

**NEGLECT AND ANOSOGNOSIA
A CHALLENGE FOR PSYCHOANALYSIS
Psychoanalytic treatment of neurological patients
with hemi-neglect**

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Introduction

This paper deals with two phenomena often observed in patients with a lesion to the right hemisphere of the brain: neglect and anosognosia. Following an overview of the neglect syndrome from a neuroscientific perspective I will present preliminary results and hypotheses formulated by our group based on the psychoanalytic treatment of seven such patients. It may be somewhat unusual for neurologically impaired patients to undergo psychoanalytic treatment. But in recent years, a combined effort to understand the underlying mechanisms of *psychic* phenomena has evolved in psychoanalysis and the neurosciences. Hence, the field of neuro-psychoanalysis established itself, studying the psychic implications of neurological damage in order to understand and gain insight into the "psychic apparatus", as constructed by Freud, from a different point of view. It is well known that Freud, a trained neurologist, hoped that one day the mechanism of psychic functions would be understood from a neurologist's point of view. He was convinced that the answer to the psychic problems he encountered with his patients must be rooted in the matter of the mind: *the brain*. That is why groups of psychoanalysts and neuroscientists all over the world have begun to exchange news and views about their common interest: *the human mind*. Both sciences basically deal with the same object.

One way psychoanalysts can contribute is by looking at neurologically impaired patients in a psychoanalytic framework to establish what is dif-

1.The Neuropsychoanalytic Study Group Frankfurt/Cologne, Germany. Members: Rosemarie Kennel, M.D.; Marianne Leuzinger-Bohleber, Ph.D.; Franz Dick, Ph.D.; Hans-Joachim Rothe, M.D.; Klaus Röckerath, M.D.; Hermann Schultz, M.D.; Viviana Strauss, Liz in Psych.

ferent from patients with no such damage. There are many reasons why this sort of research is valuable some of which are covered here.

Neuropsychology in general has focused mainly on the functions and functional disorders of neurological diseases. The psychodynamic aspects, the self representation of the patients, their experience of themselves in relation to others, has not been a major topic. Taking into account recent findings in cognitive science, where "identity formation" is characterized as a process rather than as a static construction, a psychoanalytical approach seemed to offer an appropriate framework for investigating the integration or non-integration of body-experiences and its consequences for the personality. Transference and countertransference are seen as appropriate instruments to describe change to a patient's self following a lesion like a stroke. Five main aspects, none of which have been extensively dealt with in neuropsychology to date, are of particular interest: 1. life history; 2. object-relation; 3. relation to the self; 4. subjectivity; 5. identity.

First, I will give a brief description of the phenomenology of neglect syndrome and then present some neuropsychological considerations. This will be followed by a recent study of brain pathways which could serve as support for the preliminary hypotheses elaborated by our group, with which this paper will close.

The neglect syndrome

I will start with a short overview of the syndrome that follows right hemispheric lesions. There are three main symptom-complexes: *anosognosia*, the cognitive unawareness or denial of the deficit; *anosodiaphoria*, the emotionally indifferent attitude to the symptoms and *neglect*, the ignorance of the left hemisphere. There is also the phenomenon of *misoplegia*, *i.e.*, an obsession with the paralyzed limbs manifesting in either a hateful or a disgusted attitude. I will focus here on neglect phenomenon and anosognosia.

There is a fundamental difference between anosognosia and neglect, although they very often occur together and seem to overlap. Anosognosia, a term coined by Babinski (1914), refers to the denial of the disease itself, *i.e.*, the patient denies his hemiplegia. Neglect describes a phenomenon whereby the patient is completely unaware of the world and of his body on one side. It is mostly connected with right hemispheric lesions, and so he is unaware of the left side of his world. This is not to be confused with hemianopia, *i.e.*, a defect in the visual sphere due to neuro-

logical damage in visual brain centers. Insofar as neglect, anosognosia and hemianopia usually occur together in right hemispheric lesions, they are easily confused.

The term "neglect-syndrome" – as with every "syndrome" – leads to an overestimation of the uniformity of the phenomena collected under it.² Clinical experience shows how various neglect phenomena actually are, a fact that prompted our group to introduce parameters to the psychoanalytical setting.

Nevertheless, all cases share one feature: an asymmetry in perception of the environment and of one's own body. This asymmetry in perception is reflected by an asymmetry of expression, *i.e.*, the movements of the limbs and asymmetry of posture. There is an asymmetry of "right" and "left", *i.e.*, between both sides, where the axis of the body and/or that of the visual field is thought of as the reference line.³

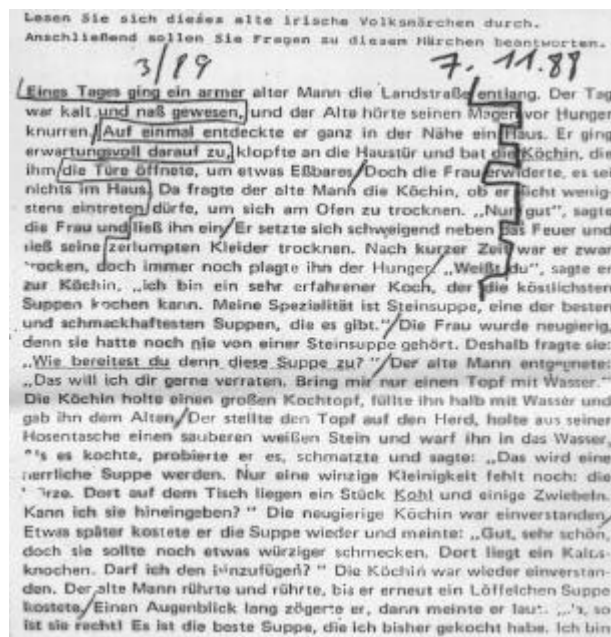


Fig. 1: Reading text

Right hemispheric lesions produce some prominent effects. The first and most obvious is asymmetric exploratory behavior to the right and to the left: an unequal direction of attention to each side of the room and to one's own body. This is easily tested by observing eye movements and behavior in search-tasks. For example, when reading texts it easily appears

