Abstract We describe a right-handed female patient who, after a right-hemisphere stroke, showed a florid representational neglect, but no evidence of perceptual neglect. This finding provides further support for the argument that orienting attention to the representational and perceptual spatial domains is subserved by independent neural mechanisms.

Key words Neglect • Representational space • Perceptual space

Introduction Unilateral spatial neglect is usually defined as the failure to orient to, act upon, and perceive stimuli delivered to the side of the space contralateral to a cerebral lesion. However, neglect may also pertain to the representational domain, as first demonstrated by Bisiach and Luzzati [1]. Although several studies [2-4] confirmed the idea that neglect may affect mental representations, the question whether or not perceptual and representational neglect are two dissociable phenomena is still controversial. Bartolomeo et al. [5] investigated the relationship between perceptual and representational neglect in a large group of right-brain damaged (RBD) and left-brain damaged (LBD) patients. They found several cases of perceptual neglect in absence of representational neglect, but no evidence of representational neglect dissociated from perceptual neglect [5]. However, on a follow-up evaluation carried out eight months post-onset, one of the RBD patients showed a persistent representational neglect, without any reliable signs of perceptual neglect. This evidence suggests that the two forms of spatial impairment may have, at least, different time courses, likely because of independent mechanisms of recovery. This hypothesis may also account for the case described by Guariglia et al. [6]. Indeed, their patient, examined 16 months after a stroke, showed a clear representational neglect, but no signs of perceptual impairment. However, Beschin et al. recently reported a RBD patient who, also in the acute phase after stroke, exhibited a florid representational neglect dissociated from perceptual neglect [7].

Given that a single case does not provide reliable proof for independent cognitive processes, further evidence is necessary to confirm the hypothesis that orienting attention to perceptual and representational space are independent phenomena.

The present report describes a right-handed subject who, 45 days after a right-hemisphere stroke, showed a florid representational neglect, but no evidence of perceptual impairment.
Case report

C.F., a 61-year-old housewife with a history of atrial fibrillation, suddenly complained of a weakness of the left limbs on 25 May 1997. On hospital admission, neurological signs included left hemiparesis and very mild left somatosensory loss. Visual field was normal on confrontation. No cognitive deficits were recorded. One week later, computed tomography (CT) revealed a large infarct in the right middle cerebral artery distribution, involving the right temporal, parietal and frontal lobes (Fig. 1).

On 17 June 1997, C.F. was transferred to the Rehabilitation Unit to carry out a rehabilitation treatment. She gradually improved in mobility and self-care skills, and one month later was discharged from the hospital. The patient gave an informed consent to the present study.

Neuropsychological assessment

When examined by us, 45 days post-onset, C.F. was well oriented as to time, space and personal information. Neither instability of mood nor depression were present. C.F. showed a complete awareness of her deficit; thus, when questioned about her motor abilities, she promptly reported the presence of a left paralysis, resulting from a stroke. Spontaneous speech was fluent without any evidence of aphasic impairment. No tendency for verbal perseveration, or confabulation was observed. Visual perception and praxis abilities, assessed as patient’s ability to name and use several objects of everyday life, were normal. The patient correctly recognized relatives and people from the hospital staff, showing no evidence of prosopagnosia. No mnemonic deficits were evident. Finally, C.F. scored as a full right-handed subject on Briggs and Nebes’s questionnaire [8].

Signs of neglect

The patient’s spontaneous behaviour and performance in formal testing failed to show perceptual neglect. C.F. did not exhibit rightward eye, head or trunk rotation, never missed the food on the left side of the plate, and promptly oriented towards people addressing her from the left. In addition, she never omitted her left face and limbs during making-up and dressing procedures, respectively.

According to a partially modified version of the procedure suggested by Bisiach and coworkers [9], personal neglect was formally investigated by asking the patient to touch different parts of her body with the right, unaffected hand. The patient did not exhibit any sign of self-misattentiveness. He/she promptly oriented on people addressing her from the left, showing no evidence of neglect.

Fig. 1 CT scans, showing C.F.’s lesion. Ischemic areas appear darker as compared with the brain parenchyma. The left hemisphere is represented on the right. The exam was performed at Borgo Trento Hospital, Verona, on 28 May 1997.