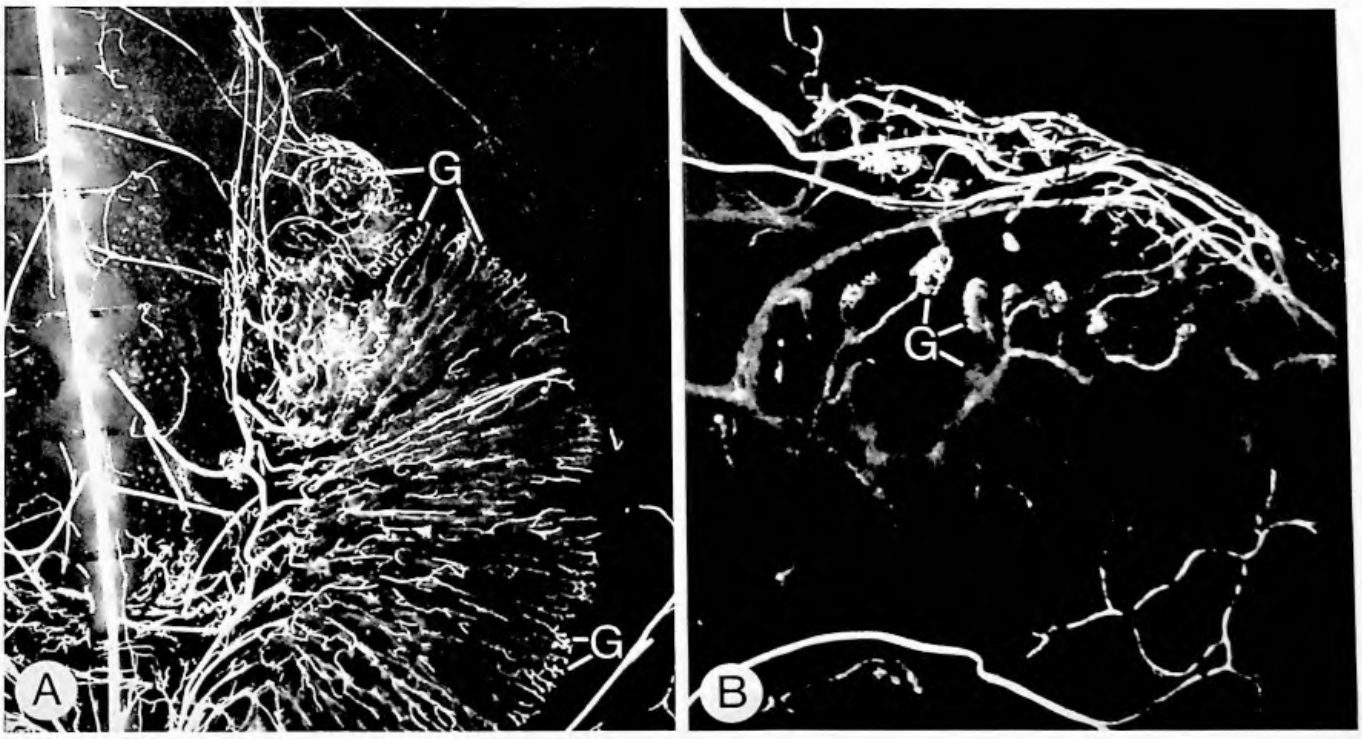
DEMONSTRATION OF THE ARTERIAL MICROCIRCULATION IN THE SKATE (Raja erinacea Mitch.) KIDNEY WITH PLASTIC CASTS

H. Hentschel, B. Fielbrand and M. Elger
Division of Electronmicroscopy, Medical School of Hannover, West-Germany

Previous experiments for the demonstration of microvessels in the kidney of the dogfish Scyliorhinus caniculus with microfil have not been successful as far as the capillary convolute of the glomeruli is concerned (Hentschel H, Anat. Embryol. 1985, in press). Deetjen and Boylan (this bulletin, Vol. 8, 1968, 16-17) observed augmented blood flow in the kidney of the Little skate after injection of epinephrine in a high dose. Therefore we used the following technique for the preparation of plastic casts of the renal arterial microcirculation.

1. Anaesthesia of female Little skate (15-30cm) with tricaine (MS 222 Sandoz), 0.1 - 0.2 g/l.
2. Injection of ca. 3 mg epinephrine into the caudal vein.
3. Introduction of a catheter into the truncus arteriosus via the ventricle and securing the catheter with a cotton thread.
4. Flushing the blood vascular system with chilled heparinized skate Ringer + epinephrine (15 min).
5. Fixation by perfusion with buffered glutaraldehyde solution (2%), 15 min. (4. and 5. at a constant pressure of approx. 80 cm H_2O)
6. Injection of 2-6 ml microfil (Canton Biomedical Products, Boulder Colorado).
7. Dehydration and clearing of the tissue with ethanol and methylsalicylate.

The result is shown in the figure.



Cranial part of the left kidney of a Little skate, Raja erinacea as seen from the ventral side. The Glomeruli (G) are located dorsally and can be demonstrated on

cleared whole preparations only at the marginal regions of the kidney, where the underlying tissue (ventral tissue) is comparatively narrow. Magnifications: A, x4; B, x25

In addition to the microfil preparations, Mercox and Bateson No. 17 (Polysciences Inc.) were injected for the evaluation of the microcirculation with the scanning microscope.

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