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Feline Ventricular Ganglion Cells

IN mammals, with the exception of artiodactyls and cetaceans, it is generally accepted that intrinsic cardiac ganglion cells are confined distally by the atrioventricular groove¹. This is interpreted as indicating that vagal influence is limited to the atrial and specialized tissues, and this concept is supported by much physiological evidence. It has been suggested that, in dogs, the vagi exert a direct negative inotropic effect on the ventricles², although Furnival *et al.*³ found that this effect was relatively insignificant. Morphologists have, however, reported ventricular ganglion cells in primates⁴⁻⁶. We offer here morphological evidence for the existence of ventricular ganglion cells in the cat.

A cat heart was serially sectioned, at 20 μ m thickness, in a cryostat, and alternate sections stained either to demonstrate cholinesterase⁷ or routinely, using Masson's trichrome technique. Numerous ganglion cells were identified distal to the atrioventricular groove, and congregated along large nerve bundles which accompanied the coronary arteries (Fig. 1). Separate groups of ten to fifteen cells were also identified closely related to the ventricular myocardium (Fig. 2). The cells were identical to the presumed parasympathetic effector cells which are abundant in the atria of this animal. The cells were found to be uniformly cholinesterase (ChE) positive, and the associated ChE positive nerves either accompanied the arteries or

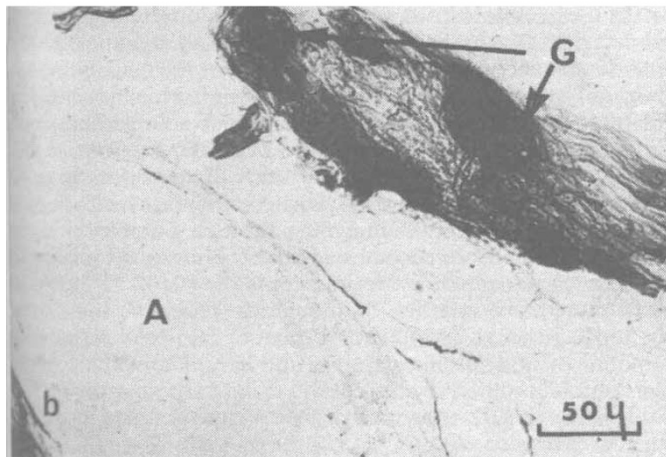
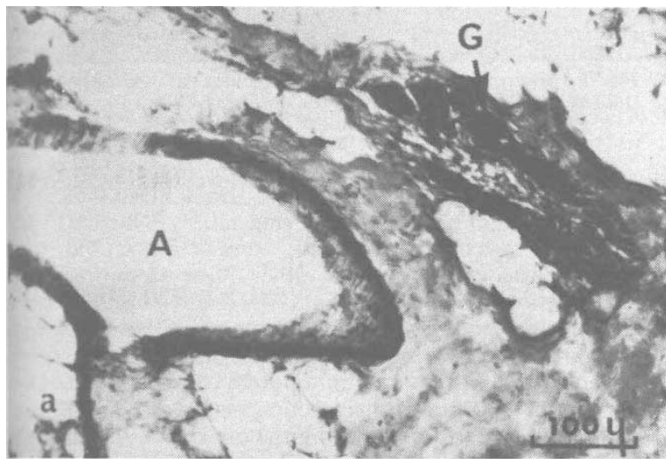


Fig. 1 See text for details.

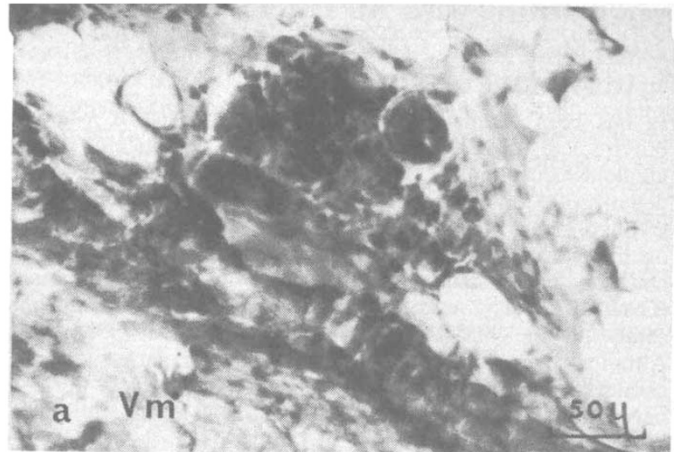


Fig. 2 See text for details.

passed directly into ventricular myocardium (Figs. 1b and 2b). Although we did not use inhibitors, this finding is supporting evidence for the cholinergic nature of these cells; the more so as previous workers^{8,9} have failed to demonstrate adrenergic cardiac ganglion cells. Also the ChE positive nerves present in the cat ventricle appear less frequently than adrenergic nerves that have been described¹⁰ in similar situations.

The possible sensory nature of the ChE positive nerves and cells cannot be discounted, but it seems more likely that the cells are parasympathetic effector cells, and that the nerves represent a direct vagal supply to the cat ventricles or coronary arteries.

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