2. This section is the translation of a text written in most parts by Franz Dick.

3. There are, of course, also cases showing neglect with damage to the left hemisphere of the brain. But they are far more rare than the others, and the explanatory model proposed here does probably not apply to these cases.

that despite the fact that the lines of text make it easy for the eyes to fix the complete text, and despite the fact that an incomplete reading could raise a request to explore the text again and in full detail, the patients claim that there is something a bit confusing with the text (Fig. 1).

In spontaneous drawing tasks, asymmetric behavior is observed where the patient is asked *to draw* an object or an abstract geometrical figure. The classic example is the neglect-clock (Fig. 2) where all figures are transferred to the right side – or are omitted completely. This differs from asymmetric-erroneous exploration, where no exploration takes place, but the inner representation of the spatial form of an object is expressed in the drawing. The principle of *conciseness*, the major principle of perception and Gestalt psychology, seems to have disappeared. The same phenomenon can be observed in left sided brain damage.

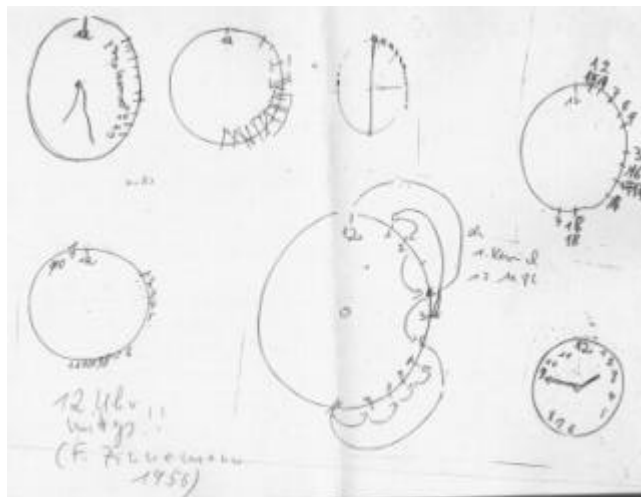


Fig. 2: Neglect clock

Where the task is to copy drawings, asymmetric-erroneous exploration merges with the lateral incomplete asymmetrical image when *known* objects are to be copied: incomplete exploration is not compensated for by the complete representation of the object (Fig. 3 & Fig. 4).

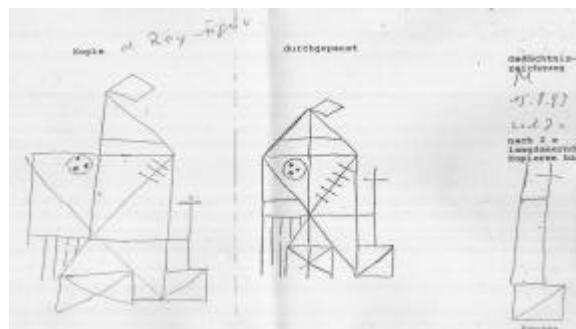


Fig. 3: Rey figure



Fig. 4: Hemi-Portrait

The phenomenon of the "subjective middle" – when asked to estimate the middle point on a line between points A and B, the patient moves the estimated middle to the right with left-neglect, sometimes to a large extent (Fig. 5). A lot of space is needed on the neglect side to convey the feeling of equidistance compared with the small space on the non-neglect side – as if the space on the neglect side is somehow less "dense" than that on the other side; of course, in a psychological sense it is less dense, *i.e.*, there is less attention, less salience, less importance attributed to it.

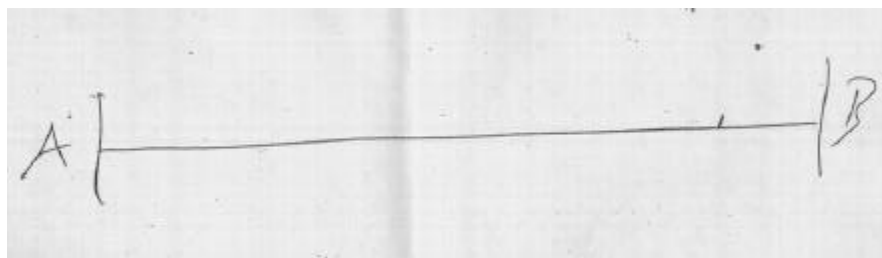


Fig. 5: Bi-secting a line

In the literature, neglect behavior is linked with lesion locations with varying degrees of frequency. The posterior parietal part of the right hemisphere in particular is frequently mentioned. Based on clinical experience,

however – dealing with patients who were not selected for empirical research – the relationship with particular locations appears overstated. This clinical data is important. It seems to indicate that something other than purely neurological damage or deficits is involved in the neglect/anosognosia phenomenon. It does not follow from an inability to merely "see" one half of the visual world. Such patients are physically capable of perceiving things on their left hand side – if their attention is drawn to the object, perhaps by a move or a flash of lightning or when they are asked to look to the left. In practice, however, by themselves, they are not aware of the left half of their world. The currently accepted interpretation of their deficit in the neurosciences is that the attentional resources of such patients are easily captured by objects on their right-hand side and that they seem unable to withdraw (or "disengage") their attention from objects on the right in order to attend to the left hemispace. One reason for this may be that the left hemisphere, which covers the right side of the world, is still intact and is also the dominant hemisphere in right handed people. Thus, neglect is generally regarded as a disorder of attention.

