

DIDACTIC IMAGE

BILATERAL CENTRAL SCOTOMA

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A 70-year-old African man complained about a bilateral visual field disturbance since he suffered a stroke in 1991. At that time, he was living in Lubumbashi (République Démocratique du Congo). An automated static perimetry revealed a homonymous hemianopic lesion in the left lower quadrant involving only the fixational region (homonymous hemianopic scotoma) (Fig. 1). However, foveal thresholds were good which correlated with the patient's normal visual acuity (20/20 in both eyes).

A CT-scan showed a right occipital lobe low-density lesion compatible with an infarct (Fig. 2). This case-report illustrates the retinotopic map of the human striate cortex (or Brodmann area 17) which is arrayed along the horizontal calcarine fissure (Fig.3). The fovea is represented posteriorly at the occipital pole, while the peripheral visual field occupies the anterior striate cortex. The most striking feature of the visual field map is the enormous fraction of visual cortex assigned to the representation of central vision. About 55% of the surface area of primary visual cortex is devoted to the representation of the central 10

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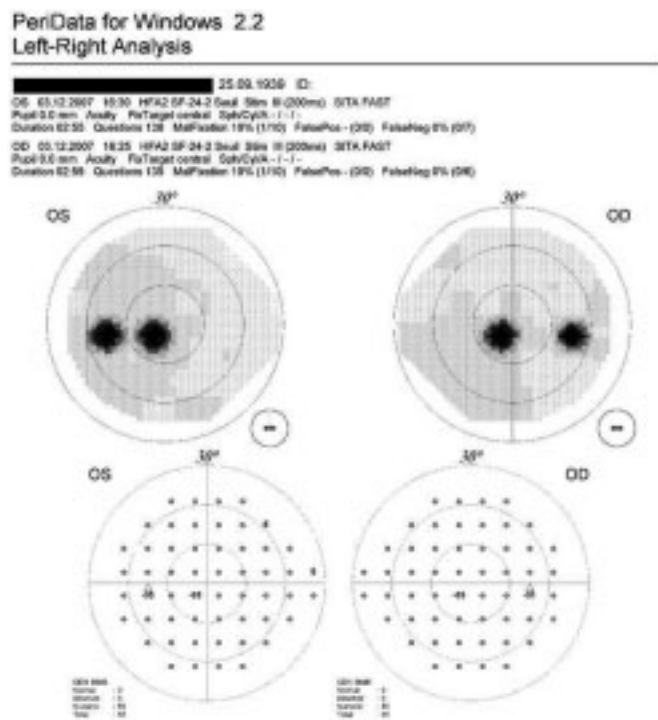


Fig. 1



Fig. 2

degrees of vision.

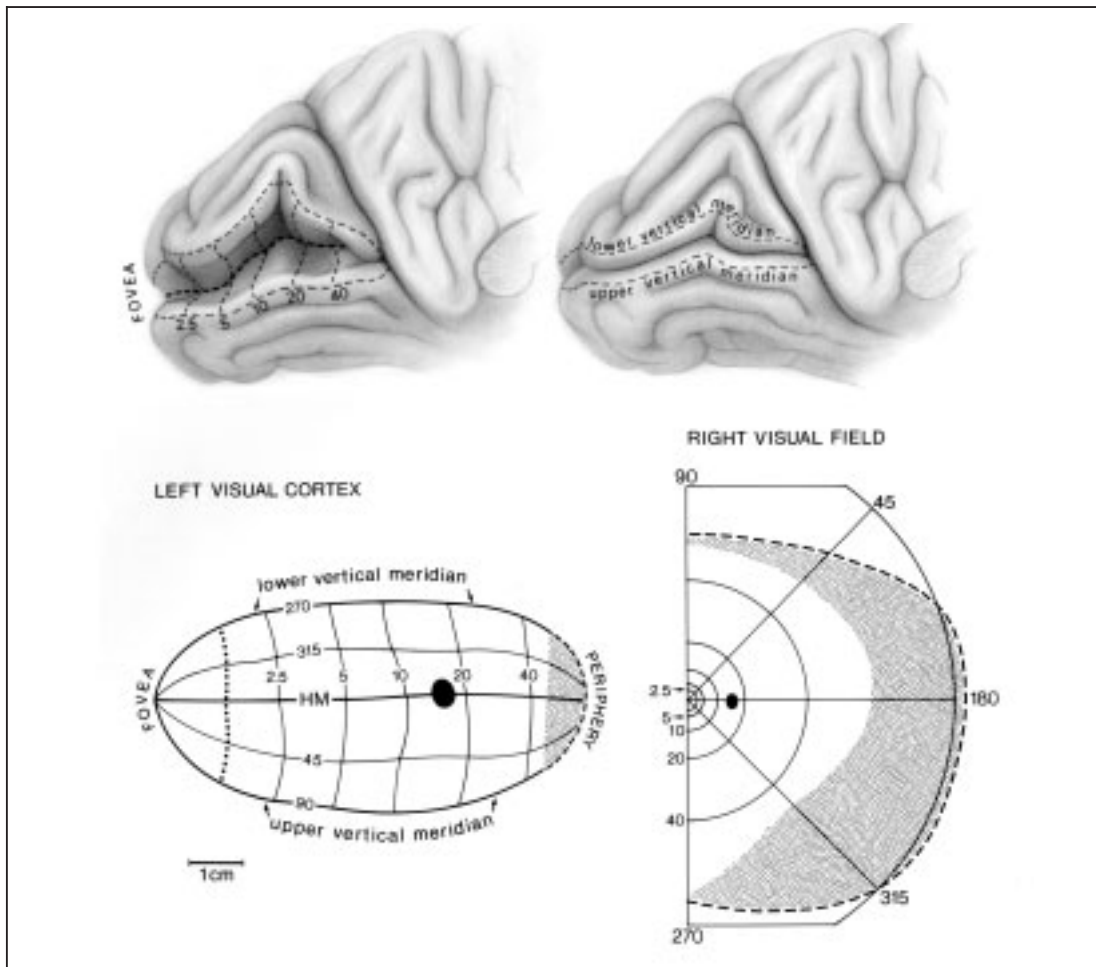


Fig. 3: Retinotopic map of the human striate cortex. Upper right shows the left occipital lobe, with most of the striate cortex buried in the calcarine fissure. Upper left shows the fissure opened, with distance (eccentricity) from the fovea marked in degrees. The horizontal meridian (HM) runs roughly along the base of the fissure. Lower left shows the map, removed from the calcarine fissure and flattened artificially. Dots depict occipital pole. Dark oval = blind spot, stippled zone = monocular crescent.

In other words, the representation of central vision is highly magnified compared with peripheral vision. In our patient, the cerebral infarct involved the posterior portion of the right striate cortex but spared the occipital pole.

REFERENCE

- (1) HORTON J.C., HOYT W.F. - The representation of the visual field in human striate cortex. *Arch Ophthalmol* 1991;109:822

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