

REVERSIBLE GLOMERULAR DAMAGE IN DISSEMINATED INTRAVASCULAR COAGULATION

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Brain death secondary to traumatic brain injury is one of the main sources of organs for transplantation. However, brain death can be associated with disseminated intravascular coagulation (DIC) in 30-50% of cases, which has been considered a relative contraindication for kidney donation.

Herein, we describe two successful transplantations in pediatric recipients who were transplanted with kidneys that had been harvested from the same donor with DIC.

The donor was a 17-year-old male who died after a head trauma. Twenty-four hours after the injury, the donor hemoglobin and platelets dropped to 8.3 g/dl and 32.000/mm³, respectively. Serum creatinine reached 2.0 mg/dl, and urinalysis showed proteinuria (300 mg/dl).

The pre-implant biopsy (Figure 1) showed massive occlusion of glomerular capillaries by fibrin thrombi containing fragmented red blood cells and inflammatory cells, in addition to tubular damage. The glomerular capillary wall showed no damage. The arterioles and small arteries were spared, without features of thrombosis. These aspects suggested a diagnosis of DIC, allowing to rule out a thrombotic microangiopathy (TMA) (table 1).

The kidneys were transplanted in a 16-year-old girl and in a 13-year-old boy. Slow recovery of graft function was observed in both recipients. On post-operative day 3, platelets dropped to a minimum value of 66,000 and 86,000/mm³, respectively (Table 2). None of the patients developed oliguria. On day 4, platelets started to rise in both patients.

Six months after transplantation both recipients had normal renal function. A protocol biopsy was performed in both patients showing unremarkable focal tubular atrophy, without capillaries microthrombi or other features of DIC (Figure 2)

Conclusions. Limited data are available in literature. The histology of graft DIC before transplantation may look very worrisome. However, most reports, including the present cases, indicate that this condition should not be considered a contraindication to transplantation.

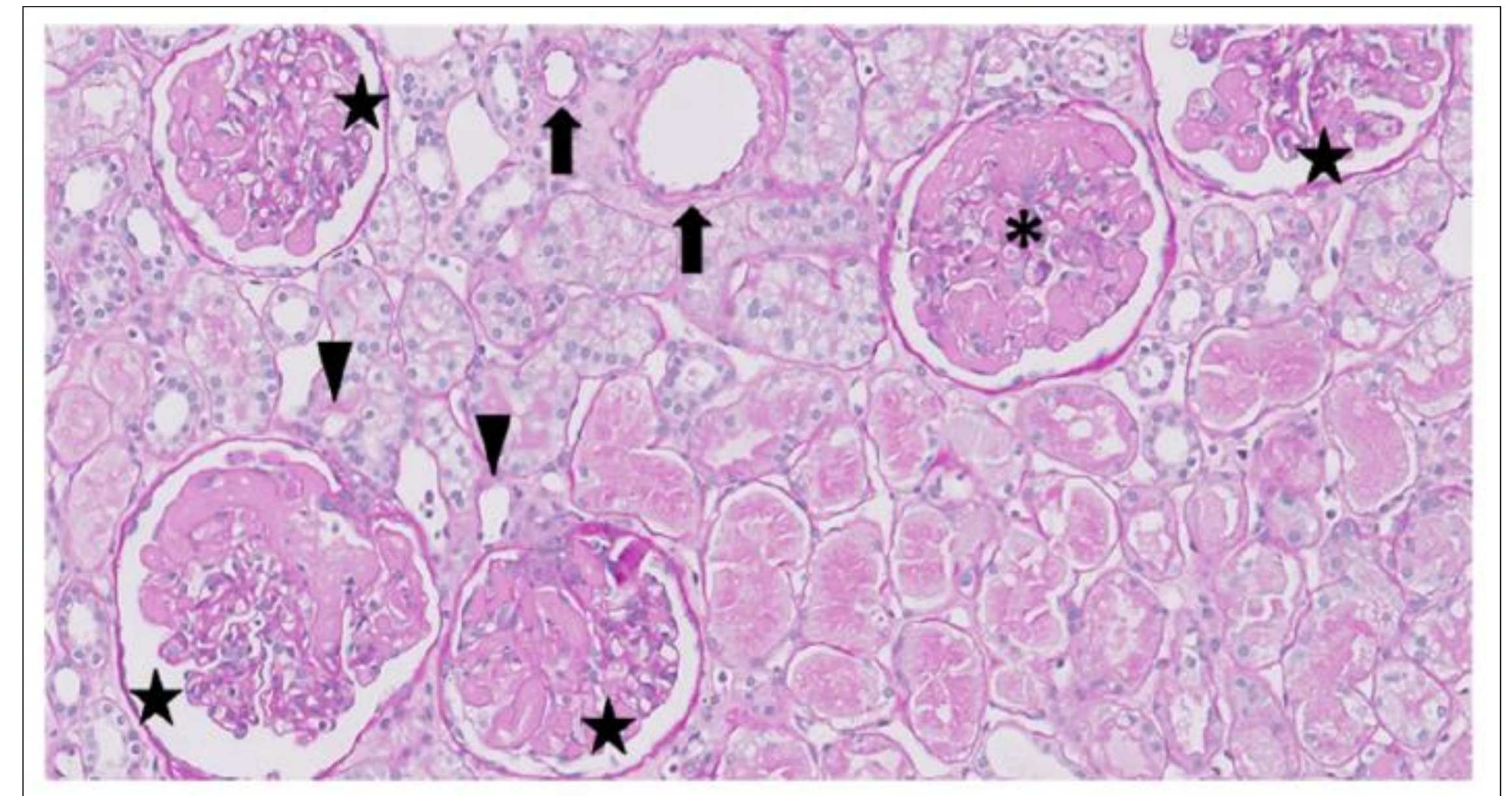


FIGURE 1 Massive intravascular coagulation involving all glomeruli, but segmentally (star), and globally (asterisk). Arterioles (arrowhead) and small/medium arteries (arrow) are normal