What can be concluded from these phenomena is 1. the link with anatomical-morphological factors makes it tempting to look for anatomically localized explanations; 2. it is often assumed that certain areas in the brain are responsible for the distribution of attention and damage to those areas explains neglect behavior. However, the development of neglect behavior over time and its interaction with emotional and social factors – the fluid factor of "disturbance awareness" – may point to a psychodynamical explanation.

Anosognosia

As previously mentioned, the term anosognosia was introduced by Babinski in 1914 to describe a disorder which is especially prevalent in the acute period following a stroke whereby there is a complete denial of the hemiparesis. In spite of the apparently obvious nature of the patient's deficit, the patients deny that they have a paralyzed limb, or claim the limb belongs to someone else, a symptom called "somatoparaphrenic delusion". So one of our patients rejected her paralyzed arm by attributing it to her sister, who, as a matter of fact, was not present. When confronted with this fact, the patient had no explanation, but rigidly upheld her claim. There have been a variety of explanations for anosognosia, the most prominent of which relate to hemi-spatial neglect. This is based on the assumption

that the right hemisphere is responsible for spatial cognition and plays a major role in directing and monitoring attention to both sides of space. Thus, anosognosia is understood as a consequence of neglect – in other words, the patient denies the hemiplegia because s/he is not aware of it. If one looks at it more closely, it would not be a "denial" in a psychic sense, but rather a non-awareness of the defect, because the systems which monitor the left side of the body are damaged.

However two major findings help to rule out an interpretation of anosognosia as related to neglect. Firstly, there are patients in whom neglect has been reported in the absence of anosognosia, and *vice versa*. This class of evidence, *i.e.*, a double dissociation, is widely accepted in neuropsychology as suggesting that the two psychological functions have a non-overlapping functional architecture, and probably a different neurobiological substrate. In other words, neglect and anosognosia might be due to damage of two different systems. Secondly, the striking experiments of Ramachandran (1994; 1996) and psychoanalytic interviews by Kaplan-Solms and Solms (2000) clearly showed that both anosognosia and neglect are reversible, although transiently, under certain conditions. This fact makes neglect syndrome an interesting research topic for psychoanalysis: findings seem to indicate that there is a hidden, unconscious awareness of the disorder in the patient, despite the fact that the brain tissue has suffered physical damage.

Ramachandran, an Indian neuropsychologist and brain researcher, conducted several very ingenious experiments with neglect patients. In one experiment, the patient's left ear was stimulated with ice cold water (Ramachandran, 1994; 1996; Ramachandran & Blaklee, 1998). When the water was inserted into the ear, both neglect and anosognosia were (temporarily) lifted. A few minutes after the treatment, a previously anosognosic patient could clearly see and state that she was paralyzed (Ramachandran & Blaklee, 1998: 143-147). She also reported that she had been paralyzed for several days. Thus, she may have explicitly and consciously denied her paresis, but she clearly was (at some level) aware of her deficit and its duration. A few hours later the effects of "caloric" stimulation had worn off, and she relapsed into anosognosia. The exact nature of her memories of the original testing session are of particular interest. She could still recall the original experience in detail, remember Ramachandran irrigating her ear, and even describe the tie that he had been wearing. However, she had absolutely no recall of having been aware of a hemiparesis.

In another experiment he asked a patient if she knew the rings on her left (paralyzed) hand. The patient had always been fond of her jewellery, so it should have been no problem to recognize the rings as her own belongings. Nevertheless, the patient claimed not to know the rings. Ramachandran took them off her fingers and placed them elsewhere. This time, when the patient was presented with the jewellery, she immediately said that they were hers. She also recognized them when somebody else wore them. It seems that, although the patient was very familiar with the objects when presented to her on their own or with somebody else, *i.e.*, outside the conflictual context, they lost their meaning to her once they were attached to the neglected side.

A third experiment involved a condition where Ramachandran falsely claimed that he would inject a substance into the paralyzed arm of a neglect patient, who denied his hemiplegia completely, and that it would lead to a transient paralysis of the arm. He then injected the patient with sodium-chlorate. When he asked the patient after the injection if he could move his arm, the patient clearly said that he couldn't, that it was paralyzed.

On the basis of this work with neglect patients Ramachandran argues that anosognosia may represent a defence, and that such patients "present us with a fantastic opportunity to test Freudian theories for the first time" (*Ibid.*: 155).

Neuro-psychoanalytic findings

Kaplan-Solms and Solms (2000: 148-199) described in their book a series of interviews with neglect patients, all of whom denied their defect. The interviews were psychoanalytically oriented. All cases had some degree of left side motor impairment, ranging in severity from hemiplegia (in the worst cases), to one instance where the deficit was restricted to weakness, clumsiness and clonic twitching in the left limbs. During interviews patients, obviously feeling supported by the therapeutic interventions, could "transiently" admit that they were paralyzed and what this defect meant to them. When the paralysis was acknowledged, they showed all the signs of a depression. This seemed to indicate that neglect and anosognosia serve as defences against severe depression following brain damage.

