The brain in MS

MS occurs in spots scattered throughout the brain. These spots are called lesions or plaques and are located only in the central nervous system: the brain, spinal cord or optic nerves (the nerves going to the eyes). It does not affect the peripheral nervous system: the nerves carrying signals between the spinal cord and the rest of the body. It does not affect other organs of the body.

Each lesion is the result of damage and scarring. This damage is caused by the immune system, which attacks the myelin [see page on The Normal Brain]. It is not known why the immune system attacks the myelin, but the process begins with lymphocytes leaving the bloodstream and entering the brain at only a few locations. This immune attack eventually destroys the myelin at these locations. This leaves the nerve cells unable to conduct signals across the area of myelin damage which causes the symptoms of MS. The symptoms vary depending on the location of the lesion.

After the immune attack subsides, the brain tries to heal itself. Symptoms may improve due to this healing. Unfortunately, the healing is often imperfect and may leave the patient with permanent symptoms. A scar can develop at the site of the lesion which causes the brain to feel firm to the touch, hence the term “sclerosis” which means hardening.

Attacks recur over time and may affect previous lesions or may form new lesions. These multiple areas of sclerosis give the disease its name and cause increasing symptoms over time.

Fortunately, treatments now exist to decrease these attacks on the brain, decreasing the damage and lessening symptoms.