The description of the renal glomeruli by Marcello Malpighi

Giovanni B. Fogazzi
Divisone di Nefrologia e Dialisi, Ospedale Maggiore, IRCCS, Milano, Italy

The Italian anatomist Marcello Malpighi (1628–1694) was among the very first scholars to systematically use the microscope in his research. With this instrument he studied plants and animals, as well as the human body, which he saw as an ensemble of micromachines whose true structures and operations are invisible to normal vision. Therefore, today he is considered as the founder of histology [1,2].

Malpighi is important in the history of nephrology because he was the first to describe the renal glomeruli. This he did in a work called De renibus (About kidneys), which was published in 1666 as a part of an anatomical essay also describing other organs such as the liver, the spleen, the brain, etc. The description Malpighi gave of the glomeruli, which in Latin he defined as minima glandulae (literally, tiny glands), shows how sophisticated his methods of investigation were, and sounds as follows [3]:

... and also the other claim that all this portion of the kidneys is fibrous and contains nothing but blood vessels is difficult to be accepted. In fact, in all the kidneys of whatever animal and
of man himself I have happened to have in my hands so far, I have always noticed the presence of tiny corpuscles. To see these corpuscles the artery of the kidney has to be injected with a black liquid mixed with the spirit of wine until the whole kidney swells and the most external part of it turns black. Once the capsule of the kidney is removed, even by the naked eye one can see … the small corpuscles which have turned black, hanging from the black vessels; by sectioning the kidney longitudinally, one can see among the tubules and the interstitium a large number of these corpuscles, hanging like apples from the blood vessels which, swollen with the black liquid, look like a beautiful tree.

Often in sharp contrast with the scientific culture of his time, Malpighi stated that his discovery was not due to book reading but was the result of a protracted and personal work with the microscope. With a touch of false modesty he also added that the implications of his discovery were due to his ‘slow intelligence and remiss mind’ [4]! (Title page from De Renibus by courtesy of Biblioteca Universitaria Pavia.)

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References