This finding is of direct psychoanalytic relevance and is of great interest in the context of the "anosognosia as defence" model. Evidence of dramatic fluctuations in affect during psychotherapeutic sessions show that

there is a drama behind the seeming "unawareness" of the defect. Moments of tearfulness and pre-tearfulness can easily be understood within their emotional context. Obviously what broke through in the sessions were suppressed feelings about the deficits that had previously been denied. In some cases, the episodes led, not only to a temporary tearfulness, but to a fully-fledged (though short-lived) awareness of the paretic limb. The session had the same effect as the experiments and interventions of Ramachandran.

The fact that complete anosognosia can be lifted, albeit transiently, by a psychodynamic intervention and can cause dramatic emotional responses in form of fluctuations in affect is quite counter-intuitive in terms of "deficit" (*i.e.*, non-dynamic) models of anosognosia. The dynamic pattern of affect shown in these patients is inconsistent with the claim of disruption to an "awareness of deficit" system. "It appears, then, that it is only when an event in the external world (*e.g.*, an analytic interpretation) forms a link, between a conscious thought and the knowledge of deficit outside awareness, that the patient becomes (at least partly) aware of their loss. Of course, this thought would be a most unwelcome addition to consciousness, given that the patient typically defends against such awareness. As a result the episode is likely to be brief, before defences re-assert themselves. As a result, many patients experienced merely a period of 'pre-tearfulness'" (*cf.* Turnbull *et al.*, 2002).

These findings seem to indicate that one main cause of the phenomenon of anosognosia is the patient's need to defend against depression due to the narcissistic threat against the body. Thus, anosognosia seems to be based on an unconscious route.

There is one other factor which has to be taken into consideration when exploring patient's reactions toward their impairment, namely, that their reactions depend on their premorbid personality. It is likely that there is great individual variability in the relative "settings" of the emotion systems which may form the basis of individual differences in personality – the seeking and lust system, the rage system, the fear system, the panic (separation-distress) system and the care subsystem (Panksepp, 1998).

According to this theory, the prevalence of any such systems will influence how the person will respond to a change in its environment. This is not a genetic point of view. All of these systems have a history throughout life. They are shaped by interaction with the environment, meaning that they have a certain stability in regard to synaptic strength. But they will influence the reaction response to a threat like a stroke. Damage to the right hemisphere, which is responsible for the processing of emotions,

then, does not lead to a cessation of emotional processing, but rather to a change in emotional reactions. To quote Oliver Turnbull: "Thus, disruption of the right hemisphere structures that regulate subcortical emotion systems may release a wide range of emotion-based responses to paresis. One of these reactions, which we refer to as anosognosia, might result from a pattern of emotional experience that is especially heavily loaded for loss (or separation-distress, see Panksepp, 1998: 226-261). Given that this is the emotion best avoided, the patient might use cognitive resources to distort the available evidence about the paresis (ignore, down-play, rationalize...), and thus avoid the negative affective consequences that would follow from full awareness. However, for those in whom an anger-mediating architecture (*Ibid.*: 165-187) is the most dominant sub-cortical emotion system released from cortical control, the outcome would be one of obsessive hatred (misoplegia). Thus, individual differences in basic emotion systems (and their regulation) might form the basis for the finding of premorbid personality effects in anosognosia" (Turnbull *et al.*, 2002).

Ramachandran's, as well as the Solms', results indicate that there is indeed something other than the attentional/unawareness claim involved in the anosognosia/neglect phenomenon. I would like to follow another path here for a moment, one not directly connected to neglect phenomenon, but which could contribute to our understanding of the problem and may add some issues for further discussion.

It is widely accepted in the neurosciences that both the receptions of the left and the right side of the body are lateralized into the right hemisphere. This is one reason why neglect is more often found in right rather than in left hemispheric lesions: a lesion of the left hemisphere usually will *not* lead to a neglect behavior, because *both* sides of the body (or rather their respective receptions) are lateralized into the right hemisphere. Thus, there is still a representation of the right body side in left hemispheric lesions.

In a recent article, Craig (2002) reported new findings on the functional anatomy of the lamina I spinothalamocortical system. I will not go into a detailed description of his theory, but focus on one major issue which, I think, could shed new light on the neglect phenomenon.

Usually, the senses are codified into teloreceptive (vision and hearing), proprioceptive (limb position), exteroceptive (touch), chemoreceptive (smell and taste) and interoceptive (visceral) modalities. In this classification, temperature and pain are seen as aspects of touch. They are relayed to the thalamic ventrobasal complex as distinct, discriminative, cutaneous sensations. The visceral sensations are conveyed by a system that relays vagal, glossopharyngeal, facial and spinal afferent activity by way of the

brainstem parabrachial nucleus to the same ventrobasal complex, and then to the insular cortex. Craig, in elaborating his theory, questions some of the assumptions that are inferred from this view. He emphasizes that pain and temperature are distinguished from touch as they also have an affective, emotional aspect. Typically, we project temperature to the object or the environment. But it is ultimately a condition of the tissue and it generates an inseparable affect (pleasantness or unpleasantness) – in other words, a feeling that signals its homeostatic role. One can easily say that "all of the feelings from the body are directly related to homeostatic needs and associated with behavioral motivations that are crucial for maintenance of body integrity" (Craig, 2002: 657). As such, they play a crucial role in experiencing ourselves as living organisms.