	DIC	TMA
Localization	capillary	Small arteries, arterioles, capillaries
Vessel wall damage	minimal	severe
Thrombi formation	massive	multifocal
Fibrin stain	strong	weak
Factor VIII stain	weak	strong

TABLE 1. Differential diagnosis between DIC and TMA

	Recipient 1	Recipient 2
PT(sec)	13.9	16.9
PTT(sec)	27	30.6
Fibrinogen (mg/dl)	416	254
D-Dimer (µg/ml; vn<0.5)	3.69	0.6
Platelets (/µl)	66,000	86,000

TABLE 2. Hematological values of patients on POD 3

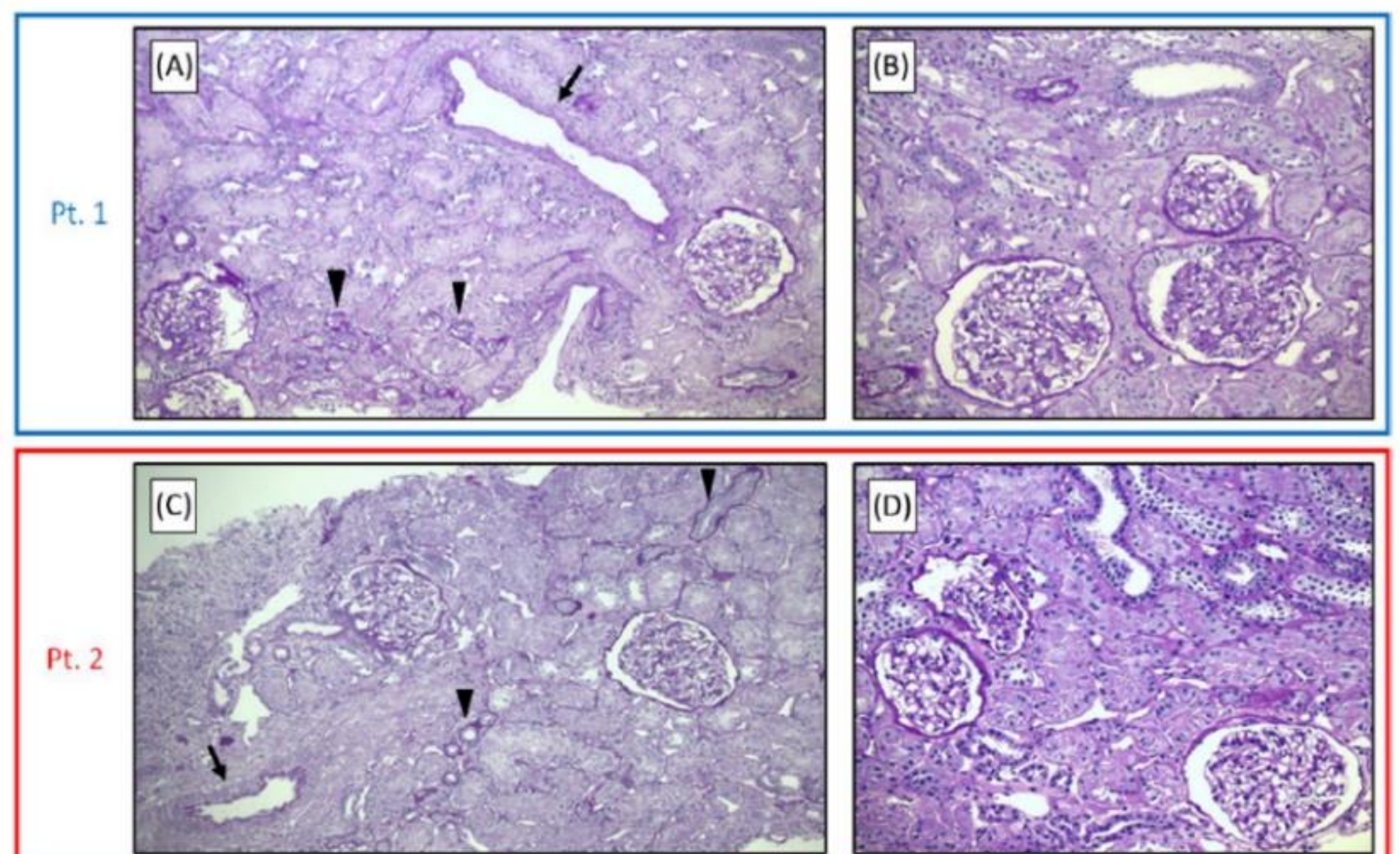


FIGURE 2 Control biopsies at 6 months showed normal glomeruli and vessels (arrows) in both patients (patient 1: A and B; patient 2: C and D); unremarkable focal tubular atrophy was observed in both cases (arrowheads) but capillary thrombosis was not more evident in the whole tissue sample in either of them. (PAS stain; A, C: x10; B, D: x20).