney biopsies were reviewed to assess histologic changes.
- Associated clinical data were extracted from electronic medical records, including donor information.

## RESULTS

- Donor characteristics:
  - All donors died from severe head trauma.
  - Average KDPI was 38%.
  - Average cold ischemia time was 35 hours.
- Time-zero biopsies:
  - Average of 82% glomeruli involved by GFT.
  - All showed moderate to severe ATI.
  - No significant interstitial fibrosis or tubular atrophy was seen in any of the cases.

### DONOR

### RECIPIENT

Case	Cause of Death	KDPI	Case	GFT	GS	ATI	CIT (hr)	DGF	Failed	3 mo Cr (mg/dL)	Latest Cr (mg/dL)	F/U Time (mo)
D1	head trauma, blunt injury, non-MVA	-	R1	81%	5%	++	23.8	Yes	No	0.98	1.27	73
			R2	78%	1%	++	34.88	Yes	No	1.04	1.26	25
D2	head trauma, blunt injury, MVA	17%	R3	52%	0%	++	49.73	Yes	No	1.5	1.14	36
D3	head trauma, GSW, suicide	39%	R4	97%	0%	++	36.1	No	No	1.37	1.17	30
			R5	75%	0%	++	30.1	No	No	0.71	0.57	24
D4	head trauma, blunt injury, MVA	33%	R6	85%	0%	++	32.78	No	No	0.82	0.68	29
			R7	85%	0%	+++	27.46	No	No	1.69	1.46	10
D5	head trauma, blunt injury, MVA	63%	R8	55%	0%	++	34.13	Yes	No	1.51	1.29	16
D6	head trauma, blunt injury, homicide	52%	R9	100%	0%	+++	35.2	Yes	No	1.08	1.05	6
D7	head trauma, GSW, homicide	36%	R10	76%	3%	++	37.55	Yes	No	1.19	1.03	6
			R11	70%	0%	++	42.4	No	No	1.39	1.31	13
D8	head trauma, blunt injury, MVA	20%	R12	85%	0%	+++	46.4	Yes	No	1.58	1.32	6
			R13	83%	0%	+++	35.6	Yes	No	1.32	1.24	6
D9	head trauma, blunt injury, MVA	41%	R14	94%	10%	+++	16.15	Yes	No	1.48	1.43	11
			R15	89%	7%	+++	10	Yes	Yes	4.07	6.71	11
D10	head trauma, blunt injury, MVA	46%	R16	98%	2%	+++	41.8	Yes	No	1.19	1.23	5
			R17	82%	0%	+++	46.4	Yes	No	1.32	1.37	5
D11	head trauma, GSW, suicide	29%	R18	87%	0%	+++	41.1	No	No	1.48	1.42	12

KDPI, kidney donor profile index; GFT, glomerular fibrin thrombi (percent non-sclerotic glomeruli involved); GS, glomerulosclerosis; ATI, acute tubular injury (++, moderate; +++, severe); CIT, cold ischemia time; DGF, delayed graft function; Cr, creatinine; F/U, follow-up; GSW, gunshot wound; MVA, motor vehicle accident.

## RESULTS

- Recipient outcome:
  - 15 of 18 patients had subsequent biopsy within first 6-months post-transplant, all revealing GFT resolution.
  - Delayed graft function was experienced in 63% of cases.
  - All showed good graft function except one which failed within the first year.
  - Notably, its sister donor kidney experienced no complications.

## CONCLUSIONS

- Severe head trauma is a predisposing factor for donor-derived diffuse GFT.
- Deceased donor kidneys with diffuse GFT are typically of good quality (low KDPI, glomerulosclerosis, and chronicity).
- Histologically, GFT demonstrated rapid resolution following transplantation.
- Deceased donor kidneys with diffuse GFT appear to be safe to use given that nearly 95% of recipients in this cohort experienced good clinical outcomes.