Lamina I is the most superficial layer of the dorsal horn. It is the only neural region that receives monosynaptic input from primary afferent fibers that enervate all body tissues. Its fibres are not only sensitive to temperature and mechanical stress, but also to a wide variety of physiological conditions: local metabolism (acidic pH, hypoxia, hypercapnia, hypoglycemia, hypo-osmolarity and lactic acid), cell rupture (ATP and glutamate), cutaneous parasite penetration (histamine), mast cell activation (serotonin, bradykinin and eicosanoids), and immune and hormonal activity (cytokines and somatostatin). The pathway projects first to the sympathetic cell columns of the thoracolumbar spinal cord. Next, it projects to the main homeostatic autonomic and homeostatic centers in the brainstem. These are also heavily connected to the hypothalamus and amygdala. And finally, together with the afferent activity that is relayed in the nucleus of the solitary tract (NTS), it generates a thalamocortical representation of the body state that is crucial for somatic feelings. "This system is a homeostatic afferent pathway that conveys signals from small-diameter primary afferents that represent the physiological status of all tissues of the body" (Craig, 2002). He emphasizes that the anatomical organization shows that these feelings are sensory aspects of ongoing homeostatic changes that represent the physiological condition of the entire body. This interoceptive cortical image is re-represented then in the anterior insular cortex of the non-dominant (usually the right) hemisphere. For Craig, it constitutes the basis "for the subjective evaluation of one's condition, that is, 'how you feel'".

This view is highly consistent with Antonio Damasio's (1994; 1999) theory of consciousness. His model of anosognosia focuses on damage to exactly those centers mentioned by Craig. In his view the neurobiological substrate for the so called "proto-self" is extremely reduced in regard to

the left side. As the proto-self forms the basis of the core-self, which in turn is the origin of extended consciousness and autobiographical-self, the core-self is still existent, but dramatically diminished. Consequently, its contributions to the higher forms of consciousness fail: the patients must rely on remembered body states, the so called "as if body" sensations. This theory is supported by our findings. In a schematic view one could propose the following chain of information (Fig. 6):

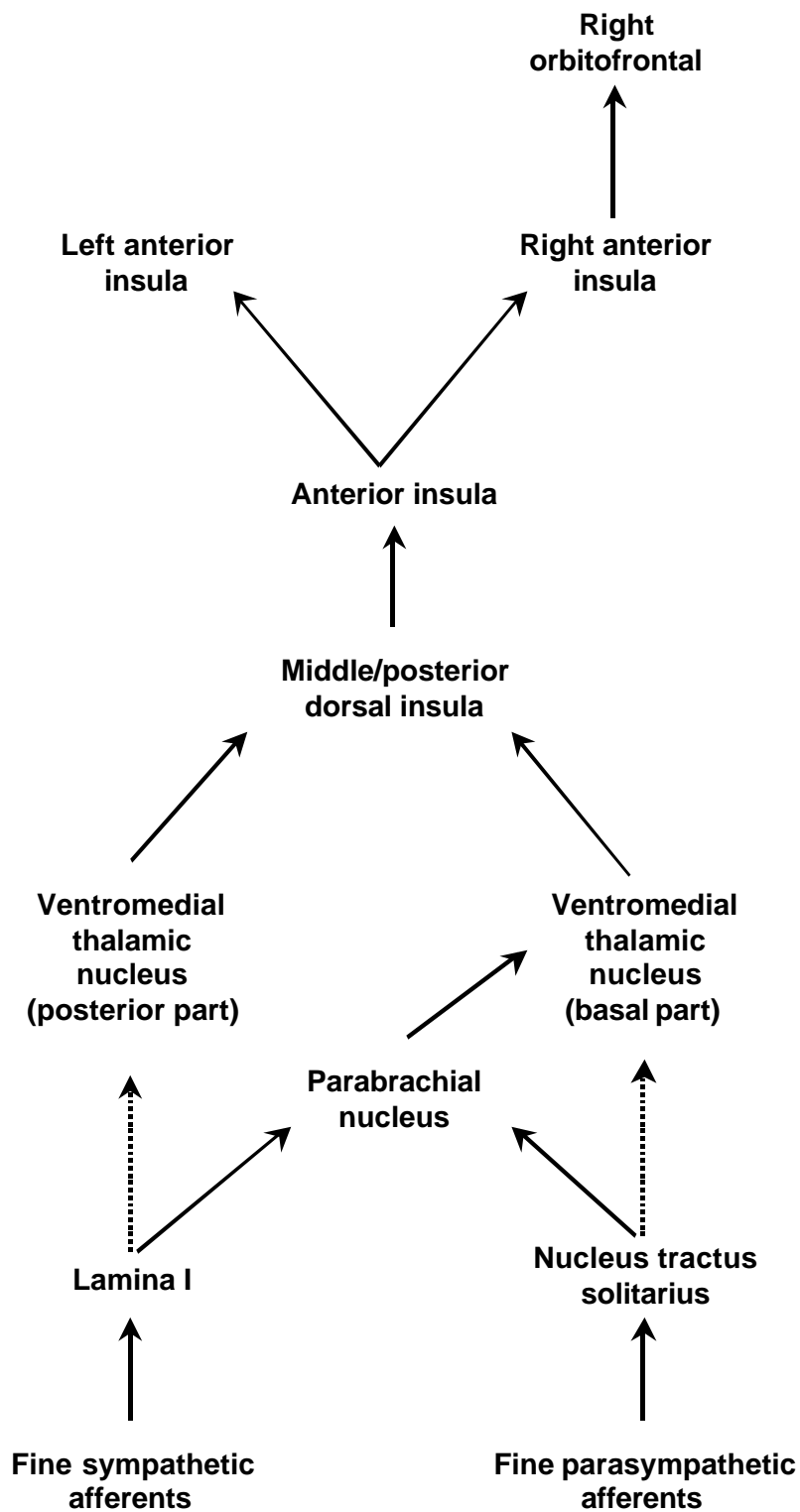


Fig. 6: Interoceptive pathway⁴

4. The dotted lines indicate the direct projections of lamina-I and the NTS to the ventromedial nucleus of the thalamus. These projections are only present in primates. In all other mammals the projections run via the parabrachial nucleus.

As can be seen in this figure, the sympathetic afferents of the states of the entire body culminate in the right anterior insula. This may lend support to explanations of why damage to the right hemisphere leads to a severe neglect of the left side: the right side is still monitored by the left hemisphere. It would also account for the emotional disturbances and fluctuations seen with right hemispheric patients, due to the strong connections of this pathway to the limbic system: the regulatory role is damaged. Insofar as this system is engaged in making oneself aware of oneself by means of emotion processing, the theory provides us with a model of how physical processes lead to psychic consequences, especially when they are damaged. One could ask then why patients should feel anything at all, given that the right hemisphere is concerned with the handling of emotional processes. But it is clear that the (right hemisphere) emotion systems that might well be disrupted in anosognosia do not form the *core* of emotion. It has become apparent in the last decade or two that core emotion systems are distributed across a wide range of subcortical structures, most notably areas such as the upper brain-stem, hypothalamus, amygdala and anterior cingulate (e.g. Le Doux, 1996; Panksepp, 1998; Damasio *et al.*, 1999). The (right lateralized) cortical systems that are presumably disrupted in anosognosia merely perform a *regulatory* role in relation subcortical emotion systems.

Findings of the Neuropsychanalytic Study Group

The results of Ramachandran's and Kaplan-Solms and Solms' research heightened our interest in the neglect phenomenon. The fact that these patients can – at least transiently – become aware of their handicap seemed to underline the idea of a psychic phenomenon known as "denial" in psychoanalysis. Mark Solms has argued that the main purpose of the neglect syndrome is the avoidance of depression, *i.e.*, the inability to mourn. We were also interested in the psychodynamic which leads to this kind of exclusion from awareness. Further, we wanted to know if the neglect syndrome served purposes other than the denial of depression. I will present one of our cases as the basis for a discussion of preliminary hypotheses regarding psychodynamic aspects of the neglect syndrome and its vicissitudes in the further development of the personality. The focus here is on a slightly different aspect than that of the Solms. It seems, though, that the denial of depression plays a major role in the maintenance of the neglect symptom.

It became clear very quickly that, considering the special handicaps these patients present with, some parameters had to be introduced in regard to psychoanalytic treatment. Not only had the bodily physical impairments of these patients to be addressed – we visited them in hospital or at home – we also expected a lack of self-awareness in regard to emotional reactions, and thought it could prove necessary to pursue these issues more actively than usual. Although one might imagine that a patient with a neglect and/or anosognosia would resist psychotherapy, this was not the case. Most of the patients we have seen were grateful for the possibility to talk – from a psychoanalytic point of view a first indication that there was indeed a hidden agenda.

When several patients had begun treatment it became clear that they presented with different questions (Fig. 7). The picture of neglect phenomenon is much more varied than first thought. I will shortly address some aspects relevant to our hypothesis.

Regarding contact with the analyst, in at least two cases one phenomenon was clearly visible: the patients tended unconsciously to put the analyst into the neglect side. This happened especially in the beginning of the treatment, when unpleasant topics were discussed. They positioned their wheelchair in a way where the analyst was screened out. In a way, this resembled the classic analytic setting, where the analyst is not seen by the patient. One reason for this behavior could be the wish to escape confrontation with the handicap. The face to face position would necessitate adjusting one's spatial position in order to match the hemianopia. The fact that both did not do so was seen as a regressive wish to deny the necessity for a reality-check in favor of a narcissistic fusion with the therapist. This would also serve the continuation of a coherent experience of the bodily self. I will come to this point later in greater detail.

The paralyzed limb was often personalized. Mostly it represented lost autobiographical objects. This phenomenon was understood as a derivative of unconscious symbolic equations – something of which the patients themselves were not aware.

The subjectivity of the patients which, according to the theory of Damasio and others, is based on processing of the proto-self, core-self and autobiographical self, is thus built on a defective brain. This shows in the distortion of the whole belief system, not only with regard to the hemiplegia, but also in erroneous estimations about present and future.

According to Mark Solms, a right hemispheric lesion leads to a regression from object love to narcissism, which is typically associated with right hemispheric lesions. Thus he concludes that the right perisylvian

convexity is the crucial component of the neural substrate for the representation of real external objects and the vehicle for whole-object cathexes. We cannot confirm this with all our patients. There seems to be an *emotional* aspect to the relationship with reality, which is preserved, and a *perceptual* relationship, which is defective in the neglected hemisphere. As already mentioned, the fact that some of the patients tended to put the analyst into the neglect side can thus also be understood as an attempt to free the communication from its perceptual deficits. Hence, it would serve not only the denial of the defect but also to foster an undisturbed relationship.

	Case 1	Case 2	Case 3	Case 4	Case 5
Gender	Male	Female	Female	Female	Female
Date of stroke	15/11/99	07/03/00	18/10/00	12/12/00	05/10/01
Age at time of stroke (yrs)	59	80	59	75	62
Begin of therapy	18/03/00	28/08/01	16/04/01	05/07/01	17/01/02
Type and location of lesion	Partial infarction of right hemisphere in the area of MCA; known ICA-obstruction since 1996, old occipital borderzone infarction	Infarction of the right frontal and occipital borderzones during operation of an aortic valvular stenosis, reconstruction of a mitral valvular insufficiency and bypass-operation	Embolic obstruction of right carotis-T, complete obstruction of right MCA	Partial infarction of right hemisphere in the area of MCA	Partial infarction of right hemisphere, following clipping of a media-aneurysm
Primary defects: Paralysis; Hemianopsy; Hemianesthesia.	Discrete hemiparesis of left arm and leg, hemianopsia	Left-sided arm-centered hemiplegia, hemihypesthesia, hemianopsy	Left-sided hemiparalysis, hemianopsy, hemianesthesia	Left-sided hemiplegia with neglect and anosognosia, hemianopsia	Left-sided hemiparesis, mainly brachiofacial area; mild brain-organic psychosyndrom; hemian-opsy
Manifestation and extension of neglect	Light neglect to the left	Severe neglect with distinct motor; sensible and visual improvement in course of therapy	Complete neglect of left side and rejection of her arm and leg in the beginning	Neglect of left arm, reduction of visual field on left side, read/white deficiency	Mild neglect syndrome
Duration of therapy, frequency	2 sessions with patient and his wife, 2 with the patient	Still running/1 per 2 weeks	Still running/1 per week	7 sessions in larger intervals, continuing	9 sessions until 28/03/02, not completed

Fig. 7: Patients' details

Finally, the question of depression and failure or avoidance of mourning was also different within the group. Reported breakthroughs of suppressed feelings were understood as an affective lability with diminished affect control and affective infection – typical for right hemispheric lesions. To mourn means to withdraw cathexis from a beloved object. We think that it is impossible to mourn if the presence of an object cannot be conceptualized in the first place because of brain damage. Mark Solms argued that mourning is impossible because of the narcissistic withdrawal from the disappointing left side of the body, which also accounts for the neglect of the left hemispace: the defusion of the drive cathexis of that object (the paralyzed body half) leads to a splitting of the object into good and bad parts, and thus the space, extended by object-relations, collapses. With our patients, it was not the impossibility of mourning but the need to keep up a coherent self-representation that seemed to be the most important issue. The irritating experience of an alienated paralyzed body half could not be integrated into a coherent self-representation. This seems to be experienced differently with left and right hemipareses: on the left side, the feeling of existence of the paralyzed limbs vanished, a gap in body boundaries appears, raising a fear of being sucked into the devouring oral object.

This also led to an uncanny feeling, in some cases resulting in a fear of having gone mad. Some of them showed a kind of paranoid fear that something had happened to them that had altered their state of mind, and that everybody knew but would not tell them.

From the results presented so far, a provisional hypothesis for the neglect phenomenon could be formulated as follows. Common to all our patients was the fact that the stroke represented a turning-point in their entire life. From a certain point of view, it seemed logical that a person would develop strategies to cope with such a threat. To build a model of the neglect strategy, based on the consequences damage to the neurobiological substrates would have on the ability to generate a feeling of oneself, we made an analogy to the "cyclopic eye" in the visual system: the different visual input from both eyes is calculated by the brain to form a unified view of the world; accordingly, the bodily halves of the body-schema are calculated to one "whole" body. Our conclusion is that the neglect-patient, who subjectively has a "whole" experience of his body despite the fact that he is handicapped, calculates this experience from the remaining intact half. In this way, half of his body stands for the whole. His focus of attention, accordingly, would shift to the right and concentrate on the healthy side. The process can be seen resembling a state of

shock, where a centralization of vital functions takes place. "Wholeness", it seems, is most important and its experience is based on the memory, rooted in former calculations of the body image. This memory, though, collides with the cognitive remembering of knowledge of the handicap and paralysis of the left body half. This perception opposes the psychic restitutive attempt. The threat of a bodily depersonalization then leads to a psychic restitutive effort, a *virtual* support construction which psychically undoes the defect.

Thus, neglect would not be an active denial, but rather a misconception: an illusionary view, a subject-concentrated perception of oneself which is experienced as whole and complete. It brings relief by solving contradictions, and provides a feeling of psychic continuity, even in the dimension of time. The non-perception of the defect would serve to recover or maintain a whole bodily self – a feeling of bodily integrity at the cost of reality perception. The existentially important role the neglect plays in this reconstructive attempt can easily be seen when the therapist tries to break through the neglect: a massive resistance arises and results in a counter-cathexis. The clinical vignette illustrates this overwhelming fear and how neglect is used: everything is undertaken to avoid cognitive dissonance.

This being said, we may conclude that neglect patients do not have a disturbance of their personal identity. The wholeness of the subject is kept up more or less. The life history of the patient remains intact. But an encrustation becomes necessary: the patient holds on rigidly to his experience of the wholeness of the self. If this is questioned, it may bring about a cancellation of therapy. The acquired self coherence is extended even to temporal gaps, *i.e.*, confabulations serve continuity. This is necessary because the experience of bodily continuation as well as that of a "continuous being in time" provides the development and maintenance of self-cohesion (according to the Damasio model of consciousness).

The defective part of the body then is withdrawn from the ego. Why is this more often the case in right hemispheric lesions? One possible explanation could be the intact ability to speak: as long as speech is not impaired, it is easier to deny. If the social skills which serve the examination of personal identity are not impaired, the attempt to reconstruct the body schema is less disturbed than when speech too is damaged. While the basic layers of the self are rooted in the limbic system, the higher self is much more easily maintained by language. In left brain lesions, not only is the dominant hemisphere damaged, but speech abilities are affected as well. This defect is much more difficult to deny. In such cases, narrative coherence is heavily impaired. Thus, these patients tend to be depressive.

They also lack the communicative level with others, the social "response". Neglect as a form of denial is more efficient when the social field remains intact. According to the site of lesion, one could oppose a *damaged narrative coherence* with a *damaged bodily-spatial coherence*.

Nevertheless, there is depression in the neglect patients too. In the model presented here, this would be due more to the basic change in life circumstances, and the neglect would not, in the first place, serve the avoidance of depression and/or mourning, but the restitution of a past self image of wholeness. In some cases the neglect does not suffice, especially when the social environment is not intact, and so the depression is clearly visible then.

Another aspect is the depth of the disorder. Patients with right hemispheric lesions are more disturbed because their preverbal self is damaged. In left hemispheric lesions the reflexive part of the personality is disturbed, but because they perceive this, they are openly depressive. Contrary to this, right hemispheric lesions threaten the basic constituting elements of the self. In these cases, the undamaged speech ability helps to stabilize the situation, while the neglect in addition substitutes the loss of the primitive self.

The purpose of the neglect-syndrome then would lie in the attempt to maintain the calculation of the self as a "whole": one half of the body is built according to the other. The reverse side of the neglect is the continuation of the self.

A short clinical vignette may illustrate what has been proposed so far.⁵ A 62-year old female patient showed all the signs of a neglect syndrome including anosognosia. She suffered from a partial infarction of the right hemisphere during an operation for clipping an aneurysm of the middle cerebral artery. The lesion was followed by a paresis of the left arm and leg. She had divorced from her husband fifteen years earlier having discovered that he had an affair with her private secretary. In her professional life she worked for an international organization in a quite distinctive position and had three grown up children. The patient latched onto her old self image and could not integrate her new self image as someone dependent and bodily damaged. She used to behave in the sessions as if she still occupied her former authoritarian role and spoke about her illness with a certain soberness and without affect. She was absolutely confident that she would soon be able to resume her professional life.

In the ninth session the following incident happened. During her illness the patient's ex-husband had taken care of her and visited her frequently.

5. The vignette was provided by Viviana Strauss.

She developed the idea that her husband would now come back to her, and had started to think about marrying him again. After a bitter awakening, in one of her weekend visits home, she endured an epileptic seizure. In the session we are describing now, Mrs. H. was about to leave the hospital and go home. She started the session wanting to introduce her former husband to the analyst, convinced that he was in the same room with them – which was not the case. When she called him several times in vain, trying to search for him on her right side, and finally was told by the therapist that her husband was not there, she became very anxious and agitated. She insisted that he must be there, and, as proof, pointed to her paretic leg, telling her analyst that she "can see his long leg". She seemed to be in a state of shock, centralizing her whole perception around the leg of her husband which she saw in her leg. Her leg represented his presence as a primary object, but also as a part of herself and her body. When it then finally became apparent to her that he indeed was not in the room, she broke down crying desperately, expressing her anger about him for the first time in the sessions.

This episode can be seen as an indication of the work of primary process mechanisms. The patient denies the absence of her husband (as well as the divorce) and takes flight into the delusional perception of her paretic leg as her husband's. This is the effect of defences like denial, displacement and illusionary misperceptions, all elements of the Freudian unconscious. When the denial can no longer be upheld, she descends into a desperate depression. This vignette shows how the neglect, as an unconscious adaptive mechanism, presents the primary process functions of the personality: *condensation, displacement, misconception, denial, pars pro toto and substitution*. The misconception contained in the neglect seems to be a restitution attempt. The intact matrimony seems to be a symbolic equation of her wish to maintain a whole intact body scheme. Cognitive dissonance is avoided through an illusionary perception, so as to keep a safe self image and internal coherence and to deny the damages and absence. As the analyst confronts the patient with the absence of the husband, she becomes depressed. The neglect appears most clearly at the moment when absence and emptiness threaten to discontinue a perception of safety bound to the illusion that there is no absence in the body nor in the object relationship. As already mentioned, regarding the conscious part of the personality, we think that there are also changes in the premorbid personality: a rigidity of the personality, a flattening of affect, which is needed to keep up the defence of the newly formed organization of the self. This reorganization is a consequence of the lesion which threatens to endanger

the continuity of the bodily self. In this respect, the neglect is an attempt at reconstruction rather than a simple deficiency due to a lesion in an anatomically defined area. It organizes around a consciously painless, but unconsciously painful, wound and is a way of maintaining self-coherence.

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Summary

Neglect and anosognosia. A challenge for psychoanalysis. Psychoanalytic treatment of neurological patients with hemi-neglect

Neglect and anosognosia, *i.e.*, the denial of the (left) hemisphere and the denial of hemiplegia, are often found in patients suffering from damage to the right hemisphere of the brain. It has been known for some time that these symptoms can be alleviated, albeit temporarily, using various methods, (Ramachandran, 1994; 1996; Ramachandran & Blakslee, 1998). Kaplan-Solms and Solms (2000) found that in psychotherapeutic interviews patients could also become temporarily aware of their formerly denied lesion. They concluded from their research that the purpose of the neglect-syndrome is a defence against denial. For the past four years, the "Neuropsychanalytic Study Group Frankfurt/Cologne" has conducted psychoanalytic therapy with a group of patients with right hemispheric lesions, all exhibiting neglect/anosognosia. Results so far indicate that defence against depression is not the only cause of the syndrome, but that failure to construct a body schema, as a result of the paralyzed side of the body no longer being represented is also involved. Patients appear to refer to memorized representations resulting in so-called "neglect-syndrome". Recent research (Craig, 2002) lends support to this view. Preliminary hypotheses concerning the interaction between neuroscientific models and psychoanalytic concepts are discussed and illustrated with a case-vignette.

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Key words

Right Hemisphere; Stroke; Neglect; Anosognosia; Psychoanalytic Treatment.